

**PROTECTING WATER QUALITY AT AMERICA'S
BEACHES**

HEARING

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION SAFETY,
INFRASTRUCTURE SECURITY, AND WATER QUALITY

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

—————
JUNE 27, 2007
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Printed for the use of the Committee on Environment and Public Works



Available via the World Wide Web: <http://www.fdsys.gov>

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U.S. GOVERNMENT PRINTING OFFICE

61-972 PDF

WASHINGTON : 2011

For sale by the Superintendent of Documents, U.S. Government Printing Office
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ONE HUNDRED TENTH CONGRESS
FIRST SESSION

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PROTECTING WATER QUALITY AT AMERICA'S BEACHES

WEDNESDAY, JUNE 27, 2007

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION SAFETY,
INFRASTRUCTURE SECURITY, AND WATER QUALITY,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m. in room 406, Dirksen Senate Office Building, Hon. Frank R. Lautenberg (chairman of the subcommittee) presiding.

Present: Senators Lautenberg and Boxer.

STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Good morning. The subcommittee will come to order.

We welcome the members of the House of Representatives. We welcome everybody to today's hearing, because we want to work to improve the health of our beaches, protect the safety of the people who enjoy them. All you have to do is be outside for a few minutes and know that we ought to be at the beach.

[Laughter.]

Senator LAUTENBERG. As long as we know it is clean and hospitable.

As we work here in the Capitol, people are relaxing on our Nation's shores. Even more will do so next week on the 4th of July. It is reported that over 180 million people visit seaside resorts in the year, more than half our population. New Jersey, millions of people visit our shore each year, and their visits generate more than \$36 billion for our State's economy and result in the employment of over 470,000 people.

So that is why it is so important that we protect our shores, make sure they are safe for swimming, surfing, other activities. Unfortunately, sometimes our coastal waters are damaging, contaminated. Human exposure to such pollution can cause all sorts of problems, illnesses, from rashes to respiratory problems.

That is why Congress passed the Beaches Environmental Assessment and Coastal Health Act, known as the BEACH Act, in 2000. Two friends from the Congress, Representatives Pallone and Bilbray and I worked very hard to pass that law. It required States to adopt standards for their coastal water and provided grants to States to develop programs for testing the water and notifying the public of any problems. Our legislation required the EPA to study

the health impacts of different pathogens in ways to rapidly test the water for their presence. Thanks to the BEACH Act, every coastal State now has standards as strong or stronger than EPA's, and every coastal State has a monitoring and notification program.

In May, Congressman Pallone and I introduced a new bill to strengthen the law that we wrote in the year 2000. Our new bill doubles the funding for State grants. It increases funds for States to track pollutants that threaten public health and cause beach closures. It strengthens requirements for informing the public about health risks. It requires the EPA to develop rapid testing of beach water, to analyze our water quality in hours, not in days. The original BEACH Act was done in bipartisan fashion, and we want to continue that spirit on this committee as we proceed with this legislation, with the Beach Protection Act of 2000.

I am delighted to be here by the Chairman, person, woman—
Senator BOXER. Chairman, person, woman. That is three people.
[Laughter.]

Senator LAUTENBERG. You do enough for three. Welcome to the subcommittee hearing, and I will ask if Senator Boxer wants to make an opening statement.

**STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM
THE STATE OF CALIFORNIA**

Senator BOXER. I do, Senator, Mr. Chairman. As you know, we have this briefing, and just really unfortunate timing. So I am going to make this statement and go to the briefing. But I had to come here first because I am so proud of your leadership, Senator, on protecting our oceans and our coasts. As you will hear from Congressman Bilbray, and I know of course, Frank Pallone, who I served with for a long time, our coast is everything to our respective States, really, when you think about it. So we need this kind of leadership.

When I took over as Chair of the committee, I was so pleased that you would become the chair of this subcommittee. With all of the responsibilities that you have, this is an important one. Your leadership on the Ocean Dumping Ban Act to stop the harmful dumping of sewage sludge in the Atlantic to being the Senate leader on the BEACH Act that is the subject of today's hearing, the oceans could have no better friend than Senator Lautenberg.

He has led the charge in defense of the Jersey Shore, which is as important to New Jersey's economy and identity as California's spectacular coast is to the home State of Congressman Bilbray and myself.

The oceans are a precious resource and they are just that, they are a resource. That resource needs to be protected. In addition to being the most diverse ecosystem on earth, they provide us with a vital source of food and recreational opportunities. To coastal States like California, clean, healthy oceans and beaches are essential to our economy.

Senator Lautenberg, according to 2003 statistics, ocean-related tourism generates \$11.1 billion annually and accounts for 271,000 jobs in the State of California. It is an enormous resource for us.

Nationally, the figure is \$58 billion annually. That doesn't even include jobs and revenue from other ocean sectors, such as fishing and shipping.

So to put it bluntly, in California and coastal States, beautiful, safe beaches are big business. But I think we all agree that if the beaches and ocean waters are not clean and healthy, people will not come and enjoy them. Indeed, according to EPA, public health risks from swimming in polluted coastal waters is serious. EPA's research has found that contact with contaminated water can lead to gastrointestinal disorders, ear or skin infections and inhalation of contaminated water can cause respiratory diseases.

The pathogens responsible for these diseases can be bacteria, viruses, protozoans, fungi or parasites. Our children and seniors, of course, are the most sensitive. They always are. That is why this hearing is so important.

To address this issue in 2000, Congress enacted the Beaches Environmental Assessment and Coastal Health Act, nicknamed the BEACH Act, which requires States to update their water quality standards to include protection of human health from pathogens in all waters. The Act also includes a grant program to help States monitor water quality standard violations and notify the public of these problems. The BEACH Act has had successes. States have adopted water quality standards, public notification of problems is now the norm, not the exception.

However, we need to improve our testing abilities and assist communities in identifying and addressing sources of contamination. You are very distinguished witnesses today, representing a broad swath of our Nation's coasts and coastal interests. I particularly do want to welcome our House colleagues, who worked together to see the BEACH Act through the House in 2000.

So, Senator Lautenberg, as I go off to this briefing, I just feel so secure knowing that you have the chair of the subcommittee, that you are on my committee and that your leadership and your wisdom is just going to shine through in so many areas. This is just one of them today.

I also want to say that as soon as we are ready to move this legislation through the committee, you can count on me to put it on the schedule.

Senator LAUTENBERG. Sure thing.

Are you finished saying those nice things?

Senator BOXER. Yes, do you want some more? Did I say enough?

[Laughter.]

Senator LAUTENBERG. You can have more time.

Senator BOXER. The Senator is giving me an additional 5 minutes.

[Laughter.]

Senator LAUTENBERG. Thanks. I love serving with Senator Boxer as the Chairman, I can tell you. The environment is different, it is healthier, it is nice.

Anyway, Congressman Pallone, we have worked together on lots of things. Obviously, being from the wonderful State of New Jersey, our paths cross often, but more often on the coast than any place else in the State. I enjoy our opportunities to discuss our views and to learn from your intimate knowledge of what goes on in the coast-

line and the waters. We have passed other legislation, also, along the way, to make sure that the waters are kept as clean as they can be. We welcome you.

Congressman Bilbray, your coast is also a critical item in the State's economy and certainly in your district. We thank you for your participation today.

First, we will hear from Congressman Pallone.

**STATEMENT OF HON. FRANK PALLONE, U.S. REPRESENTATIVE
FROM THE STATE OF NEW JERSEY**

Mr. PALLONE. Thank you, Senator Lautenberg.

First of all, let me say, I know we keep piling it on here. But I have to say that without your help over the years, and what you have done in the Senate, many of the battles that we fought to preserve the shore, to clean up the beaches, to improve our ocean water quality, would never have been successful. Whether it is money for beach replenishment or trying to put an end to ocean dumping, or the BEACH Act that we are talking about today, you have always been the key person to be out there and make sure that our beaches and our shore are protected. I know you just always go out of your way when it comes to the New Jersey coast, so thank you again for that.

It is really great to see that you chair this subcommittee and to see Senator Boxer chair the full committee, because it is nice to have Democrats in the majority, but it is particularly nice to have the two of you out there on this important issue. It really makes a difference.

I am not going to go into the various reasons why a clean ocean and clean beaches are important to our economy. I think you know that. But of course, I do want to say that next weekend, which of course is the 4th of July weekend, we are going to have thousands of people down on the New Jersey beaches and we want to make sure that they are clean and safe. As we speak, the House is actually passing a resolution designating next week as Clean Beaches Week nationally, which is part of a several organization national campaign. I would hate to think that we have Clean Beaches Week but the beaches are not clean. So obviously, that is why this is important to us.

You talked about the original BEACH Act, which you authored and both of us authored on the House side. There is no question that that has made major strides over the years in keeping the beaches clean and keeping the waters clean. But it is also true that it can be improved, which is why we have jointly introduced this new legislation that is before us today. I will just say, the Act, as you know, has three provisions, basically requiring States to adopt current EPA water quality criteria to protect beach-goers from getting sick, two requiring the EPA to update these water quality criteria with new science and technologies to provide better, faster water testing; and third, providing grants to States to implement coastal water monitoring programs.

New Jersey has used some of this grant money in the past to become the first State in the Nation to launch a real-time Web site that notifies beach-goers of the state of our beaches. That Web site has been very successful as well.

The bill that is before us today significantly increases the grant levels. It goes from \$30 million under the old authorization to a new level of \$60 million annually, so it is twice as much. But it also says that the scope of those grants are expanded from just water quality monitoring and notification, which is the way it has been in the past, to now include pollution source tracking and prevention efforts. I think that is significant, because we want the States to be able to prevent the problems that we see.

More importantly, the legislation goes further on environmental standards than any before by requiring tougher standards for beach water quality testing and communication. It says that beach water quality violations are disclosed not only to the public, but all relevant State agencies with beach water pollution authority.

Now, I want to stress a little bit the rapid testing, Mr. Chairman, because I think that is a very important part of what we are trying to do here. The bill mandates the use of rapid testing methods by requiring the EPA to approve the use of rapid testing methods that detect bathing water contamination in 2 hours or less. Grantees must use those methods within 1 year of approval. This is something that you and I have been advocating for the last several years, as well as Mr. Bilbray. The current tests, like those in New Jersey, only test for bacteria levels and take 24 to 48 hours to produce reliable results. During that time, beach-goers can be unknowingly exposed to harmful pathogens. More immediate results will prevent beaches from remaining open when high levels of bacteria are found.

The other thing we require is to implement, those States that receive grants have to implement measures for tracking and identifying sources of pollution, create a public online database for each beach with relative pollution and closing information posted, and third, ensure that closures or advisories are issued shortly after the State find coastal waters out of compliance with water quality standards, within 24 hours of failed water quality tests.

Now, I know, Senator Lautenberg, you have been an advocate for years of the right to know in so many environmental issues and health care issues, whether it be Superfund or in this case, beaches. So essentially, the heart of this thing is what I call, and you often call, the right to know. We are essentially improving the right to know by giving people more information so they know what is going on.

We are holding States accountable by requiring the EPA Administrator to annually review a grantee's compliance with the BEACH Act's process requirements. Grantees have 1 year to comply with the new environmental standards, or they will be required to pay at least a 50 percent match for their grant until they come back into compliance. Current law gives the Administrator discretion to require a non-Federal share of up to 50 percent.

So again, I think the bill was good. It was effective for the last few years. What we are introducing now I think will be more effective, more in line with the theme of the right to know, and certainly provides an expanded opportunity to prevent pollution problems in the future.

So again, I just want to thank you and Mr. Bilbray. We are going to try, I heard what Chairman Boxer said about trying to expedite

this. Obviously we will try to do the same thing in the House if we can get this bill passed and to the President as soon as possible. Thank you.

[The prepared statement of Mr. Pallone follows:]

STATEMENT OF HON. FRANK PALLONE, U.S. REPRESENTATIVE FROM THE
STATE OF NEW JERSEY

I would first like to thank Chairman Lautenberg and Ranking Member Vitter for conducting this important hearing. This is an issue that Chairman Lautenberg and I have worked for a long time to clean up and protect our national beaches.

Across the country, American families and international tourists make over 2 billion trips each year to America's beaches to fish, sunbathe, boat, swim, surf, and bird-watch. Our coastal areas produce 85 percent of all U.S. tourism dollars, fueling a huge economic engine.

Our nation's beaches are vital, not only to residents of our coastal States but also for countless visitors who come to visit each year. Our beaches are a tremendous resource for those who come here to enjoy them, and they are a huge economic engine for our coastal States. In New Jersey alone beaches are the primary driver of a tourism economy that means nearly 500,000 jobs and generates \$36 billion in economic activities for the State each year.

Next weekend for the 4th of July, thousands of people will flock to New Jersey beaches to enjoy everything they have to offer, to celebrate our nation's independence. During the 4th of July Celebration we want to be sure that our beaches are clean and safe for beachgoers.

2000 BEACH ACT

And thanks to the BEACH Act, a law that I helped to author with Senator Lautenberg back in 2000, we have made major strides over the last 6 years. The BEACH Act of 2000 helped us improve water quality testing and monitoring at beaches across the country, which is critical to protecting the health of beachgoers.

The Act had three provisions: requiring States to adopt current EPA water quality criteria to protect beachgoers from getting sick; requiring the EPA to update these water quality criteria, with new science and technologies to provide better, faster water testing; and providing grants to States to implement coastal water monitoring programs.

New Jersey used some of its grant money to become the first State in the Nation to launch a real-time Web site that notifies beachgoers of the state of their beaches.

THE BEACH PROTECTION ACT

Despite all the strong steps that coastal States and our nation have taken since the BEACH Act was signed into law, this Act can still be improved, and that's what Senator Lautenberg and I had in mind when we introduced the BEACH Protection Act of 2007.

The BEACH Protection Act, H.R. 2537, is a bill that will help ensure that beachgoers throughout the country can surf, swim, and play on clean and safe beaches.

This legislation not only reauthorizes the grants to States through 2012, but doubles the annual grant levels from a total \$30 million under the old authorization to a new level of \$60 million annually.

H.R. 2537 will expand the scope of BEACH Act grants from water quality monitoring and notification to also include pollution source tracking and prevention efforts.

More importantly this legislation goes further on environmental standards than any before. It requires tougher standards for beach water quality testing and communication.

The bill requires that beach water quality violations are disclosed not only to the public but to all relevant State agencies with beach water pollution authority.

RAPID TESTING METHODS

The Beach Protection Act mandates the use of rapid testing methods by requiring the EPA to approve the use of rapid testing methods that detect bathing water contamination in 2 hours or less. Grantees must use those methods within 1 year of approval.

This is something that I have been advocating for the last couple of years. Current water quality monitoring tests, like those used in New Jersey, only test for bac-

teria levels and take 24 to 48 hours to produce reliable results, during which time many beachgoers can be unknowingly exposed to harmful pathogens. More immediate results would prevent beaches from remaining open when high levels of bacteria are found.

We are requiring each State receiving BEACH Act grants to:

- Implement measures for tracking and identifying sources of beachwater pollution;
- Create a public online database for each beach with relevant pollution and closure information posted; and
- Ensure that closures or advisories are issued shortly after the State finds coastal waters out of compliance with water quality standards.

We are also holding States accountable by requiring the EPA Administrator to do annual reviews of grantees' compliance with BEACH Act process requirements. Grantees have 1 year to comply with the new environmental standards, otherwise they will be required to pay at least a 50 percent match for their grant until they come back into compliance. (Current law gives the Administrator discretion to require a non-Federal share of up to 50 percent.)

Mr. Chairman, protecting our coasts and oceans is critical to the local economies that depend on them for billions in tourism and recreation revenues.

Once again I would like to thank the Chairman and the Ranking member for holding this hearing and for their leadership on this important issue. I look forward to working with my colleagues across the Capitol on protecting New Jersey's, and our nations, beaches for years to come.

Senator LAUTENBERG. Thank you very much, Congressman Pallone, and for the association that you brought up about the right to know. I think people have a right to know a lot about Government, a lot more than we get to know. We work on that together, and I look forward to continuing that.

Congressman Bilbray, I appreciate your coming here today, appreciate the help that you gave to us in 2000. I look forward to your testimony.

**STATEMENT OF HON. BRIAN P. BILBRAY, U.S.
REPRESENTATIVE FROM THE STATE OF CALIFORNIA**

Mr. BILBRAY. Thank you very much, Mr. Chairman. Let me say sincerely, I appreciate the chance to be here today. I appreciate the fact that you were willing to be my partner working with the Congressman to get the original BEACH bill through. Let me just tell you, as a lifelong surfer, I was very proud of the fact that the BEACH bill is the first piece of Federal legislation passed in the United States that mentioned surfing specifically.

[Laughter.]

Mr. BILBRAY. So we make history in different ways. I am very impressed with your statement that half of America is going to go to the beaches this summer. My only question would be, what the heck is the rest of the half doing? That is astonishing.

But let me just say that your support was essential in the 106th, and I really do appreciate that. I think that when we move ahead with that, you may know that I am a former lifeguard and presently a surfer, but you may not know that I am a former Mayor of a beach community. Actually, I grew up in one of the most polluted cities in America, down on the Mexican border south of San Diego, polluted by a foreign government that the Federal Government is still grappling with that problem. So I grew up as a child going down to the beach and seeing those orange pollution signs down there. This is an issue that does affect you, and it is kind of hard to tell a 7, 8, 10 year old, 12 year old young man that he can't

go in the water when it is July in California. The challenge here is how do we make this work.

I also was a county supervisor. In California, the supervisors are in charge of water quality monitoring and public health protection. One of the things that I was very excited about, our success with the BEACH bill, was that it wasn't just a traditional command and control top down, that we recognized our Federal system and we recognized the real source out there to protect the American people is not necessarily the Federal Government, but the Federal Government aiding and encouraging the local communities to do what they do best. After all, who has more of a vested interest in water quality and public health than the local neighborhoods?

I think that was a big success with our BEACH bill, is that we empowered the local community to not only know but get the job done. I am sure that we all know the different success rate that we have been able to go through with the extensive numbers. I think that just looking at the increases in the water quality criteria from 11 to 35 States that are actually actively involved.

Let me just say, as we go into this, it is not only the cooperative effort, but the personal interrelationships that this may have. It was sort of interesting for me to see my son and daughter on the Internet, not only finding out how good the surf was at a certain beach, so they didn't have to drive around polluting the air and putting out the greenhouse gases. They knew right where the surf was good. But at the instant they checked out the surf, right on the screen, was the water quality ratings and the ability for them to have that integrated into their decisionmaking process, not just, has the wind blown out the surf, is the swell good, but is the water clean and has it been clean.

But there is this big missing issue, and I will just tell you, I think that the real-time testing is absolutely essential. As the Congressman pointed out, there is this delay. But the delay isn't that the beaches aren't posted. The public health officials, when there is an incident like rain, maybe a sewer spill, or they may suspect, they always post. Because they are always doing more than, they always err on the side of safety.

The trouble is, that is known by our young people and by our citizens that, look, when a surfer goes and checks out the surf and sees that red sign up, he knows, well, it rained 2 days ago, so they just posted it, it doesn't mean it is polluted. We need that real-time test to bring credibility to those signs when they go up, that they only go up when the number comes up positive.

So they really do have the impact that we want them to have and they originally had. So I think it is essential that we make this system as real-time and as responsive as possible. Because those who are using the beaches are sophisticated enough to know the safety margin and will push that margin. So we need to make sure there are efficiencies in posting as close as possible.

That is why I introduced the Safe Water Improvement Modernization Act, the SWIM Act, of 2007. Because there are technologies out there that can do this real-time testing. The fact is, sadly, right now, with the incubator system we have, it is not just 12 to 24, it ends up being 3 days that signs are up. So those are

3 days that there is a question that we want to eliminate for the safety purposes.

Again, I want to thank you very much for your support and your cooperative effort with myself back in the old days, when we were getting this through and it was essential. It was a great bipartisan approach to protecting our children. After all, we never know if our grandchildren are going to be looking on the Internet to check out the surf and find out where the clean beaches are 10 years from now.

So God bless you and thank you for your efforts, Senator.
[The prepared statement of Mr. Bilbray follows:]

STATEMENT OF HON. BRIAN P. BILBRAY, REPRESENTATIVE FROM THE
STATE OF CALIFORNIA

Chairman Lautenberg, Ranking Member Vitter and Members of the Committee, thank you for the opportunity to join in the discussion on reauthorization issues concerning the Beaches Environmental Assessment and Coastal Health (BEACH) Act (Public Law 106-284). This was legislation Chairman Lautenberg and I were proud to author in the 106th Congress. The legislation was passed with overwhelming bipartisan support and was signed into law by President Clinton.

President Theodore Roosevelt once said, "The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value." These words have resonated strongly with me, as a lifelong outdoorsman, former lifeguard, and through my career in elected office. This statement is as applicable today as it was when he said it more than 100 years ago. We have an obligation to preserve and enhance our natural resources so that our children and grandchildren have the opportunity to enjoy the same quality of life we do today.

For this reason, the BEACH Act becoming law was a tremendous achievement for our Nation. Growing up along the coast in San Diego, I saw how harmful bacteria and pathogens in the water can affect the health of both children and adults alike. Without basic standards for water quality evaluation, the health of our coastal waters and those that enjoy it would be threatened.

The successful implementation of the BEACH Act throughout the past 7 years has led to significant improvements in public health according to a report released by the Environmental Protection Agency (EPA) last October. Key findings I wanted to highlight to the Committee included:

- 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 out of approximately 6,000 beaches, as identified to EPA by the States for the 2004 swimming season.

- EPA has strengthened water quality standards throughout all the coastal recreation waters in the United States; the number of coastal and Great Lakes States with up-to-date water quality criteria has increased from 11 in 2000 to 35 in 2004.

- EPA has improved public access to data on beach advisories and closings by improving its electronic system for beach data collection and delivery systems; the system is known as "eBeaches." The public can view the beach information at <http://oaspub.epa.gov/beacon/beacon-national-page.main>.

- EPA is working to improve pollution control efforts that reduce potential adverse health effects at beaches. EPA's Strategic Plan and recent National Water Program Guidance describe these actions to coordinate assessment of problems affecting beaches and to reduce pollution.

- EPA is conducting research to develop new or revised water quality criteria and more rapid methods for assessing water quality at beaches so that results can be made available in hours rather than days. Quicker tests will allow beach managers to make faster decisions about the safety of beach waters and thus help reduce the risk of illness among beachgoers.¹

While the progress we have made is impressive the BEACH Act can be improved to be even more effective in protecting public health, by incorporating new developments in the science behind water quality testing. Since 1986, the EPA has tested pathogens in the water through culture testing. Unfortunately, this antiquated

¹ Environmental Protection Agency, Implementing the BEACH Act of 2000, Report for Congress, October 2006, Available at: <http://www.epa.gov/waterscience/beaches/report/full-rtc.pdf>.

method which is still in use today can take upwards of 72 hours to yield results. Conversely, new advances in molecular testing show tremendous promise, both in rapidly identifying potential pathogens in coastal waters, and in reducing the amount of time required to provide test results to appropriate public health officers.

Molecular testing has been shown to identify bacteria in only 4 hours, rather than 72. Additionally, culture methods cannot differentiate between non-human and human organisms without additional testing. As a result, many beaches are closed unnecessarily and for too long due to detection of organisms that do not pose a threat to humans. Unlike culture methods, molecular tests can be designed to have unique specificity only for bacteria that are associated with human illness. This specificity is due to the molecular test's ability to recognize species specific bacterial DNA, a feature that prevents "false-positive" detection of irrelevant organisms.

In the past Congress, several of my House colleagues undertook efforts to reauthorize the BEACH Act. This renewed commitment underscores the importance of this legislation. I look forward to working with my colleagues and with this committee, to ensure the reauthorization of the BEACH Act, so that the significant strides we have made to date can be sustained and enhanced.

To this end, I introduced H.R. 909, the Safe Water Improvement and Modernization (SWIM) Act of 2007. This legislation will reauthorize the programs in the BEACH Act until 2012 as well as authorize the EPA to complete a 2-year study of the full capabilities of molecular testing. It is my hope that this study will open the door to quicker and more efficient testing times which will better protect the health and well being of those that want to enjoy our recreational waters.

Again, thank you for the opportunity to discuss the landmark BEACH legislation, and how we might continue to work together to build on its successes. I look forward to working with this committee, and would be pleased to address any questions you may have.

Senator LAUTENBERG. Thank you very much.

You and I share another note of distinction. We were in, we were out, we were in.

Mr. BILBRAY. I was thinking, I was very appreciative of that in California, the voters can be environmentally sensitive, and they believe in recycling Congressmen.

[Laughter.]

Senator LAUTENBERG. The other thing that struck me, new information, that is, without taking too much time, a Web site on surfing, how does the data get into the system? Who monitors whether surfing is good? Does it measure swells? What does it tell you?

Mr. BILBRAY. NOAA has interlinks. There are actually these little gnomes who actually put all this stuff together and that don't have a real life. I think this is what some of these kids do when—

Senator LAUTENBERG. Putting them out of the computer business.

Mr. BILBRAY [continuing]. The sun goes down. But actually, you have NOAA weather, they can predict swells, they can tell you exactly directions, they can tell which facing beaches may or may not.

But then the other key is, you have real-time, actual visuals of what it looks like at that time on the Internet. So instead of the old days when we had to drive down to the beach and check out each point and see if Swami's was breaking or Black's Beach or Doheny, you actually can click and look and actually choose where you are going, you can tell the wind conditions and the chop and the swell conditions.

Senator LAUTENBERG. Sounds swell to me.

[Laughter.]

Senator LAUTENBERG. Thank you very much, each of you. I couldn't resist. Humor gets in my way sometimes. Thank you each very much for being here, for continuing. Let's continue to work to-

gether and see if we can improve the condition that is already a lot better as a result of the work we have done in the past.

Now we will hear from our second panel. Mr. Benjamin Grumbles, Assistant Administrator for Water at U.S. EPA. Anu Mittal, Director of the National Resources and Environment Team at the U.S. GAO. We look forward to hearing from you.

I want to particularly thank Mr. Grumbles for being here. He was planning a trip to the West Coast, but changed his plans to join us this day. I consider that a real measure of your interest in this subject and your willingness to give us your views. If you would start, observing the 5-minute rule. We are not too rigid, but anything over 25, we are just not going to accept.

[Laughter.]

STATEMENT OF BENJAMIN H. GRUMBLES, ASSISTANT ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. GRUMBLES. Thank you, Mr. Chairman. It is a real honor to be here, to appear before you and the subcommittee. Although there is that temptation to say, as much as I enjoy being here, I would rather be at the beach, monitoring the beach, and continuing to work to ensure clean and safe beaches.

I do also want to say, Mr. Chairman, I commend you for your efforts in moving the Clean Beaches, the week of Clean Beaches Sense of Congress. It sends some very powerful and strong messages. It is also similar to the proclamation the President issued for June as the National Oceans Month. So there is a tremendous amount of focus and attention, as there should be, on the coasts and beaches, because they do define our country. It is important for the environment and for the economy to continue to make progress on ensuring those beaches are clean and safe.

EPA is delighted to be here to discuss the successes of implementing the BEACH Act, and current activities of the Agency, and challenges as well as the opportunities ahead. Mr. Chairman, as you and your colleagues have stated, the real focus should be, and is in EPA, on sound science, on pollution prevention and on public notification, and public awareness.

I do think it is important to spend a minute to talk about where we have been over the last several years and what we have done to implement the BEACH Act, which is truly landmark legislation. It took a long time for it to finally get across the finish line, but it has been worth it. It is a very important framework for success.

It is very important to recognize that the number of monitored beaches since the BEACH Act and since EPA's efforts to implement the Act has increased from about 1,000 to 3,500. Actually, 3,700 beaches, that is good news. It ensures greater vigilance and progress.

The other success that Congressman Bilbray mentioned, the number of States with stronger water quality standards has gone from 10 to 35 over the last several years. Part of that was due to EPA stepping in in November 2004 and promulgating the Federal standards to strengthen previous water quality standards that relied on fecal coliform as opposed to *E-coli* and *Enterococcus* as the indicators.

Another major success we view as progress is increased public awareness. We have the eBeaches Web site. We work with other organizations and of course with our partners at States to get out more information about closures and advisories to make this as successful as possible. Then of course, there is the grants program that was authorized in the BEACH Act that Congress continues to support and that the Administration and EPA continues to support. That is translated into \$52 million in assistance, probably another \$10 million as the appropriations bills are working their way through. That is to help the States develop and implement monitoring and notification programs.

I do want to mention that a key area, a current effort and focus of the Agency is building and continuing to improve the partnership with States. I know that there is legislation that is introduced, and it is important to be having these hearings. It is also very important, just as it was in 2000 and years leading to the Act's passage, to coordinate with the States, to work with the States, because they are the implementers in so many respects under the Clean Water Act.

Sound science is a key for us, Mr. Chairman. It has been stated very well. We see great promise in the rapid, reliable tests. The methods as a focus for us, so that the Quantitative Polymerase Chain Reaction and other types of methodologies that can reduce from several days to 2 to 3 hours in terms of the lag time in getting results is perfected and advanced. That is a priority for us as well.

Also, I think it is important to emphasize the epidemiological studies that the Agency has been carrying out over the last several years; linking the science, the impacts of pathogens in waters with gastrointestinal or other problems, and using those studies that have occurred in the Great Lakes and also now are occurring on other coasts, to also improve the methodologies. Because we do need to continue to work on the science the microbial biology continues to evolve and it is important to capture that knowledge and put it into practice.

The last thing I would say, Mr. Chairman, is pollution prevention. Pollution prevention is the key for us as well, working with States and cities to further control sewer overflows, storm water. Also tracking through sanitary surveys. The Agency has been carrying out a program of grants in the Great Lakes. We support the idea of continued efforts to use sanitary survey to help get to the source of the problem.

Mr. Chairman, I would be happy to answer any questions you may have and again, appreciate your leadership on having this hearing and the support for the BEACH program.

[The prepared statement of Mr. Grumbles follows:]

STATEMENT OF BENJAMIN H. GRUMBLES, ASSISTANT ADMINISTRATOR FOR WATER,
U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. Chairman 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 fiscal year 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 1-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 gastrointestinal 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

Mr. Chairman, 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 onsite/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, 2007 in 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.

Mr. Chairman, this concludes my prepared remarks; I would be happy to respond to any questions you may have.

RESPONSES BY BENJAMIN H. GRUMBLES TO ADDITIONAL QUESTIONS
FROM SENATOR INHOFE

Question 1. One of the main focuses of the GAO report and the various bills introduced by my colleagues address the need for the real time testing for pathogens. Can you tell the committee more about the work EPA is doing to bring these technologies to fruition and how far off do you think they are?

Response. EPA has been supporting cutting-edge research aimed at developing molecular-based methods for rapid detection of fecal contamination in coastal waters (e.g., DNA-based tests—also referred to as rapid tests) and relating these measurements to human illness at beaches. These new test methods can be used by laboratories to measure the number of micro-organisms in a sample in 2 hours or less, because they do not require 24–48 hours to grow the organisms in culture medium (e.g., in Petri dishes), which has been the practice for decades. The rapid methods rely on technology that measures in a water sample the amount of DNA of organisms that are found in fecal matter. Even though the assay time is decreased significantly and, based on the data from the current studies' application of the rapid methods, provide more accurate assessments of recreational water quality, as discussed below, this does not mean that the entire process of sampling to beach manager notification occurs in 2-hours.

EPA has already completed four major epidemiology studies using these new DNA-based tests and is in the process of conducting two more studies this summer at marine beaches in Rhode Island and Alabama. EPA expects to be conducting additional similar studies over the course of the next 3 years to evaluate rapid tests for their use in recreational water quality criteria. EPA's research will not only include the rapid methods for measuring the concentration of currently recommended indicator organisms, but also addresses the challenge of identifying additional or complementary indicators to the current recommended *Enterococcus* and *E. coli* bacterial indicators. A list of studies initiated and completed by EPA is attached at the end of this document.

While rapid tests are sometimes referred to as "real-time" tests, they are not in fact real-time tests, as there is still a delay between water sampling and obtaining test results. Even though these tests show great promise in being able to substantially reduce (by more than 1/2) the time required to determine the amount of fecal contamination in waters and to return the results to beach managers they will not shorten the time required to collect water samples and deliver them to the test laboratory (typically 4 to 5 hours or longer). Nor will they shorten the time required to convey test results to the appropriate authorities and the public (1 to 2 hours or more). Additionally, there are a number of technical challenges that must be addressed before the rapid methods can be used in routine beach monitoring programs. Among the other aspects of the rapid methods' technology that EPA is addressing in its research is the additional challenge in interpretation of the rapid methods results when compared with culture methods. For example, the rapid methods do not currently distinguish between genetic material from live and dead indicator organisms. Further, a better understanding of the detection level characteristics of the rapid methods, relative to background organism levels, is needed.

Still, these rapid tests have several benefits. They shorten the time from when poor water quality occurs to when a test can confirm that the water quality is in fact poor. This would shorten the time it takes to post an advisory or to close the beach during poor water quality conditions, and thereby reduce potential public health risk. The shorter test period would also shorten the time required to remove the advisory and/or reopen the beach when water quality improves.

Before any new test can be required to be used, the EPA will have to complete additional studies at more locations to ensure that the data are representative of a broad range of geographic and climactic conditions. In addition, for official EPA approval of any standardized method, it must undergo an interlaboratory validation process. EPA began the methods validation process in spring 2007, and additional work is needed before EPA officially approves the method. State and local public health officials use the results of monitoring to make health-based decisions to close or open a beach, or to issue or lift a beach advisory. These officials need to know that the analytical method they use provides reliable and reproducible results for the right indicator; therefore, States typically only use methods that have already been validated and approved by EPA. Further, to be able to bring a faster test into routine use, States also need to have the confidence that issues related to the purchase of test equipment, training, laboratory capacity, and certification of laboratories will have been addressed. EPA recognizes that as we move forward in the development of new or revised criteria, consideration of these issues must be part of the process.

Question 2. Recognizing that statutory deadlines have passed, how important is it that EPA is given ample time to conduct comprehensive scientific epidemiological studies of pathogens and pathogen indicators before finalizing a new water quality criterion? Can you describe for the committee what EPA has done with regard to the requirements to conduct the studies and develop new criteria since passage of the BEACH Act of 2000?

Response. EPA and its partners (researchers as well as States) need the time to do the necessary research to ensure a sound scientific foundation for new water quality criteria. We have made a strong start but have not come as far as we need to. EPA has invested approximately \$14 million since 2000 on research to better understand pathogens and pathogen indicators in recreational waters. This research includes: four epidemiological studies in the Great Lakes, the start of a marine study in Biloxi Mississippi in 2005, two ongoing marine epidemiology studies in Alabama and Rhode Island this summer, the Environmental Monitoring for Public Access and Community Tracking (EMPACT) Beaches Project, reported on in August 2005, and work to develop predictive models to aid beach managers in making beach advisory decisions. A more complete listing of research initiated and completed by EPA is attached. While this research answered many questions related to pathogens and pathogen indicators, it has also identified and confirmed important gaps and

questions that we must address in developing sound and defensible new or revised criteria. EPA recognizes the essential importance of ensuring a sound scientific foundation for new criteria. If EPA does not have a sufficient scientific foundation to support local advisories, beach managers may make wrong decisions resulting in poor public health outcomes (when beaches are left open when they should have been closed) or lost revenues associated with unnecessary beach closures.

EPA has openly and aggressively engaged the broader research, academic, State, and interested stakeholder community regarding what science needs to be done. These stakeholders have raised important issues relating to the extent to which EPA criteria based on human illness rates associated with swimming in waters contaminated with human fecal matter would be over-protective or under-protective for waters contaminated with non-human waste, such as waste from wildlife, pets, or livestock. Since many beaches in the U.S. are not located in proximity to major sources of human waste material, stakeholders believe that EPA needs to conduct or support the studies needed to better understand the relative risk of these sources before issuing new criteria. We believe that doing this additional work and also looking at additional indicators and rapid methods that might provide for better criteria, applicable to the full range of beach settings, is necessary for the development of sound, defensible criteria.

In March 2007, EPA convened a group of 43 national and international technical, scientific, and implementation experts from academia, numerous States, public interest groups, EPA, and other Federal agencies, at a formal workshop to discuss the state of the science on recreational water quality research and implementation. The purpose of the workshop was for EPA to obtain individual input from members of the greater scientific and technical community on the “critical path” research and science needs for developing scientifically defensible new or revised CWA §304(a)(9) recreational ambient water quality criteria (AWQC) in the near-term. Near-term needs were defined as specific research and science activities that could be accomplished in a 3-year time-frame so that results are available to EPA in time to support developing new or revised criteria. The new or revised criteria, which would be available from EPA in roughly 5 years (2012), should be scientifically sound, protective of the designated use, easily implemented by States, applicable for broad Clean Water Act purposes, and when implemented, provide for improved public health protection.

Finally, EPA notes that we already have indicator criteria to protect against human pathogens at beaches. EPA believes the current criteria, based on *E-coli* and *Enterococci*, which have largely replaced earlier criteria based on fecal and total coliforms, are serviceable until better criteria are available. Pursuant to the BEACHES Act, EPA has promulgated criteria based on these indicators for all coastal States (including Great Lake States) that did not already have comparably protective standards in place. EPA has also been working with other States to promote adoption of our currently recommended criteria. EPA believes it is important to complete the research necessary to ensure that the next generation of indicators and criteria represent a genuine improvement over the existing criteria.

Question 3. There is discussion in U.S. Environmental Protection Agency Experts Scientific Workshop report about the variability among regions of the country and the potential need for different criteria for different types of waters in different parts of the country. Stakeholders have also spoken with my office about the need to address different uses for recreational waters. Do you anticipate EPA will be able to develop criteria to reflect secondary recreational contact and the different regions of the country?

Response. The experts at the Scientific Workshop provided input regarding differences in geographic/climatic conditions that should be considered to ensure that any new criteria are scientifically defensible for application in a wide variety of conditions that occur throughout the United States. EPA expects to complete studies for a range of geographic and climatic conditions and EPA recognizes the possibility that different indicators and methods may be more or less appropriate depending upon the location of waters.

In light of the need for EPA to move as quickly as possible to complete the necessary research and issue new or revised criteria to comply with the Beach Act requirements for new or revised primary contact recreational water quality criteria, EPA does not expect at this time to be developing EPA recommended criteria for secondary contact recreation. However, we understand that parallel work is underway in the wastewater community in Chicago to study the risks to humans exposed to waters containing high levels of undisinfected treated wastewater through secondary contact recreational activities (e.g., use of paddle boats, canoes, etc). EPA

will review the results of this study and will consider the results of that work as it moves forward.

RESPONSES BY BENJAMIN H. GRUMBLES TO ADDITIONAL QUESTIONS
SENATOR LAUTENBERG

Question 1. Please provide a copy of the “Report of the Experts Scientific Workshop on Critical Research Needs for the Development of New or Revised Recreational Water Quality Criteria” (U.S. EPA, Office of Water, Office of Research and Development, June 8, 2007). We understand that there are at least two different versions of the Executive Summary that were prepared with this report. Please provide copies of all versions of the Executive Summary.

Response. The full report together with an Executive Summary representing the views of 7 Workgroup Chairs is enclosed. For clarification, only one Executive Summary was produced in conjunction with this workshop. The full report and Executive Summary are available on our Web site at: <http://www.epa.gov/waterscience/criteria/recreation/>.

Question 2. Please provide the committee with the science action plan and time line for the completion of additional studies and research that will be used to develop and publish new or revised water quality criteria. If the action plan and time line have not yet been developed, please provide the committee with the date they will be available and, once they are available, copies of them.

Response. With respect to recreational water quality criteria, EPA is developing a Critical Path Science Plan for Development of New or Revised Recreational Water Quality Criteria (CPSP or Science Plan). The purpose of the CPSP is to articulate the critical path research and science that EPA expects to complete by the end of 2010 to establish the scientific foundation for new or revised recreational water quality criteria. Additionally, EPA is developing a Criteria Development Plan that will outline the steps involved in publishing new or revised 304(a)(9) criteria after the research is completed.

The critical research will be informed, in part, by the input on essential research and science needs identified by forty-three international and U.S. experts who attended a scientific workshop held by EPA in March 2007. EPA sponsored the workshop to get individual input from the greater scientific and technical community on the near-term research and science needs to develop new or revised CWA Section 304(a)(9) criteria, fully supported by the soundest science. Near-term needs were defined as specific research and science activities that could be accomplished in a 3-year timeframe to support development of new or revised criteria by 2012.

The draft CPSP has been submitted for expedited scientific peer review; EPA expects to issue to the public the CPSP before the end of the summer 2007. EPA will provide the committee with a copy of the CPSP as soon as it is made final.

ATTACHMENT A: STUDIES ALREADY INITIATED AND COMPLETED BY EPA

1. Four Great Lakes Freshwater Beach Epidemiological Studies evaluating the relationship between water quality and swimming-associated illness at freshwater coastal beaches;
2. Method Development Study of qPCR methods for Enterococcus and Bacteroides;
3. Method Evaluation of Off-the-Shelf Technologies for rapid methods for indicators of fecal contamination;
4. Development of Chemical Indicator Study evaluating other chemical substances, including coprostanol, urobilin, caffeine, acetaminophen, cotinine and codeine as possible indicators of human fecal contamination (from sewage);
5. EMPACT Study collecting data at multiple beaches to be used in the development of a monitoring protocols for measuring the quality of bathing beach waters;
6. Study to develop a Virtual Beaches model intended to allow beach managers to collect and analyze explanatory variables and develop a beach prediction tool;
7. Matrices Evaluation Study testing the aquatic matrix effects on the performance of the qPCR method in order to determine the method’s applicability beyond the four test sites.

Senator LAUTENBERG. Thank you very much, Mr. Grumbles.

Ms. Mittal, we welcome you and invite you to give your testimony now, please.

STATEMENT OF ANU K. MITTAL, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Ms. MITTAL. Thank you, Mr. Chairman. We are pleased to be here today to participate in your hearing on the BEACH Act of 2000.

Last month, GAO issued a report on the BEACH Act and its impact on water quality monitoring at some of our Nation's coastal beaches. My testimony today will summarize the results of that report.

As you know, to accomplish the goals of the BEACH Act, EPA was required to implement nine specific provisions. We found that EPA has implemented 7 of the 9 provisions and as a result, all 30 States and 5 territories with coastal recreational beaches now use EPA's water quality criteria for beach monitoring and the public has better information on the number of beaches being monitored and the extent of pollution at these beaches.

However, we also found that EPA has not complied with two key requirements of the Act. First, it has not completed the pathogen and human health studies that were to be done by 2003. Second, it has not published the new water quality criteria that were required by 2005. As a result, States continue to use outdated criteria to monitor water quality.

Because actions on these two provisions are several years behind schedule and may not be completed until 2011, we recommended that EPA provide the Congress with a definitive time line for completing these actions. The BEACH Act also authorized EPA to make \$30 million in grants annually to eligible State and territories. However, since 2002, the grant program has only been funded at \$10 million a year. A consequence of this lower funding level is that States receive grants that do not reflect their actual monitoring needs. In fact, we found that States with significantly greater monitoring needs, because they have longer coastlines and larger coastal populations, received almost the same amount of funding as States with significantly smaller coastlines and smaller coastal populations. This relatively flat distribution of grants across the States is due to the combined effect of the lower funding levels and the way that EPA applies the grant formula. We have therefore recommended that if funding for the program is not going to increase, then EPA should reevaluate the formula.

We also reviewed how some States have used their BEACH Act grants, and found that these grants have helped increase the number of beaches being monitored, as well as the frequency of the monitoring. Because of this increased monitoring, States now know which beaches are more likely to be contaminated, which ones are relatively clean and which ones may require additional resources. However, we also identified several inconsistencies in how the States conduct their beach monitoring, how they take water samples, how they make beach closure or health advisory decisions and how they notify the public if they find a problem. These inconsistencies could lead to inconsistent levels of public health protection across the States. To address these concerns, we recommended that EPA develop specific guidance for the programs the States have implemented.

Although the BEACH Act has helped identify the scope of contamination at coastal beaches, in most cases the underlying causes of this contamination remain unknown and unaddressed. States have told us that they do not have the funds to identify what is causing the contamination and to take action to mitigate the problem. BEACH Act funds cannot be used for this purpose.

Therefore, we recommended that the Congress consider providing some flexibility to the States and allow them to use a part of their BEACH Act grants to identify sources of contamination and take some corrective action.

In conclusion, Mr. Chairman, while the BEACH Act has helped States improve water quality monitoring, much remains to be done if we want to fully protect U.S. beach-goers. EPA needs to complete the studies and new water quality criteria that were required by the Act. The program needs to be fully funded or the grant distribution formula needs to be revised. Inconsistencies in States' monitoring and notification programs need to be resolved, and funding is still needed to address sources of contamination.

This concludes my prepared statement and I would be happy to respond to any questions.

[The prepared statement of Ms. Mittal follows:]

STATEMENT OF ANU K. MITTAL, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT,
U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to participate in your hearing on the implementation of the Beaches Environmental Assessment and Coastal Health Act, known as the BEACH Act. Congress passed the BEACH Act in 2000, to improve States' beach monitoring programs and processes for notifying the public of potential health risks from beach contamination. As you know, waterborne pathogens such as bacteria, viruses, and parasites can contaminate the water and sand at beaches and threaten human health. Contact with or accidental ingestion of contaminated water can cause vomiting, diarrhea, and other illnesses, and may be life-threatening for susceptible populations such as children, the elderly, and those with impaired immune systems. State and local health officials may issue health advisories or close beaches when they believe levels of waterborne pathogens are high enough to threaten human health. Under the Clean Water Act, the Environmental Protection Agency (EPA) is responsible for publishing water quality criteria that establish thresholds at which contamination—including waterborne pathogens—may threaten human health.

Our testimony is based on GAO's recently issued report¹ on BEACH Act implementation in the eight Great Lakes States and will cover three issues (1) the extent to which EPA has implemented the provisions of the Act, (2) concerns about EPA's formula for allocating BEACH Act grants, and (3) States' experiences in developing and implementing beach monitoring and notification programs using BEACH Act grants. Although, our testimony and recent report addressed the Great Lakes States, published EPA data and information presented at EPA sponsored BEACH Act conferences suggest that the findings are applicable nationwide. In summary, we found the following:

- EPA has implemented seven of the BEACH Act's nine requirements and provisions, but has missed statutory deadlines for two critical requirements. Among other things, EPA promulgated water quality standards for the 21 States and territories that had not adopted EPA's water quality criteria and developed a national list of beaches. However, EPA has not (1) completed the pathogen and human health studies that were required by 2003 or (2) published new or revised water quality criteria for pathogens or pathogen indicators that were required by 2005. EPA told us that the required studies are ongoing, but may take an additional 4 to 5 years to complete, and that the development of new pathogen indicators would follow completion

¹Great Lakes: EPA and States Have Made Progress in Implementing the BEACH Act, but Additional Actions Could Improve Public Health Protection, GAO-07-591 (Washington, DC: May 1, 2007).

of the studies. We recommended that EPA establish a definitive time line for completing the studies required by the BEACH Act and for publishing new or revised water quality criteria for pathogens and pathogen indicators. EPA concurred with this recommendation.

- Although EPA has distributed approximately \$51 million in BEACH Act grants between 2001 and 2006 to the 35 eligible States and territories, EPA's formula for distributing BEACH Act grant funds does not reflect the States' varied monitoring needs. EPA's formula is based on three factors—length of beach season; beach miles, as measured by length of shoreline; and beach use, as measured by coastal population. If the program had received its full funding of \$30 million annually that EPA used to develop the formula, each of the formula factors would have had a roughly equal impact on the grant allocations made to States. However, the program has received only about \$10 million annually. Consequently, the beach season factor which EPA uses as a baseline for calculating States' grants has had a greater influence (about 82 percent) on the total BEACH Act grants each State received, while beach miles and beach use, which vary widely among the States and can impact the public health risk, have had a significantly smaller impact (about 9 percent each). As a result, States that have greater beach monitoring needs because of their longer coastlines and larger coastal populations, receive almost the same amount of funding as those States with smaller coastlines and coastal populations. We recommended that EPA reevaluate the funding formula it uses to distribute BEACH Act grants. While EPA concurred in the need to reevaluate the formula, it stated that some States were reluctant to make any significant changes to the formula.

- States' use of BEACH Act grant funds to develop and implement beach monitoring and public notification programs has generally increased the extent of beach monitoring. However, States vary considerably in the frequency with which they monitor beaches, the monitoring methods used, and the means by which they notify the public of associated health risks. These differences are due, in part, to the current BEACH Act funding levels, which some State officials said are inadequate for sufficient monitoring. Moreover, while increased frequency of monitoring has helped States and localities identify the scope of contamination, in most cases, the underlying causes of the contamination remain unknown and unaddressed. Local officials from within the Great Lakes States told us that they generally do not have the funds to investigate and identify sources of contamination or to take actions to mitigate the problem, and EPA has concluded that States cannot use BEACH grants for this purpose. To assist States and localities nationwide in identifying and addressing sources of beach contamination, we recommended that the Congress consider allowing States some flexibility to use their BEACH Act grants to undertake limited research to identify specific sources of contamination at monitored beaches and take certain actions to mitigate these problems. In addition, we recommended that EPA provide States and localities with specific guidance on monitoring frequency and public notification.

BACKGROUND

Under the Clean Water Act, EPA is responsible for publishing water quality criteria that establish thresholds at which contamination—including waterborne pathogens—may threaten human health. States are required to develop standards, or legal limits, for these pathogens by either adopting EPA's recommended water quality criteria or other criteria that EPA determines are equally protective of human health. The States then use these pathogen standards to assess water quality at their recreational beaches. The BEACH Act amended the Clean Water Act to require the 35 eligible States and territories to update their recreational water quality standards using EPA's 1986 criteria for pathogen indicators. In addition, the BEACH Act required EPA to (1) complete studies on pathogens in coastal recreational waters and how they affect human health, including developing rapid methods of detecting pathogens by October 2003, and (2) publish new or revised water quality criteria by October 2005, to be reviewed and revised as necessary every 5 years thereafter.

The BEACH Act also authorized EPA to award grants to States, localities, and tribes to develop comprehensive beach monitoring and public notification programs for their recreational beaches. To be eligible for BEACH Act grants, States are required to (1) identify their recreational beaches, (2) prioritize their recreational beaches for monitoring based on their use by the public and the risk to human health, and (3) establish a public notification program. EPA grant criteria give States some flexibility on the frequency of monitoring, methods of monitoring, and processes for notifying the public when pathogen indicators exceed State standards, including whether to issue health advisories or close beaches. Although the BEACH

Act authorized EPA to provide \$30 million in grants annually for fiscal years 2001 through 2005,² since fiscal year 2001, congressional conference reports accompanying EPA's appropriations acts have directed about \$10 million annually for BEACH Act grants and EPA has followed this congressional direction when allocating funds to the program.

EPA HAS IMPLEMENTED SOME BUT NOT ALL OF THE BEACH ACT PROVISIONS

EPA has made progress implementing the BEACH Act's provisions but has missed statutory deadlines for two critical requirements. Of the nine actions required by the BEACH Act, EPA has taken action on the following seven:

Propose water quality standards and criteria.—The BEACH Act required each State with coastal recreation waters to incorporate EPA's published criteria for pathogens or pathogen indicators, or criteria EPA considers equally protective of human health, into their State water quality standards by April 10, 2004. The BEACH Act also required EPA to propose regulations setting forth Federal water quality standards for those States that did not meet the deadline. On November 16, 2004, EPA published in the Federal Register a final rule promulgating its 1986 water quality standards for *E. coli* and *enterococci* for the 21 States and territories that had not adopted water quality criteria that were as protective of human health as EPA's approved water quality criteria. According to EPA, all 35 States with coastal recreational waters are now using EPA's 1986 criteria, compared with the 11 States that were using these criteria in 2000.

Provide BEACH Act grants.—The BEACH Act authorized EPA to distribute annual grants to States, territories, tribes and, in certain situations, local governments to develop and implement beach monitoring and notification programs. Since 2001, EPA has awarded approximately \$51 million in development and implementation grants for beach monitoring and notification programs to all 35 States. Alaska is the only eligible State that has not yet received a BEACH Act implementation grant because it is still in the process of developing a monitoring and public notification program consistent with EPA's grant performance criteria. EPA expects to distribute approximately \$10 million for the 2007 beach season subject to the availability of funds.

Publish beach monitoring guidance and performance criteria for grants.—The BEACH Act required EPA to develop guidance and performance criteria for beach monitoring and assessment for States receiving BEACH Act grants by April 2002. After a year of consultations with coastal States and organizations, EPA responded to this requirement in 2002 by issuing its National Beach Guidance and Required Performance Criteria for Grants. To be eligible for BEACH Act grants, EPA requires recipients to develop (1) a list of beaches evaluated and ranked according to risk, (2) methods for monitoring water quality at their beaches, such as when and where to conduct sampling, and (3) plans for notifying the public of the risk from pathogen contamination at beaches, among other requirements.

Develop a list of coastal recreational waters.—The BEACH Act required EPA to identify and maintain a publicly available list of coastal recreational waters adjacent to beaches or other publicly accessible areas, with information on whether or not each is subject to monitoring and public notification. In March 2004, EPA published its first comprehensive National List of Beaches based on information that the States had provided as a condition for receiving BEACH Act grants. The list identified 6,099 coastal recreational beaches, of which 3,472, or 57 percent, were being monitored. The BEACH Act also requires EPA to periodically update its initial list and publish revisions in the Federal Register. However, EPA has not yet published a revised list, in part because some States have not provided updated information.

Develop a water pollution database.—The BEACH Act required EPA to establish, maintain, and make available to the public an electronic national water pollution database. In May 2005, EPA unveiled "eBeaches," a collection of data pulled from multiple databases on the location of beaches, water quality monitoring, and public notifications of beach closures and advisories. This information has been made available to the public through an online tool called BEACON (Beach Advisory and Closing Online Notification). EPA officials acknowledge that eBeaches has had some implementation problems, including periods of downtime when States were unable to submit their data, and States have had difficulty compiling the data and getting it into EPA's desired format. EPA is working to centralize its databases so that States

²Although the BEACH Act was originally authorized through 2005, Congress continued to fund EPA's efforts under the act in 2006 and 2007.

can more easily submit information and expects the data reporting will become easier for States as they further develop their system.

Provide technical assistance on floatable materials.—The BEACH Act required EPA to provide technical assistance to help States, tribes, and localities develop their own assessment and monitoring procedures for floatable debris in coastal recreational waters. EPA responded by publishing guidance titled Assessing and Monitoring Floatable Debris in August 2002. The guidance provided examples of monitoring and assessment programs that have addressed the impact of floatable debris and examples of mitigation activities to address floatable debris.

Provide a report to Congress on status of BEACH Act implementation.—The BEACH Act required EPA to report to Congress 4 years after enactment of the act and every 4 years thereafter on the status of implementation. EPA completed its first report for Congress, Implementing the BEACH Act of 2000: Report to Congress in October 2006, which was 2 years after the October 2004 deadline. EPA officials noted that they missed the deadline because they needed additional time to include updates on current research and States' BEACH Act implementation activities and to complete both internal and external reviews.

EPA has not yet completed the following two BEACH Act requirements:

Conduct epidemiological studies.—The BEACH Act required EPA to publish new epidemiological studies concerning pathogens and the protection of human health for marine and freshwater by April 10, 2002, and to complete the studies by October 10, 2003. The studies were to: (1) assess potential human health risks resulting from exposure to pathogens in coastal waters; (2) identify appropriate and effective pathogen indicator(s) to improve the timely detection of pathogens in coastal waters; (3) identify appropriate, accurate, expeditious, and cost-effective methods for detecting the presence of pathogens; and (4) provide guidance for State application of the criteria. EPA initiated its multiyear National Epidemiological and Environmental Assessment of Recreational Water Study in 2001 in collaboration with the Centers for Disease Control and Prevention. The first component of this study was to develop faster pathogen indicator testing procedures. The second component was to further clarify the health risk of swimming in contaminated water, as measured by these faster pathogen indicator testing procedures. While EPA completed these studies for freshwater—showing a promising relationship between a faster pathogen indicator and possible adverse health effects from bacterial contamination—it has not completed the studies for marine water. EPA initiated marine studies in Biloxi, Mississippi, in the summer of 2005, 3 years past the statutory deadline for beginning this work, but the work was interrupted by Hurricane Katrina. EPA initiated two additional marine water studies in the summer of 2007.

Publish new pathogen criteria.—The BEACH Act required EPA to use the results of its epidemiological studies to identify new pathogen indicators with associated criteria, as well as new pathogen testing measures by October 2005. However, since EPA has not completed the studies on which these criteria were to be based, this task has been delayed.

In the absence of new criteria for pathogens and pathogen indicators, States continue to use EPA's 1986 criteria to monitor their beaches. An EPA official told us that EPA has not established a time line for completing these two remaining provisions of the BEACH Act but estimates it may take an additional 4–5 years. One EPA official told us that the initial timeframes in the act may not have been realistic. EPA's failure to complete studies on the health effects of pathogens for marine waters and failure to publish revised water quality criteria for pathogens and pathogen indicators prompted the Natural Resources Defense Council to file suit against EPA on August 2, 2006, for failing to comply with the statutory obligations of the BEACH Act.

To ensure that EPA complies with the requirements laid out in the BEACH Act, we recommended that it establish a definitive time line for completing the studies on pathogens and their effects on human health, and for publishing new or revised water quality criteria for pathogens and pathogen indicators.

EPA'S BEACH GRANT FORMULA DOES NOT ADEQUATELY REFLECT STATES' MONITORING NEEDS

While EPA distributed approximately \$51 million in BEACH Act grants between 2001 and 2006 to the 35 eligible States and territories, its grant distribution formula does not adequately account for States' widely varied beach monitoring needs. When Congress passed the BEACH Act in 2000, it authorized \$30 million in grants annually, but the act did not specify how EPA should distribute grants to eligible States. EPA determined that initially \$2 million would be distributed equally to all eligible States to cover the base cost of developing water quality monitoring and no-

tification programs. EPA then developed a distribution formula for future annual grants that reflected the BEACH Act's emphasis on beach use and risk to human health. EPA's funding formula includes the following three factors:

- *Length of beach season.*—EPA selected beach season length as a factor because States with longer beach seasons would require more monitoring.
- *Beach use.*—EPA selected beach use as a factor because more heavily used beaches would expose a larger number of people to pathogens, increasing the public health risk and thus requiring more monitoring. EPA used coastal population as a proxy for beach use because information on the number of beach visitors was not consistently available across all the States.
- *Beach miles.*—EPA selected beach miles because States with longer shorelines would require more monitoring. EPA used shoreline miles, which may include industrial and other nonpublicly accessible areas, as a proxy for beach miles because verifiable data for beach miles was not available.

Once EPA determined which funding formula factors to use, EPA officials weighted the factors. EPA intended that the beach season factor would provide the base funding and would be augmented by the beach use and beach mile factors. EPA established a series of fixed amounts that correspond to States' varying lengths of beach seasons to cover the general expenses associated with a beach monitoring program. For example, EPA estimated that a beach season of 3 or fewer months would require approximately two full-time employees costing \$150,000, while States with beach seasons greater than 6 months would require \$300,000. Once the allotments for beach season length were distributed, EPA determined that 50 percent of the remaining funds would be distributed according to States' beach use, and the other 50 percent would be distributed according to States' beach miles, as shown in table 1.

Table 1.—BEACH Act Grant Distribution Formula

Formula factor	Amount of grant
Beach season length	Less than 3 months: \$150,000 3–4 months: \$200,000 5–6 months: \$250,000 Greater than 6 months: \$300,000
Beach use	50 percent of funds remaining after allotment of beach season length funding.
Beach miles	50 percent of funds remaining after allotment of beach season length funding.

Source: EPA

^aStates with less than a 3-month beach season only receive the \$150,000 in beach season length funding.

EPA officials told us that, using the distribution formula above and assuming a \$30 million authorization, the factors were to have received relatively equal weight in calculating States' grants and would have resulted in the following allocation: beach season—27 percent (about \$8 million); beach use—37 percent (about \$11 million); and beach miles—37 percent (about \$11 million). However, because funding levels for BEACH Act grants have been about \$10 million each year, once the approximately \$8 million, of the total available for grants, was allotted for beach season length, this left only \$2 million, instead of nearly \$22 million, to be distributed equally between the beach use and beach miles factors. This resulted in the following allocation: beach season—82 percent (about \$8 million); beach use—9 percent (about \$1 million); and beach miles—9 percent (about \$1 million).

Because beach use and beach miles vary widely among the States, but account for a much smaller portion of the distribution formula, BEACH Act grant amounts may vary little between States that have significantly different shorelines or coastal populations. For example, across the Great Lakes, there is significant variation in coastal populations and in miles of shoreline, but current BEACH Act grant allocations are relatively flat. As a result, Indiana, which has 45 miles of shoreline and a coastal population of 741,468, received about \$205,800 in 2006, while Michigan, which has 3,224 miles of shoreline and a coastal population of 4,842,023, received about \$278,450 in 2006. Similarly, the current formula gives localities that have a longer beach season and significantly smaller coastal populations an advantage over localities that have a shorter beach season but significantly greater population. For example, Guam and American Samoa with 12-month beach seasons and coastal populations of less than 200,000 each receive larger grants than Maryland and Virginia, with 4-month beach seasons and coastal populations of 3.6 and 4.4 million, respectively.

If EPA reweighted the factors so that they were still roughly equal given the \$10 million allocation, we believe that BEACH Act grants to the States would better reflect their needs. Consequently, we recommended that if current funding levels remain the same, that the Agency should revise the formula for distributing BEACH Act grants to better reflect the States' varied monitoring needs by reevaluating the formula factors to determine if the weight of the beach season factor should be reduced and if the weight of the other factors, such as beach use and beach miles should be increased.

EXPERIENCES OF THE GREAT LAKES AND OTHER ELIGIBLE STATES IN IMPLEMENTING
BEACH ACT GRANTS

States' use of BEACH Act grants to develop and implement beach monitoring and public notification programs has increased the number of beaches being monitored and the frequency of monitoring. However, States vary considerably in the frequency in which they monitor beaches, the monitoring methods used, and the means by which they notify the public of health risks. Specifically, 34 of the 35 eligible States have used BEACH Act grants to develop beach monitoring and public notification programs; and the remaining State, Alaska, is in the process of setting up its program. However, these programs have been implemented somewhat inconsistently by the States which could lead to inconsistent levels of public health protection at beaches in the United States. In addition, while the Great Lakes and other eligible States have been able to increase their understanding of the scope of contamination as a result of BEACH Act grants, the underlying causes of this contamination usually remain unresolved, primarily due to a lack of funding. For example, EPA reports that nationwide when beaches are found to have high levels of contamination, the most frequent source of contamination listed as the cause is "unknown".

BEACH Act officials from six of the eight Great Lakes States that we reviewed—Illinois, Michigan, Minnesota, New York, Ohio, and Wisconsin—reported that the number of beaches being monitored in their State has increased since the passage of the BEACH Act in 2000. For example, in Minnesota, State officials reported that only one beach was being monitored prior to the BEACH Act, and there are now 39 beaches being monitored in three counties. In addition, EPA data show that, in 1999, the number of beaches identified in the Great Lakes was about 330, with about 250 being monitored. In 2005, the most recent year for which data are available, the Great Lakes States identified almost 900 beaches of which about 550 were being monitored.

In addition to an increase in the number of beaches being monitored, the frequency of monitoring at many of the beaches in the Great Lakes has increased. We estimated that 45 percent of Great Lakes beaches increased the frequency of their monitoring since the passage of the BEACH Act. For example, Indiana officials told us that prior to the BEACH Act, monitoring was done a few times per week at their beaches but now monitoring is done 5–7 days per week. Similarly, local officials in one Ohio county reported that they used to test some beaches along Lake Erie twice a month prior to the BEACH Act but now they test these beaches once a week. States outside of the Great Lakes region have reported similar benefits of receiving BEACH Act grants. For example, State officials from Connecticut, Florida, and Washington reported increases in the number of beaches they are now able to monitor or the frequency of the monitoring they are now able to conduct.

Because of the information available from BEACH Act monitoring activities, State and local beach officials are now better able to determine which of their beaches are more likely to be contaminated, which are relatively clean, and which may require additional monitoring resources to help them better understand the levels of contamination that may be present. For example, State BEACH Act officials reported that they now know which beaches are regularly contaminated or are being regularly tested for elevated levels of contamination. We determined that officials at 54 percent of Great Lakes beaches we surveyed believe that their ability to make advisory and closure decisions has increased or greatly increased since they initiated BEACH Act water quality monitoring programs.

However, because EPA's grant criteria and the BEACH Act give States and localities some flexibility in implementing their programs we also identified significant variability among the Great Lakes States beach monitoring and notification programs. We believe that this variability is most likely also occurring in other States as well because of the lack of specificity in EPA's guidance. Specifically, we identified the following differences in how the Great Lake States have implemented their programs.

Frequency of monitoring.—Some Great Lakes States are monitoring their high-priority beaches almost daily, while other States monitor their high-priority beaches

as little as one to two times per week. The variation in monitoring frequency in the Great Lakes States is due in part to the availability of funding. For example, State officials in Michigan and Wisconsin reported insufficient funding for monitoring.

Methods of sampling.—Most of the Great Lakes States and localities use similar sampling methods to monitor water quality at local beaches. For example, officials at 79 percent of the beaches we surveyed reported that they collected water samples during the morning, and 78 percent reported that they always collected water samples from the same location. Collecting data at the same time of day and from the same site ensures more consistent water quality data. However, we found significant variations in the depth at which local officials in the Great Lakes States were taking water samples. According to EPA, depth is a key determinant of microbial indicator levels. EPA's guidance recommends that beach officials sample at the same depth—knee depth, or approximately 3-feet deep—for all beaches to ensure consistency and comparability among samples. Great Lakes States varied considerably in the depths at which they sampled water, with some sampling occurring at 1–6 inches and other sampling at 37–48 inches.

Public notification.—Local officials in the Great Lakes differ in the information they use to decide whether to issue health advisories or close beaches when water contamination exceeds EPA criteria and in how to notify the public of their decision. These differences reflect States' varied standards for triggering an advisory, closure, or both. Also, we found that States' and localities' means of notifying the public of health advisories or beach closures vary across the Great Lakes. Some States post water quality monitoring results on signs at beaches; some provide results on the Internet or on telephone hotlines; and some distribute the information to local media.

To address this variability in how the States are implementing their BEACH Act grant funded monitoring and notification programs, we recommended that EPA provide States and localities with specific guidance on monitoring frequency and methods and public notification.

Further, even though BEACH Act funds have increased the level of monitoring being undertaken by the States, the specific sources of contamination at most beaches are not known. For example, we determined that local officials at 67 percent of Great Lakes' beaches did not know the sources of bacterial contamination causing water quality standards to be exceeded during the 2006 beach season and EPA officials confirmed that the primary source of contamination at beaches nationwide is reported by State officials as "unknown." For example, because State and local officials in the Great Lakes States do not have enough information on the specific sources of contamination and generally lack funds for remediation, most of the sources of contamination at beaches have not been addressed. Local officials from these States indicated that they had taken actions to address the sources of contamination at an estimated 14 percent of the monitored beaches.

EPA has concluded that BEACH Act grant funds generally may be used only for monitoring and notification purposes. While none of the eight Great Lakes State officials suggested that the BEACH Act was intended to help remediate the sources of contamination, several State officials believe that it may be more beneficial to use BEACH Act grants to identify and remediate sources of contamination rather than just continue to monitor water quality at beaches and notify the public when contamination occurs. Local officials also reported a need for funding to identify and address sources of contamination. Furthermore, at EPA's National Beaches Conference in October 2006, a panel of Federal and academic researchers recommended that EPA provide the States with more freedom on how they spend their BEACH Act funding.

To address this issue, we recommended that as the Congress considers reauthorization of the BEACH Act, that it should consider providing EPA some flexibility in awarding BEACH Act grants to allow States to undertake limited research to identify specific sources of contamination at monitored beaches and certain actions to mitigate these problems, as specified by EPA.

In conclusion, Mr. Chairman, EPA has made progress in implementing many of the BEACH Act's requirements but it may still be several years before EPA completes the pathogen studies and develops the new water quality criteria required by the act. Until these actions are completed, States will have to continue to use existing outdated methods. In addition, the formula EPA developed to distribute BEACH Act grants to the States was based on the assumption that the program would receive its fully authorized allocation of \$30 million. Because the program has not received full funding and EPA has not adjusted the formula to reflect reduced funding levels, the current distribution of grants fails to adequately take into account the varied monitoring needs of the States. Finally, as evidenced by the experience of the Great Lakes States, the BEACH Act has helped States increase their level of moni-

toring and their knowledge about the scope of contamination at area beaches. However, the variability in how the States are conducting their monitoring, how they are notifying the public, and their lack of funding to address the source of contamination continues to raise concerns about the adequacy of protection that is being provided to beachgoers. This concludes our prepared statement, we would be happy to respond to any questions you may have.

June 27, 2007



Highlights of GAO-07-1043T, a testimony before the Subcommittee on Transportation Safety, Infrastructure Security, and Water Quality, U.S. Senate

IMPLEMENTATION OF THE BEACH ACT OF 2000

EPA and States Have Made Progress, but Additional Actions Could Improve Public Health Protection

Why GAO Did This Study

Waterborne pathogens can contaminate water and sand at beaches and threaten human health. Under the Beaches Environmental Assessment and Coastal Health (BEACH) Act, the Environmental Protection Agency (EPA) provides grants to states to develop water quality monitoring and public notification programs.

This statement summarizes the key findings of GAO's May 2007 report, *Great Lakes: EPA and the States Have Made Progress in Implementing the BEACH Act, but Additional Actions Could Improve Public Health Protection*. In this report GAO assessed (1) the extent to which EPA has implemented the Act's provisions, (2) concerns about EPA's BEACH Act grant allocation formula, and (3) described the experiences of the Great Lakes states in developing and implementing beach monitoring and notification programs using their grant funds.

What GAO Recommends

In the May 2007 report, GAO recommended that EPA distribute grant funds to better reflect states' monitoring needs and help states improve the consistency of their monitoring and notification activities; and the Congress consider providing more flexibility to allow states to use some BEACH Act funds to investigate and mitigate contamination sources. GAO is not making any additional recommendations in this statement.

www.gao.gov/cgi-bin/getrpt?GAO-07-1043T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Anu Mittal at (202) 512-3841 or mittala@gao.gov.

What GAO Found

EPA has taken steps to implement most BEACH Act provisions but has missed statutory deadlines for two critical requirements. While EPA has developed a national list of beaches and improved the uniformity of state water quality standards, it has not (1) completed the pathogen and human health studies required by 2003 or (2) published the new or revised water quality criteria for pathogens required by 2005. EPA stated that the required studies are ongoing, some studies were initiated in the summer of 2005, but the work was interrupted by Hurricane Katrina. EPA subsequently initiated two additional water studies in the summer of 2007. According to EPA, completion of the studies and development of the new criteria may take an additional 4 to 5 years. Further, although EPA has distributed approximately \$51 million in BEACH Act grants from 2001-2006, the formula EPA uses to make the grants does not accurately reflect the monitoring needs of the states. This occurs because the formula emphasizes the length of the beach season more than the other factors in the formula—beach miles and beach use. These other factors vary widely among the states, can greatly influence the amount of monitoring a state needs to undertake, and can increase the public health risk.

Thirty-four of the 35 eligible states have used BEACH Act grants to develop beach monitoring and public notification programs. Alaska is still in the process of developing its program. However, because state programs vary they may not provide consistent levels of public health protection nationwide. GAO found that the states' monitoring and notification programs varied considerably in the frequency with which beaches were monitored, the monitoring methods used, and how the public was notified of potential health risks. For example, some Great Lakes states monitor their high-priority beaches as little as one or two times per week, while others monitor their high-priority beaches daily. In addition, when local officials review similar water quality results, some may choose to only issue a health advisory while others may choose to close the beach. According to state and local officials, these inconsistencies are in part due to the lack of adequate funding for their beach monitoring and notification programs.

The frequency of water quality monitoring has increased nationwide since passage of the Act, helping states and localities to identify the scope of contamination. However, in most cases, the underlying causes of contamination remain unknown. Some localities report that they do not have the funds to investigate the source of the contamination or take actions to mitigate the problem, and EPA has concluded that BEACH Act grants generally may not be used for these purposes. For example, local officials at 67 percent of Great Lakes beaches reported that, when results of water quality testing indicated contamination at levels exceeding the applicable standards during the 2006 beach season, they did not know the source of the contamination, and only 14 percent reported that they had taken actions to address the sources of contamination.

RESPONSE BY ANU MITTAL TO AN ADDITIONAL QUESTION FROM SENATOR INHOFE

Question. In your report, you mention that the current pathogen indicators, including *E. Coli* may not be good indicators in part because they occur naturally in many environments. Further, the report States, as did our colleague, Congressman Bilbray, that pathogens from humans pose a greater risk than from animals.

GAO concludes that EPA should establish a definitive time line for publishing new or revised water quality criteria for pathogens and pathogen indicators. Given some of the uncertainties identified in your report and by others, how important is that EPA develop a standard that is scientifically sound and addresses these uncertainties?

Response. GAO recommended that EPA develop a definitive time line for publishing new or revised water quality criteria because the Agency has missed the statutory deadlines established by the BEACH Act of 2000. The act required EPA to complete new epidemiological studies concerning pathogens and the protection of human health for marine and freshwater by 2003 and use the results of these studies to publish new or revised water quality standards by 2005. EPA has not met these statutory requirements and could not provide us with a firm time line for completing these actions, other than stating that it would take at least 4 to 5 more years.

We also reported that the current pathogen indicators are over 20 years old and were based on research conducted prior to 1986. Since that time, significant advancements in science have occurred and there is a better understanding of pathogens in general as well as those that pose a particular risk to humans. In light of these scientific advances, we believe it is appropriate for EPA to review and update its water quality standards, as necessary. To do so, EPA needs to complete the scientific studies that will help it either support the development of new standards and test methods or confirm the continued viability of the existing standards and test methods. In this regard, in response to the BEACH Act, EPA has completed some studies in freshwater and is currently conducting other studies in marine water that will provide valuable information on how the Agency should proceed with the development of new or revised water quality criteria and test methods for monitoring of coastal beaches. It is therefore critical for EPA to complete these studies so that it can make sound decisions regarding water quality criteria that are based on the most current and best available science.

Senator LAUTENBERG. Thank you very much, Ms. Mittal. We appreciate the fact that you have highlighted some of these shortcomings, even as we see that there has been some progress.

Mr. Grumbles, what do you say about the shortages of activity by way of using the funds available? The grants have been, Ms. Mittal suggests there are only \$10 million worth of grants when \$30 million was available. Why does something like that occur?

Mr. GRUMBLES. Mr. Chairman, I would say that we always welcome the observations from GAO. I think we predicted some of the questions in advance and have been working over the last year with the States on the allocation formula for the funding to make sure that States understand and are comfortable with us finding a mechanism to get the most bang for our buck, the Federal taxpayers' dollars.

I would say, Mr. Chairman, that one of the key challenges for us, and opportunities, is to continue to make progress by getting a collection of the world's experts, scientific experts, to identify what are the issues and barriers and to really focus in on that. That is why I am so proud that the Agency held this session in March, with 42 of the world's experts on beach pathogen and beach monitoring issues, to help us so that we can provide an updated science plan by the end of the summer that will help us continue to make progress and accelerate the delivery of the key tools under the BEACH Act.

In terms of the funding, it is very important for us in partnership with the States to make sure, make clear that as this BEACH Act

is implemented, which focuses on monitoring and public notification, that the States can then use tools such as the Clean Water Act moneys under the SRF and other programs.

Senator LAUTENBERG. Mr. Grumbles, I hear your pride in the delivery of the report. But the question is, where has EPA been when the mandates as they existed propose using that money, propose being up to date with their reporting requirements, that reports that were due to be delivered in 2003 and 2005 are not yet here? And now the projection, as Ms. Mittal noted, are off to some significant time ahead.

We have lost ground in areas that we thought, frankly, that the legislation that was passed in the year 2000 would have been taken care of.

Mr. GRUMBLES. As a staffer, I was here and I saw your leadership and that of others in passing the statute and recognized as a staffer at the time, as did EPA, that some of those deadlines and schedules were ambitious ones. I would say that what we have done is we have made good use, as an agency, after 2000, in conducting several important studies, national studies, to get us to the point where we can issue those additional criteria, those 304(a) criteria. That is important to us as well.

I am not happy that we are not able to meet a congressional deadline. We will be laying out a specific schedule, and it will be based in part on the new information. The science, Mr. Chairman, truly has been evolving. But that is not an excuse.

Senator LAUTENBERG. Well, it is, Mr. Grumbles, the fact that you may take some satisfaction out of things that were done. Our mission here as we approach new legislation is to see why those things were not done, not simply for the purpose of punishment, but to get on with the job. It has proved to be an important element, just judging by the number of States that have signed on. Also the fact that in most recent time that there have been a lot more discoveries of contaminated beaches, because we do have the mechanism to identify them.

For instance, we are going to a new funding level. It is a bit incredulous that as we approach a new funding level to find out that the old funding level wasn't used as it was available. Frankly, I don't think there are any excuses, whether there is lack of specific knowledge, et cetera, to get the States engaged in this process. If there are insufficient funds or insufficient encouragement, things are not going to be done.

Now, I want to go on to another part of the subject. States not currently permitted to use BEACH Act grants to track the sources of BEACH Act contamination. Ms. Mittal suggests that this would be a good source for helping trace the source of the pollutants. How do you see the States' ability to use these grants? Is it a good idea?

Mr. GRUMBLES. We don't have an official position yet on the legislation. But to answer your question, Mr. Chairman, I think it is a good idea to be focusing increasing attention on pollution prevention and source tracking. That is why we took an initiative 2 years ago to develop a sanitary survey form for Great Lakes beaches and for providing assistance to help on the sanitary surveys to do detective work on the sources.

I would also say that I think there may be concern about expanding the scope and mission of the BEACH program to a full course remediation program, that we need to keep our focus on the—

Senator LAUTENBERG. Well, we are not going that far. We are saying, let's find out where the problems emanate. Then we can talk further here about what do we do to provide the funding on the inspiration of the knowledge to get these things done. Please don't take a lot of satisfaction from form design or reports. I am very practical, I come from the business world. I know we have a lot to do, you have a lot to do, as does everyone else.

Mr. GRUMBLES. It is providing, laying the foundation for scientifically defensible criteria. That is what it really translates into. The sanitary surveys are an important part of that, Mr. Chairman.

Senator LAUTENBERG. But the conclusion I come to is, as we look at this, we know things have been weak, that there hasn't been the vibrant action from the EPA that we would like to see. Here we say GAO recommends that EPA issue guidance to ensure that States' monitoring and notification programs are meeting standards actually protecting the public. Well, I will ask you, does EPA intend to follow GAO's advice in issuing that kind of guidance?

Mr. GRUMBLES. We do plan to issue guidance, improved, revised guidance. The 2002 guidance had nine specific criteria, and we think it is very important to update that guidance.

Senator LAUTENBERG. When might we expect that?

Mr. GRUMBLES. In 18 months.

Senator LAUTENBERG. Eighteen months. Do you think that what is being requested here, these guidance rules, maybe could have been done in a lot shorter time?

Mr. GRUMBLES. As you know, because you helped pass the BEACH Act in 2000, a key to success has been to have the States support and on board that the science is defensible. That is one reason why we didn't see progress between 2000 and 2004. Many of the States were very uncomfortable with moving to updated criteria, because they felt the scientific foundation wasn't there.

So for us, promulgating the 1986 criteria for those States that hadn't done so before November 2004 is a significant step. I share your view, Mr. Chairman, and it is in the statute as well, that we need to get on with updating and revising those criteria even further. There are some significant scientific and policy questions to making sure that the States and others will feel those new criteria, once we do finalize them, are the best and defensible. We are committed to getting that done as soon as we can, and we understand the frustration on not getting it done.

Senator LAUTENBERG. It is going to be different than the record reflects if we see some reasonable amount of haste put into this, as well as fairness.

Ms. Mittal, how do you think the rapid testing methods might help benefit implementation of the BEACH Act in the Great Lakes as well as other coastal States?

Ms. MITTAL. The need for rapid tests was something that was identified by just about everybody that we talk to. Currently, the current testing method, as was mentioned by the earlier panel, they take between 36 to 48 hours. That is a typical time lag. So beach managers are making decisions about whether to issue a

beach advisory or to issue a beach closure based on results that are pretty old, based on samples that are really old, a couple of days old. So definitely rapid test methods are something that is needed.

Senator LAUTENBERG. GAO recommends that EPA gives States the specific guidance on beach monitoring programs. Does GAO have any ideas on what those guidelines should be and have you discussed these recommendations with EPA?

Ms. MITTAL. We have discussed our recommendations with EPA and EPA concurred that these recommendations needed to be addressed and that they would be addressing them. The area of guidance that we are looking for relates to four specific issues.

We found that the frequency of monitoring that was occurring varied among States. Some States were only monitoring their high priority beaches once a week, even though EPA recommends that high priority beaches should be monitored daily.

We found that the method by which States were taking samples varied. While they collect samples generally in the same location and at the same time of day, the depth at which they were taking the samples varied considerably. Some people were taking samples at 1 to 2 inches depth and others were taking samples at 37 to 48 inches. EPA recommends knee-high, or 36 inch as the depth for sample taking. So those kinds of differences or variability in sample-taking can affect the quality of the data that we are collecting.

The third area that we identified, inconsistencies in how beach managers were using sample results to decide whether they were going to issue beach advisories for beach closures. Some States only issue health advisories, some States only do beach closures and some do a combination of both. So again, that is an area where we think that EPA can help the States be very consistent in how they apply the sampling results.

The last area relates to the signage. It is generally agreed that signs on the beach are the most effective manner of notifying the public that there is a problem with pollution and contamination. But when we looked at various signs that were being used by the States, we found that the signs didn't have all of the information that EPA recommends should be on a sign. For example, what is the date that the beach closure is effective on? Some signs are missing that information. Other signs are missing information as to when the sample was taken.

These are pretty relatively easy things that EPA could provide guidance on pretty quickly.

Senator LAUTENBERG. Mr. Grumbles, I hope that you listened carefully to what GAO has recommended.

Mr. GRUMBLES. We think that is a good report and we concur with them on many of the items. We will work with you and your colleagues, too, to do what we can.

Senator LAUTENBERG. I will thusly excuse you both from the table. Thank you, and that will give you time, Mr. Grumbles, to get on to correcting these conditions that we heard about today.

Mr. GRUMBLES. Thank you, Mr. Chairman.

Senator LAUTENBERG. Your full statements obviously will be in the record if your summary isn't everything you wanted to say.

Now for our third panel, we welcome Cindy Zipf. Cindy Zipf is the executive director of Clean Ocean Action, worked for two dec-

ades to preserve the coastal water of New Jersey and New York. We welcome her and Mara Dias and Carlton Dufrechou. Mr. Dufrechou, when you come from Lake Pontchartrain, I am reminded of the signs in French that I used to see when I was a soldier in World War II, beautiful recall, I think, of tradition.

Ms. Dias, you are welcome, obviously, as well.

Cindy, we worked together on so many things affecting the ocean and I have always enjoyed our chance to get together and your persistence and tenacity in making sure that we do what we have to do to protect the people, the industry and the income as a later consequence. But we have to protect the people and we have to encourage them. Being of mature age, I can tell you that I have known the oceans for a long time. I watched my grandmother and my mother and her four sisters swim in the ocean and worry about the fact that, when I was a little kid, they were so far out. Never meant anything, they were content to be there and I was content to follow them. So it is nice to see you, Cindy, and I will ask you that you observe the 5-minute rule, all of you, within reason. I will please ask you to commence.

STATEMENT OF CINDY ZIPF, EXECUTIVE DIRECTOR, CLEAN OCEAN ACTION

Ms. ZIPF. Thank you very much, Mr. Chairman. It is a joy and privilege to be here. New Jersey has had a lot of excitement when it comes to ocean pollution and challenges. Your leadership and your work has been tremendous. Our ocean at the Jersey Shore is happier and healthier, not just for people, but for all the critters that live there and depend on it as well. So we want to thank you for your leadership and your commitment to the ocean.

New Jersey's delegation is a real sense of pride for us around the country, because it is such a gold standard for ocean protection legislation. Mr. Pallone was here earlier, who also is a chairman, and as we always like to say, we have our Franks for the Jersey Shore in Congress. It is really a pleasure to work with you all.

My name is Cindy Zipf, I am the executive director of Clean Ocean Action. I am here with Dr. Jennifer Sampson, who is principal scientist for the organization. We work with over 150 organizations, as you know, to improve and protect the water.

A lot of what we have heard today, I think there is a lot of consensus, so I am hopefully going to skip through some of that consensus, including the fact that we are on the brink of the Independence Day weekend.

But the BEACH Act, with all the citizens that come to the shore, is the way for citizens to know the answer to the question, am I swimming in a sewer. I think that is very important, and that gives citizens at least some confidence about the beach and that they are not going to wind up with an inconvenient or very uncomfortable ailment, as has been talked about.

The significant progress, again, with the New Jersey leadership in the progress, has in part its roots the terrible legacy of 20 years ago, when we had the medical waste and the raw sewage and the floatables all washing up on our beach. Over a thousand beach closures occurred. While those thousand beach closures and the beach pollution was not a proud legacy, we were proud that at least in

New Jersey, we had a testing program at the time that resulted in those beach closures. The leadership, again, in Congress, was to try to identify a way for there to be national standards. Because although New Jersey was closing its beaches, there were a lot of beaches around the country that were not.

So in that way, it did set a national precedent, though it did take some time. It created uniform benchmarks that we are all relying on.

But as has been talked about so much today, there are improvements that are needed. There are a lot of faults that time has examined through the GAO report. I think most importantly, that rapid test that we need to ensure that we move forward on more quick testing really has been thoughtful. I think that the opportunity is to speed up those tests.

So with respect to where do we go from here, we are very heartened by the bill that has been introduced by yourself and Mr. Pallone and others. The Beach Protection Act, which really takes us to the next level, evolves the BEACH Act into a new and more protective Act. It is a welcoming and strong start. To that end, we would like to encourage the implementation of the same day answers to "is it safe to swim" by 2009. We think that is achievable.

The fact is that over 70 percent of contaminated beaches are clean within 24 hours. Yet that current EPA system takes 24 to 36 to 48 in order to close the beach. So clearly, with the resulting 2- to 3-day delay, beaches remain open when contamination is at its peak. Force of closure may be after the big crisis is gone.

So clearly, with the advance of the technology, we can really address these problems. The current indicators of the presence of the pathogens in surface waters is based on extensive nationwide epidemiological study. The difference between the currently approved method and the new rapid test, such as the QPCR, are that the former requires the growth of bacteria in a culture, whereas the latter directly measures the genetic material. These new methods make it completely possible to within 2 hours have that test, rather than in 24 hours. So it is very important for public health.

I think what is also important to emphasize here is that for public health safety and for good governance, it is vital that the adoption of these rapid tests require States to conduct the sampling in such a way that they make the decisions for beach closures on the same day. We don't want a State to take a 2-hour test one day and a 2-hour test the next day. We are not getting any quicker in the test results. So it is very important that the legislation, as it moves forward, require that same day decisionmaking as well as the same day testing.

We are very happy that New Jersey is again stepping up to the challenge and participating in the EPA rapid test. I will try to move quickly now.

The second issue that we want to emphasize is that notification speed of the results must occur without delay. We believe that words such as instant and immediate should be considered. Not all States have the kind of notifications that New Jersey has with the real-time, you can go on the computer and get that information. But there is a possibility that all States can have that real-time information. With radios, local emergency response teams, tele-

phones, cell phones, we should be able to get the word out that the beach is closed within that same day. We don't need an additional 24 hours.

Third, we are happy that the new BEACH Act, Beach Protection Act, would include a 50 percent reduction if States are not compliant with the new requirements. Again, I think everyone is talking about the funding source. We really do need to step up the funding. While we think that the increase that is under the Beach Protection Act is significant, the fact that there is such a larger amount of requirements, source reduction, more testing, additional programs, that we would like to see that number up to about \$100 million annually, and not just authorized, but actually appropriated. I think part of the problem is that we have to make sure that we get full appropriation to these programs.

Finally, we would like the Beach Protection Act to allow for the continued evolution of the program and allow for continued new initiatives to be implemented through academia and scientists and such. One area that we would particularly like to see is the immediate testing after rain events.

So thank you very much for this opportunity.

[The prepared statement of Ms. Zipf follows:]

STATEMENT OF CINDY ZIPF, EXECUTIVE DIRECTOR, CLEAN OCEAN ACTION

INTRODUCTION

Thank you Mr. Chairman, for the opportunity to testify on the implementation and reauthorization issues concerning the Beaches Environmental Assessment and Coastal Health Act, better known as the BEACH Act (Public Law 106-284). It is indeed an honor to testify here today. Over the years your efforts to improve and protect our Nation's ocean and coasts have been bold, outstanding, and successful. Our ocean is cleaner and healthier thanks to your leadership, New Jersey's delegation, and the bi-partisan good work of Congress to safeguard our most valuable natural asset.

My name is Cindy Zipf, Executive Director of Clean Ocean Action. I am here with Dr. Jennifer Samson, Principle Scientist for Clean Ocean Action. We represent a broad-based coalition of groups dedicated to improving the degraded water quality of the marine environment off the New Jersey/New York coast. We identify sources of pollution and mount attacks on each source by using research, public education, and citizen action to convince our public officials to enact and enforce measures that will cleanup and protect our ocean.¹

NEMESIS OF PUBLIC HEALTH AND ECONOMY

This hearing could not be more timely. As the Nation is poised to celebrate Independence Day, hundreds of millions of Americans will enjoy our beaches. Since 2000, citizens have relied on the benefits of the BEACH Act to help answer the question, "Am I swimming in a sewer?" and to help ensure that their fun at the shore is not followed by an inconvenient and uncomfortable ailment.

This significant progress actually has its roots at the Jersey Shore. Twenty years ago, during the infamous summers of 1987-88, New Jersey beaches became a national scandal, suffering from over one thousand beach closures due to raw sewage, garbage, and medical waste wash-ups. While the impact of these events was devastating to the ecosystem they were disastrous to the economy. One estimate put losses between \$820 million and \$3 billion (in 1987 dollars).² While this legacy of pollution in New Jersey is not a proud one, there is a sense of pride that NJ was the first State to require comprehensive monitoring of swimming beaches with mandatory closures when waters did not meet health standards. Clearly, New Jersey

¹ Visit <http://www.cleaneoceanaction.org> for more information.

² Ofiara, Douglas D. and Bernard Brown, "Marine Pollution Events of 1988 and Their Effect on Travel, Tourism, and Regional Activities in New Jersey," referenced as an "Invited Paper presented at the Conference on Floatable Wastes in the Ocean: Social Economic and Public Health Implications. March 21-22, 1989 at SUNY-Stony Brook."

took public health protection seriously. Most other States chose not to conduct such a public health program or held weaker or different standards. The quest for a national program was launched, and this led to the BEACH Act of 2000. For its time, it was a bold and essential public health protection program.

By establishing and implementing a national standard for recreational water quality, the BEACH Act provided a mandatory, uniform benchmark for the protection of public health. The hundreds of thousands of beach closures nationally over the years is a testament that NJ wasn't the only State with water quality problems.

Most importantly, a closed beach is one of the most motivating incentives to identify and eliminate the source of the pollution. As a result, many spigots of pollution have been eliminated, improving the entire marine ecosystem. Though progressive at the time of passage, the BEACH Act is based on a testing protocol that takes 24 hours for results. Thus, depending on a State's program, it can take from two to 3 days to close a beach. Recognizing this concern at the time, the BEACH Act required USEPA to identify and adopt a faster test making the program more protective. However the implementation of that mandate is slothful.

Since the BEACH Act answers the question, "Should I have been swimming 3 days ago?" and as there are additional concerns to be addressed, the BEACH Act is overdue for change.

The next evolution of beach water quality protection must do the following:

- Provide same-day answers to the question, "Is it safe to swim today?" by 2009.
- Increase notification speed of test results and information about closures as well as provide easy access to all data to the public.
- Assure States are accountable for implementing, at minimum, the Federal program.

- Increase funding for States to implement the rapid test and reporting systems.
- Require and fund tracking, identification, and source reduction or elimination.
- Allow for continued evolution of the water quality monitoring program with collaboration and participation of academia, scientists, and the public. Research should include improved indicators for protection of public health and the environment. This research should lead to programs to assist in the track-down and elimination of pollution sources. To assure public health, monitoring programs should also be expanded in the future to require testing immediately after rain events.

Mr. Lautenberg in the Senate and Mr. Pallone in the House of Representatives are currently introducing the Beach Protection Act of 2007. This bill is a strong and welcome start toward meeting these goals and we submit the following rationale for these above recommendations.

USEPA SAME-DAY RAPID TEST ADOPTION BY 2009

In the interest of water quality and public health, the implementation of a rapid test for bacteria in recreational waters must be our first priority. The current USEPA approved methods take 24 hours to get results, and many States, including NJ, require two consecutive failing tests to close the beaches. Considering the fact that 70 percent of contaminated beaches are clean 24 hours later³, the resulting delay allows beaches to remain open when contamination is at its peak and forces closures after the threat may have passed. This system fails to protect public health and causes unnecessary negative economic effects to beach communities. Now, thanks to tremendous advances in molecular biology, it is possible to determine the concentration of bacteria in marine and fresh water within 2 hours. These rapid methodologies must be swiftly adopted and utilized.

Despite their ongoing efforts USEPA, for whatever reason, has been unable to advance rapid methodologies at the pace necessary to adequately protect public health. Yet, academia and the private sector have been making great strides in the development, evaluation and accuracy of several different rapid methodologies. In fact, the Southern California Coastal Water Research Project recently released a report that found two different rapid tests, including the QPCR method currently being investigated by USEPA, that were more than 85 percent accurate with respect to the USEPA approved method⁴. This QRQR is within 8 percent of USEPA's current proved method. Ongoing efforts this year continue to improve the accuracy of these rapid methods, and these researchers expect to achieve equivalency with approved USEPA methods by next year. The USEPA is moving forward and will be partnering with the New Jersey Department of Environmental Protection (NJDEP),

³Leecaster, M.K. and S.B. Weisburg, (2001) Effects of sampling frequency of shoreline microbiology assessments. *Mar. Poll. Bull.* 42(11): 1150-1154.

⁴Griffith, J.F., et al. (2007) Beta testing of rapid methods for measuring beach water quality. Technical Report 506. <ftp://ftp.sccwrp.org/pub/download/PDFs/506—beta—testing.pdf>.

which has again stepped-up to its leadership role in beach monitoring by being one of two States participating in the field verification of this method this summer. USEPA must take advantage of these significant advances through collaboration with researchers outside the Agency.

The use of *Enterococci* and *Escherichia coli* as indicators of the possible presence of pathogens in surface waters is based on extensive nationwide epidemiology studies. The difference between the currently approved methods and the new rapid test methods, such as QPCR, are that the former require growth of the bacteria in culture, while the later are able to directly measure the genetic material of these two species. These methods provide results within 2 hours, instead of 24 hours with the current method. For the public, the difference is same-day notification instead of a two or 3 day delay. To be clear, to protect health and for good governance it is vital that the adoption of the rapid test require States to conduct the sampling in such a way as to ensure that water quality decisions are made the same day. Essentially, it is the whole point of the new testing measures.

Because the new rapid test methods continue to utilize the same indicator species (*Enterococci* and *Escherichia coli*) it is not necessary, and could even be considered irresponsible and dangerous, to delay approval of rapid tests until additional epidemiology studies are complete. In the interest of public health, QPCR, or an appropriate rapid test methodology, must be adopted by USEPA once they are shown to be statistically equivalent to currently approved methods. As stated above, this level of accuracy can be achieved by 2009. Thus, legislation should require same-day rapid test application and should include the 2009 deadline.

INCREASE SPEED OF NOTIFICATION

Public notification and posting of degraded water quality must occur without delay. With the availability of rapid testing methods comes the ability for the public to truly know the answer to the question "Is it safe to swim today?" The Internet system, phones, instant messaging, radio, local emergency response teams, and beach personnel (where applicable) make such instant notification real and achievable. Current language in the BEACH Act allows up to 24 hours for the public to be informed. This allows far too much discretion, and the public may not be informed in a timely manner. Thus, legislation should require "instant" or "immediate" public notification.

INCREASE FUNDING

A clean, healthy, and swimmable ocean is the lifeblood of the nation's economy. According to the 2004 Final Report of the U.S. Commission on Ocean Policy, An Ocean Blue Print for the 21st Century, the value of the ocean and coast are "priceless assets." For example, in 2000, the ocean economy contributed more than \$117 billion. The overall economic activity within the coastal watershed counties is even more staggering—contributing to a total of over \$4.5 trillion of the nation's Gross Domestic Product (GNP), which is equal to half of the national GNP⁵.

For such a magnificent return, we fail to adequately invest in protecting this extraordinary asset. In recent years, grants States' programs been paltry. For example, this year USEPA will issue a mere \$9.9 million⁶ to 35 States to implement BEACH Act programs. The coastal economy is worth much greater investments.

To assist States, the bill would double the authorization amounts for State grants from \$30 million to \$60 million, which is an important improvement. However, given the expanded charges and their importance, additional funding is needed. While the authorization is warranted, it is most imperative that Congress and the Administration fully fund this appropriation in the budget each year. In recent years, funding has been paltry. For example although \$30 million is authorized under the BEACH act, for most years Congress has only appropriated \$10 million⁷. Thus, we would urge that the Beach Protection Act provide an authorization and that future budgets appropriate \$100 million annually.

⁵ U.S. Commission on Ocean Policy. An Ocean Blueprint for the 21st Century. Final Report. Washington, DC, 2004 ISBN#0-9759462-0-X.

⁶ USEPA Fact Sheet; EPA-821-F-06-012; January 2007 "EPA Makes Grants Available to States to Implement Water Quality Monitoring and Public Notification Programs at the Nation's Beaches."

⁷ Coast Alliance Report, 2005; *Funding Our Coastal Heritage, A Guide to Federal Investments in Our Coastal Resources*.

ASSURE STATES AND USEPA ARE HELD ACCOUNTABLE

Laws and regulations are only as strong as their accountability and enforcement. By allowing USEPA the ability to cut funding by 50 percent, the Beach Protection Act provides a highly motivating tool to keep States' programs in compliance. It is also important that citizens be able to keep States and USEPA accountable to the requirements. Establishing time lines for meeting or implementing objectives and reporting deadlines are effective tools. The Beach Protection Act should eliminate discretion where possible and establish time lines and deadlines.

CONTINUED PROGRESS FOR THE MONITORING PROGRAM

There are many different research efforts currently underway to advance the science of recreational water quality, including improved techniques for source identification and track-down, exploration of new indicator species, and source specific epidemiology studies. As our knowledge and understanding of bacterial contamination improves, so must our approach to beach water quality monitoring. It is critical that the USEPA program is adaptable and can implement necessary changes to improve the protection of public health and the environment.

Studies show that most beach closings occur from stormwater discharge following rain events. Indeed, Natural Resources Defense Council's Testing the Waters 2006 stated, "Stormwater discharges from roads, buildings, industrial sites, construction sites, and other impervious surfaces are the largest known cause of beach closures and advisories."⁸ However, not all monitoring programs conduct sampling during rain events. For example, samples in NJ are taken on Monday, rain or shine, and not after rain events on the other 6 days of the week.

As funding and programs evolve, it is important to link monitoring activity to rain events. As mentioned earlier, 70 percent of contaminated beaches are clean 24 hours later. If a State is only sampling once a week and it rains in between, people unaware of the threat, may be exposed to harmfully contaminated water.

We urge that the Beach Protection Act require the continued evolution of testing techniques as well as the development of a program to address testing following rain events.

In closing Mr. Chairman, thank you for the opportunity to testify and we look forward to continuing our successful collaboration to improve and protect the health of the coast and ocean.

Senator LAUTENBERG. Thank you. If there is anything else that you include in your written statement, please know that we will accept those comments as well.

Mr. Dufrechou, it is nice to see you, and we welcome your testimony. I will be as liberal as I was with Ms. Zipf, but not a second more.

[Laughter.]

**STATEMENT OF CARLTON DUFRECHOU, EXECUTIVE
DIRECTOR, LAKE PONTCHARTRAIN BASIN FOUNDATION**

Mr. DUFRECHOU. Senator, thank you. I will try to be as succinct as possible.

It is an honor to be here today and I appreciate the invitation, certainly the invitation from Senator Vitter, also.

I would like to leave you with two thoughts. Monitoring, in our opinion, in our experience with the Pontchartrain Basin, is instrumental in the improvement of water quality. Source identification is critical. You have to have both. In our instance, in Lake Pontchartrain, when you think of New Orleans, most people think of the Mississippi River. But Lake Pontchartrain actually is an integral part of New Orleans, it always has been. In the 1940s, 1950s and 1960s, Lake Pontchartrain was a recreational haven for the metro area. As a kid, I learned to swim in Lake Pontchartrain.

⁸Natural Resources Defense Council, Testing the Waters 2006: A Guide to Water Quality at Vacation Beaches.

Unfortunately, in July 1962, the first “no swimming” signs came up on the south shore because of high levels of bacteria. They were red, they weren’t yellow or orange. But I remember asking my dad what pollution meant and he tried to very patiently explain it to me as a 7-year old. But what it meant to me is I couldn’t go swimming in the summer time, which was really disheartening.

Unfortunately, over the next three decades, Pontchartrain’s waters continued to degrade from an array of sources, urban runoff, agricultural activities, actually from some industries also. But in the late 1980s, a group of citizens, not my generation, Senator, but yours, people who had some sense, got together. They remembered Pontchartrain——

Senator LAUTENBERG. Now you are trying to flatter me.

[Laughter.]

Mr. DUFRECHOU. No, sir, I am being sincere. They remembered Pontchartrain in its heyday when it was strong and healthy and robust. They actually lobbied our State legislature to create an entity, the entity I worked for, now the Lake Pontchartrain Basin Foundation, to focus on the restoration of not only the lake but the entire 10,000 square mile basin. We are basically all of southeast Louisiana. We have 20 percent of the State’s land mass, we go from rolling hills in the Florida Parish to the highly urbanized area around New Orleans down to the coast, to the coastal wetlands and barrier islands in the Gulf of Mexico.

We call Pontchartrain a lake, actually, it is like Chesapeake, it is an inland bay, because of the tidal passes to the east, to the Gulf of Mexico. It is an interesting area, with the rivers coming from the north, the fresh water from the rivers mixing with the salty waters of the sea. It is actually the largest contiguous estuarine area on the U.S. Gulf Coast.

Because of these sources of pollution, though, it became literally, it was called the brown mess in the late 1970s and early 1980s. The State of Louisiana unfortunately discontinued sampling of Lake Pontchartrain because the water was so bad for so long in 1978, about the time I was in college. It was not a good day. Because of the citizens that got together, though, and the interest, the community started to look at what was going on and started to address the sources of pollution sewage bypass, as we started working with the ag industry.

When the Pontchartrain Basin Foundation came together, we were the catalyst to try to get everyone around the table, whether it was the local folks, the State agencies, the Feds. By working together, we started focusing on Pontchartrain. Our monitoring program actually started in 1994 as a volunteer program. As we started to see the water quality of the Lake improved, as the sewage started to be cutoff, as urban runoff started to decrease, as we stopped the unlimited shell dredging in the Lake, the water clarity came back.

As the water quality started to improve, actually by the late 1990s, it looked like we were borderline swimmable again. At that point, we started an intensive program, which actually mirrored EPA’s criteria then for fecal coliform. It went further into *E-coli* and most recently into Enterococci also. We started sampling at the historic recreational beaches, the 10 historic beaches surrounding

the Lake. We were able to, within a short period, come up with a criteria, actually reporting criteria, which we are very pleased to announce today that since 2002, we have been reporting on a weekly basis in the *Times Picayune*, the largest regional newspaper and the four local TV stations in New Orleans as well as the radio stations, they all have weekend broadcasts, weather reports and beach reports now for Pontchartrain. It is also listed on our SaveOurLake.org Web site.

We have gone further than that, though, and you are very right about trying to find the sources of pollution that you were mentioning before. With the monitoring program, we were able to actually bracket where pollution was recurring. With that, we started to, OK, here is a bad area, we are going to go into here and try to do more intensive monitoring. We started a source identification with the help of the EPA about 2 years ago for some of the north shore rivers.

With that program, in the period so far, we have accomplished, I believe, 3,600 samples in 120 different spots. We don't just find the sources of pollution, once we find them, we try to provide technical assistance to get rid of it, whether it is a wastewater facility, a private business, a dairy, to get them back into compliance. We have provided technical assistance to over 500 wastewater treatment plants and over 100 dairies in that period.

The program, Senator, it amounted to more quantitative water quality improvements from 10 stream segments to the Pontchartrain Basin. It works. I strongly urge you and your colleagues in the Senate, please, continue to support programs like this, like the BEACH Program. Pontchartrain is not perfect. We have a long way to go yet. But we urge you to please continue supporting programs like this.

May I add one more thing? Thank you and all of your colleagues in the Senate from all of us in southeast Louisiana. It has been a marathon since Hurricane Katrina. We do a lot of coastal work, too, and we are so thankful for all of the help. There are people down there pulling themselves up by the bootstraps, Senator, but they couldn't do it without the help we have gotten.

[The prepared statement of Mr. Dufrechou follows:]

STATEMENT CARLTON DUFRECHOU, EXECUTIVE DIRECTOR, LAKE PONTCHARTRAIN
BASIN FOUNDATION

In July of 1962, the first "No Swimming" signs were posted because of high levels of pollution along Lake Pontchartrain's New Orleans shoreline. For the next three decades, Pontchartrain waters continued to be further degraded by a multitude of pollution sources including poorly treated and untreated sewage, agricultural runoff, urban runoff, and several industrial operations. The water quality became so bad that the State of Louisiana discontinued sampling of the lake in the late 1970s. By the 1980s, Lake Pontchartrain was literally a brown mess. Then, in 1989, as a result of public outcry to restore Pontchartrain, the Louisiana Legislature created the Lake Pontchartrain Basin Foundation (LPBF). The LPBF's mission is to coordinate the restoration and preservation of the water quality and habitats of Lake Pontchartrain and the entire 10,000 square mile Pontchartrain Basin. The LPBF acts as the public's voice and a catalyst to build partnerships among local, State, and Federal agencies, businesses, agriculture, local universities, elected officials, and user groups to focus on the restoration of the Pontchartrain Basin.

The Pontchartrain Basin encompasses 20 percent of Louisiana's area, including 16 parishes and the State's two largest cities, New Orleans and Baton Rouge. The Basin is home to over 2 million citizens, about 40 percent of Louisiana's population. Topography ranges from rolling woodlands in the north to the highly urbanized

metro New Orleans surrounding Lake Pontchartrain to coastal wetlands and barrier islands adjoining the Gulf of Mexico in the south. The 630 square mile Lake Pontchartrain (technically an inland bay because of tidal passes to the Gulf) immediately above New Orleans is the heart of the Basin.

As a result of numerous restoration programs and the efforts of many, in the last 18 years, Lake Pontchartrain's health has improved significantly. Water clarity began improving in the mid 1990s. Pelicans began returning to the lake in the late 1990s. Blue crab harvest increased. By 2000, Lake Pontchartrain appeared suitable for swimming again. Record size trout and tarpon are being caught in Pontchartrain. In the summer of 2005, just prior to Hurricane Katrina, over 20 manatees were sighted in Lake Pontchartrain. Lake Pontchartrain's come back has become an icon for successful environmental restoration in Louisiana. Monitoring has been instrumental in Pontchartrain's recovery. Monitoring not only indicates the health of water, it also helps identify sources of pollution. A summary of Pontchartrain's monitoring programs follows.

BASIN-WIDE WATER QUALITY MONITORING PROGRAM

The LPBF began monthly sampling of the lake in 1994. By 2000, it was apparent that water quality was improving. Thus, in January 2001, we initiated more intensive and frequent sampling with our Basin-Wide Water Quality Monitoring Program. The program has three goals:

- (1) Provide weekly water quality reports to the public;
- (2) Identify pollution sources; and
- (3) Share data with local, State, and Federal agencies.

Each week, we sample 10 recreational sites utilizing EPA-approved methods. The parameters tested include fecal coliform and *Enterococci* bacteria levels, temperature, dissolved oxygen (DO), salinity (specific conductance), visibility/turbidity, and pH. We sample ten additional sites twice monthly for fecal coliform and *Enterococci* bacteria levels only. All parameters except bacteria are sampled *in-situ* (at the site). For bacteriological analysis, water samples are collected at each site and transported to an EPA-approved lab.

To disseminate this information widely, the LPBF has partnered with newspapers and television and radio stations. The *Times-Picayune*, the region's largest newspaper, publishes our water quality reports weekly on its weather page (on Fridays). Television and radio stations air the reports during weather and fish and game programs. The reports are also available on the LPBF Web site, www.saveourlake.org.

To date, the LPBF has collected over 3,500 water quality samples at the 10 weekly sites. These data have shown that Lake Pontchartrain is suitable for primary contact recreation (with high fecal coliform and *Enterococci* levels observed only following rain events). With public access to the data, there has been a significant increase in utilization of the Lake for boating, fishing, swimming, and other water activities. In contrast to the health of Lake Pontchartrain, unfortunately, data indicates that many waterways on the lake's north shore (including St. Tammany and Tangipahoa Parishes) are impaired due to rapid growth and resulting overloads in sewage treatment facilities.

BEACH Program.—While LPBF had been sampling the beach at Fontainebleau State Park (north shore of Lake Pontchartrain) since 2001, we began testing for the BEACH Program (as a contractor for the Louisiana Department of Health and Hospitals (LDHH)) in 2004. In 2007, the LDHH BEACH Program began preliminary water quality testing for Pontchartrain Beach in New Orleans (another site tested by LPBF since 2001). This area was the primary swimming beach for New Orleans in the 1950s and 1960s. The BEACH Program monitoring is the first attempt by DHH to re-evaluate the water quality status of Pontchartrain Beach and re-examine the long-standing swimming advisory for the New Orleans lakefront.

SUB-BASIN POLLUTION SOURCE TRACKING PROGRAM

To improve the health of rivers and streams discharging into Lake Pontchartrain (particularly those on the north shore), the LPBF developed the Sub-Basin Pollution Source Identification/Tracking Program in 2002. As its name describes, this program's goal is to locate and identify specific sources polluting rivers and bayous. Once sources are identified, we provide technical assistance to attempt to eliminate the pollution. This program was piloted on the Bogue Falaya and Tchefuncte Watersheds (St. Tammany Parish) and is currently underway on the Tangipahoa and Natalbany Watersheds (Tangipahoa Parish).

Water Quality Monitoring.—Sites are monitored every 2 weeks for water temperature, dissolved oxygen, specific conductance, pH, turbidity, and fecal coliform and *E. coli* bacteria year round. Using the water quality data and land use patterns, the

LPBF and its partners (Parishes, the Louisiana Department of Environmental Quality's (LDEQ) Small Business Assistance Program, the LDHH and others) track down fecal pollution sources.

Wastewater Treatment Plant Assistance.—LPBF works with WWTP owners/operators to insure the plants are functioning properly. This helps reduce the amount of fecal bacteria entering the waterways. We work with the LDEQ Small Business Assistance Program to offer education, technical support, and help with permits to the plant owner/operators.

Dairy Assistance.—LPBF works with Natural Resource Conservation Service for installation, maintenance, and closure of dairy waste lagoons. This is important because it is estimated that one cow equals about 15 people in terms of waste. We produce educational materials, promote the use of best management practices, and provide support to farmers with their waste lagoons.

Outreach & Education.—Outreach is provided in several ways:

- Technical assistance to WWTP and dairy lagoon owners/operators.
- Public service announcement (PSA) on local television stations.
- In partnership with LDEQ and LDHH, we produced and distributed brochures to educate homeowners on the care and maintenance of home WWTPs.
- Presentations at conferences, publications in journals, and publications on the LPBF Web site.

To date, this program has collected more than 3,600 water quality samples at 120 sites and provided technical assistance to more than 500 WWTPs and 100 dairies. This has led to reductions in fecal pollution on more than 10 waterways. In 2005, the LDEQ selected the Sub-Basin Program as a model for wastewater surveillance activities and switched to a results-based (reduction in fecal loading) program. Most recently, the LPBF is expanding our partnership with Tangipahoa Parish, incorporating water quality issues into the parish's current land use planning effort.

We intend to continue to partner with private, local, and State entities to coordinate restoration efforts. The LPBF's ultimate program goal is to meet the Clean Water Act's "swimable" criteria for all Pontchartrain Basin water bodies. Monitoring (such as the Beach Program) is critical to reduce pollution and achieve national "swimable and fishable" goals.

Lake Pontchartrain Basin Foundation

THE LAKESIDE FOUNDATION, THE LACOURVILLE FOUNDATION, THE FORD AND PAPERSON FOUNDATION, THE MONTGOMERY FUND

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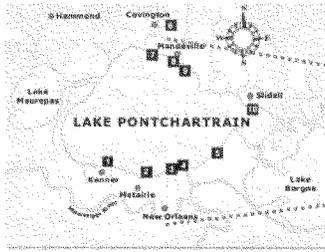
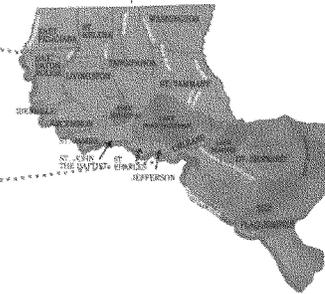
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Weekly Water Quality Report

The Lake Pontchartrain Basin Foundation began an EPA approved intensive water quality monitoring in August 2000, in an effort to educate the public about water quality and to lend evidence to the hopeful retraction of current swimming advisories along the shore of Lake Pontchartrain. Ten historically recreational sites are sampled on a weekly basis and another ten sites of interest are sampled on a monthly basis. Several water quality parameters, including local coliform bacteria levels, are tested. The weekly sites are tested every Tuesday morning for data to be disseminated on Thursdays and Fridays (due to bacteria analysis - a process that takes 48 hours).

Check out the Office of Public Health's web page on [Health/Fish Consumption/Advisories for Mercury](#).

Weekly Sampling Sites

This Week's Numbers

Please note that Lincoln Beach is inaccessible and Bayou St. John has replaced it for the time being.
This report is based on conditions found on the sampling day (8/19/2007) only.

#	Site	Total Coliform (cells/100ml)	Water Temp (°F)	Water Visibility (feet)	Turbidity (nephelometric turbidity units)	Dissolved Oxygen (mg/L)
1	Lafayette	8	83.3	0	2.8	6.21
2	Bonnetal Boat Launch	8	81.4	0	5.0	6.25
3	Old Beach	2	83.6	0	8.0	6.25
4	Pontchartrain Beach	50	84.9	0	6.1	5.16
5	Bayou St. John	700	82.5	0	5.4	5.77
6	Bogus Falaya	130	79.7	2.46	0.0	6.54
7	Tchefunctie River	36	81.5	1.08	3.2	5.93
8	Bayou Castine	560	83.4	1.64	5.2	5.24
9	Fonstalebleau Beach	950	86.6	0.82	5.1	6.87
10	Northshore Beach	170	80.4	0.82	1.1	6.65

says, the runoff could pollute the Lake

What Do The Numbers Mean?

The following criteria are based on the Louisiana Department of Environmental Quality

Coliform Bacteria

0-100: Good
100-1000: Fair
1000-10000: Poor
10000-100000: Very Poor
100000-1000000: Unacceptable

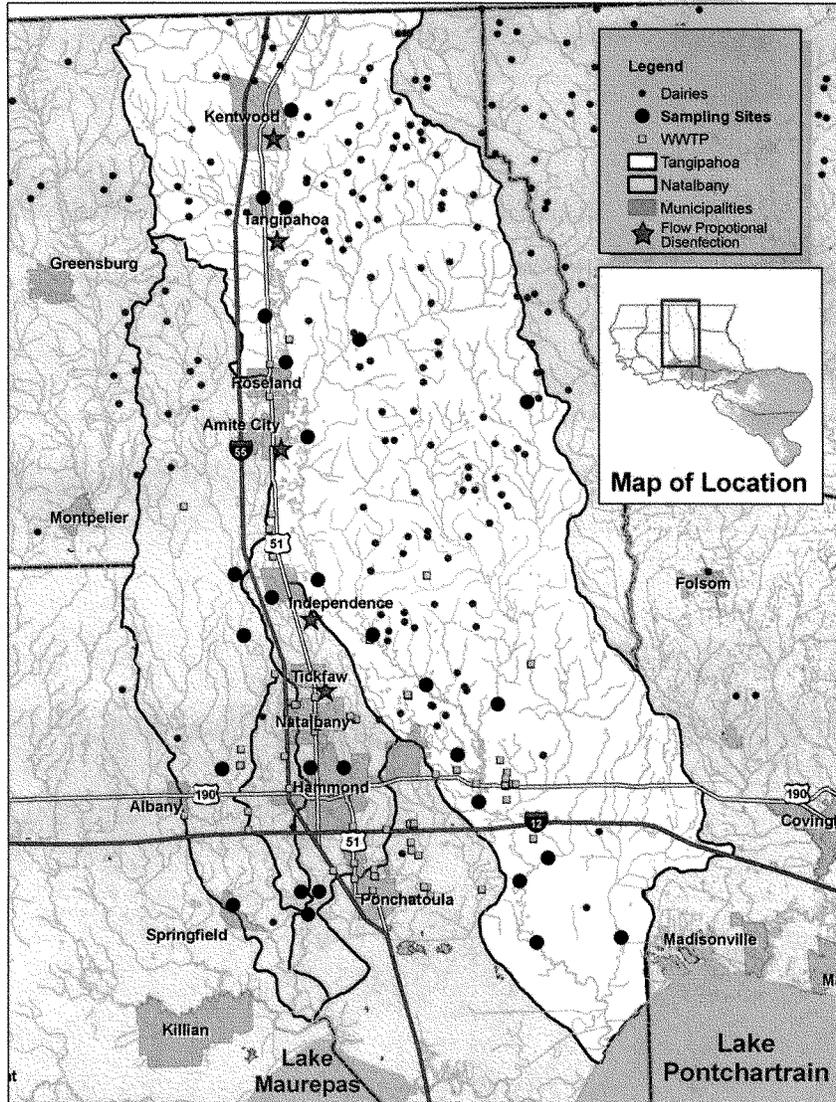
Water Temperature

60-65: Good
65-70: Fair
70-75: Poor
75-80: Very Poor
80-85: Unacceptable

Dissolved Oxygen

5-6: Good
4-5: Fair
3-4: Poor
2-3: Very Poor
1-2: Unacceptable

Sub-Basin Pollution Source Tracking Program- Tangipahoa and Natalbany Watersheds



RESPONSE BY CARLTON DUFRECHOU TO AN ADDITIONAL QUESTION
FROM SENATOR INHOFE

Question. During the hearing, you were asked a question about what happened with the water in Lake Pontchartrain as a result of Hurricane Katrina. In your response, you mentioned that after Hurricane Katrina the toxic water from the city was pumped into Lake Pontchartrain and that the Lake recovered more quickly than you thought it would. As you know, Lake Pontchartrain is a major fishing resource. Would you expand on your comment about the Lake recovering quickly and describe its suitability for recreation and fishing?

Response. Due to failures in the New Orleans hurricane protection system, almost 120 square miles of the metro area were flooded during and immediately after Hurricane Katrina. The floodwaters picked up many contaminants from the urbanized areas including sewage, household chemicals, paints, oil, gasoline, and others. The news media referred to this mixture of floodwater and contaminants as "toxic soup." Once the storm surge receded, the only timely alternative to drain New Orleans was to pump these polluted waters into Lake Pontchartrain. During the month after the storm, approximately 66 billion gallons of polluted water was pumped into the Lake from the city. Impacts to Pontchartrain were significant along the New Orleans shoreline. Bacteria levels climbed to almost 1,000 times higher than levels recommended for recreational swimming. Dissolved oxygen levels dropped to near zero. However, the majority of the Lake was not impacted. When compared to Lake Pontchartrain's total volume, the 66 billion gallons of polluted water amounts to less than 7 percent. Thus, because Lake Pontchartrain was healthy prior to the storm, it was able to rapidly assimilate the pollutants in the floodwaters. Once the pumping stopped, the Lake's water quality began to improve. By late November 2005 (within 90 days of the storm), Lake Pontchartrain was again meeting fishable/swimable standards.

Senator LAUTENBERG. Thank you. I think more help, it is obvious that it is needed, but it is also coming. We want to see a recovery down there, that historic part of our country and the people who live there, to have a strong Government program supporting you, trying to get some restoration.

When I hear you talking about Pontchartrain and what it was in the early years, the 1960s, I think, where it was used as a recreational facility and then for years, unable to be available to the citizenry, it makes a difference in the quality of life. We commend you for the work you do.

Mr. DUFRECHOU. Thank you.

Senator LAUTENBERG. Ms. Dias, you had your surfer representative here already. We are glad to hear from you. It was very interesting. I didn't realize that Congressman Bilbray had such an active surfing life. It is nice to see you, and I invite you to give your testimony, please.

**STATEMENT OF MARA DIAS, WATER QUALITY COORDINATOR,
SURFRIDER FOUNDATION**

Ms. DIAS. Thank you. Good morning, and I would like to thank you, Mr. Chairman, for the opportunity to speak on how we can best protect water quality and the safety of beach-goers across this country.

Surfrider is a grassroots environmental organization dedicated to the protection and enjoyment of the world's oceans, waves and beaches for all people. Many of our members are in the water daily, so poor water quality is a real concern for us.

Surfrider operates through a system of over 60 chapters located in almost every coastal State. Local surfers often turn to our chapters when they believe they have become ill from surfing in polluted waters. Along the east coast, surfers and swimmers are noticing flu-like symptoms after being in the water. In California, poor

water quality is unfortunately becoming far too commonplace. One study measured a 10 percent increase in illness for each additional 2½ hours of weekly water exposure from surfing at Orange County beaches.

The Blue Water Task Force is Surfrider's water quality monitoring program. I will be illustrating the successes and needs of the BEACH Act by relating some of our chapters' experiences interacting with State and local programs through the Blue Water Task Force. The BEACH Act of 2000 is responsible for great improvements in beach monitoring. Unfortunately, under-funding has prevented full State implementation and has left public health at risk in many instances. Many State programs are under-staffed and are unable to meet all of their current testing requirements. Many of our Blue Water Task Force sampling programs have thus been designed to fill in the gaps left by State programs.

Beach monitoring is limited to the summer time only in many cold water States. Surfers, however, are in the water year around. Even swimming is popular into the warmer fall months. Surfrider members in both Delaware and New Hampshire have been working with the States to extend the beach monitoring season beyond summer without adding further financial or staff burden to the Agency. In Delaware, Surfrider volunteers began collecting water samples year-round and delivering them to the local college for analysis after the chapter received numerous complaints from surfers who got ill after surfing in the waves generated by a fall storm.

Inadequate funding has also resulted in geographical gaps in State programs. In Mendocino, CA, Surfrider volunteers have been collecting water samples from some of the more remote beaches and delivering them to the health department to increase the coverage of the county's monitoring program. States are also forced to prioritize which beaches they will sample. State and county health departments often choose to monitor the beaches where they know there are water quality problems, leaving the water quality at lower priority beaches uncertain for most of the year.

Both in Oregon and New Jersey, Surfrider data has demonstrated new water quality concerns at such beaches, and as a result, these beaches have been added to monitoring programs, even though they were not previously being sampled. If Federal funding were appropriated at the levels recommended by the Beach Protection Act of 2007, I believe many of the gaps and problems with State implementation could be corrected.

Surfrider is also supportive of using BEACH Act funds to investigate the sources of pollution and to take action to correct these problems. There is certainly a great need in every coastal State to have better information.

To speak to EPA's comments about, they weren't sure it was relevant for this Act, I really believe it is. Because what you have happening is, people at the beach are seeing the signs, you can't go in the water. So they go to the lifeguards and say, why can't we go into the water? They say, well, because the health department put that sign there. So maybe they call the health department and they say why? And they say, well, because the water sample is bad. So they say, why is the water sample bad? And the health depart-

ment says, we don't do that. We just monitor the quality. Then it is up to citizens to really push to find out what the reasons are.

Also, I think that we need our new rapid methods. I think there are methods that are ready to be considered seriously for approval. I don't think we should be waiting. But EPA really needs a sound but streamlined process to approve these methods now.

I think the panel should consider State implementation of these methods, though. One year after approval might not be realistic. They are going to have to buy new, expensive equipment and learn how to use it in many cases. So you need to really pay attention that it is going to take some real funding and it is going to take some time to get the States up to the level where they are able to use these methods.

We also believe that annual reviews are a good idea and suggest that EPA use these reviews to take a close look at how beaches are being posted. This has been an area of concern for many of our members. At Pismo Beach in California, they were using cardboard signs that were getting blown away or blown down. This is improving; however, that is just ridiculous. Also, in Corpus Christi, TX, the city isn't even posting their beaches, because they are afraid that it is going to hurt the tourism industry. The Surfrider chapter there is trying to educate the city by saying, it is actually protective of the tourism industry. Wait until someone gets sick, because you knew the water was bad and you didn't tell them, your tourism is gone.

So GAO was talking about the inconsistencies in the State program. It is huge. I have talked to Surfrider members in every State across the country who are dealing with these issues and the story is really different everywhere you go. So it is in posting, it is in notification, it is in sampling, it is in frequency, it is in coverage, there are a lot of inconsistencies.

In closing, I would just like to thank you, Senator Lautenberg, for taking the initiative to make a lot of much-needed improvements to this Act. I would like to urge Congress to consider the real cost of running comprehensive State beach monitoring programs that are in the best interest of public safety, environmental health of our beaches and also the vitality of our coastal economies. Thank you.

[The prepared statement of Ms. Dias follows:]

STATEMENT OF MARA DIAS, WATER QUALITY COORDINATOR, SURFRIDER FOUNDATION

Good Morning. I'd like to begin by thanking Chairman Lautenberg, Senator Vitter and the other members of the subcommittee for the opportunity to speak on how we can best protect water quality and the safety of beach-goers across this country. My name is Mara Dias, and I am here before you today on behalf of the Surfrider Foundation.

The Surfrider Foundation is a grass-roots, non-profit environmental organization dedicated to the protection and enjoyment of the world's oceans, waves and beaches for all people, through conservation, activism, research and education. Our over 50,000 members come from all walks of life. We are surfers. We are kayakers. We are moms, dads, and 10-year old kids. We are scientists, bankers and musicians. What draws our diverse membership together is a love for the ocean and a strong desire to protect our oceans and beaches for everyone's enjoyment. Poor water quality is real threat that concerns everyone in Surfrider. A recent recreational survey found that surfers spend more time in the ocean water than any other recreational user group. I have been to coastal management meetings here in DC where the

opening slide of a presentation from the Santa Monica Bay National Estuary Program showed the silhouette of a surfer as an indicator of water quality.

The Surfrider Foundation operates through a system of over 60 chapters located in almost every coastal State, and we are expanding internationally. On the local level our chapters are educating school children and members of the public on how to take care of our beaches and coasts. Our members are participating in water quality monitoring and scientific research programs, and we are working with local governments to ensure that coastal development is not harming our beach environment or taking away the public's right to access and use our beaches.

The Blue Water Task Force (BWTF) is the Surfrider Foundation's water quality monitoring, education and advocacy program. It is utilized by our chapters to alert citizens and officials in their communities about water quality problems and to work toward solutions. The BWTF has succeeded in raising public awareness of coastal water pollution levels and has precipitated the establishment of State and local government water quality monitoring programs in many communities. In my testimony I will be illustrating the successes and needs of the BEACH Act, by sharing with the committee some of our chapters' experiences interacting with State and local beach monitoring programs through the Blue Water Task Force.

The BEACH Act of 2000 is responsible for great improvements in beach monitoring programs in coastal States across the country. Previous to this legislation, some States, such as Washington, Wisconsin and Oregon, did not even have State coordinated beach monitoring programs. Other States, such as New Jersey, Virginia and California, were able to improve their already established monitoring programs with the new Federal funding by adding beaches and sampling more frequently. The BEACH Act also set national water quality monitoring and reporting standards, whereas before there was inconsistency amongst the indicators of water quality that States were using to safeguard public health.

As State beach monitoring programs have improved, the public is also becoming more aware of the water pollution problems that are affecting our beaches. Public demand and political will to find the sources of pollution and to take action to correct these watershed problems are growing. Often the source of bacterial pollution that is causing our beaches to fail water quality standards is stormwater runoff that flows across dense development and impervious surfaces in coastal watersheds. Many local governments are trying to lessen the impact of development on water quality by requiring the principles of Low Impact Development and Stormwater Best Management Practices to be employed during construction and maintenance.

Unfortunately, perennial under-funding has prevented full State implementation of the BEACH Act and has left public health at risk in many instances. Because of inadequate funding, many State programs are under-staffed and do not have the resources to meet all of their testing requirements. Many of the Surfrider BWTF beach sampling programs have been designed to fill in the gaps left by State agency programs.

As is the case in many cold water States, Rhode Island's Bathing Beaches Monitoring Program only conducts water sampling during the summer months from Memorial Day to Labor Day. Surfers, however, are in the water year-round. Even swimming remains popular into the warmer fall months, and let's not forget the wintertime's polar bear clubs. In order to provide year-round water quality information, the Rhode Island Chapter has been collecting water samples from over a dozen ocean beaches in collaboration with the University of Rhode Island's Watershed Watch program.

Surfrider members in both Delaware and New Hampshire are working in collaboration with their State agencies to extend the beach monitoring season beyond the summer months without adding further financial or staff burden to the States. In Delaware, Surfrider volunteers began collecting water samples year-round and delivering them to the University of Delaware's School of Marine Studies for analysis after the chapter received numerous complaints from local surfers who got ill after surfing in the waves generated by a fall storm. In New Hampshire, the Department of Environmental Services (NHDES) applied for additional funding from the USEPA to extend their sampling program into the fall and spring seasons after the local Surfrider chapter expressed their concerns over the lack of water quality information for most of the year. The NHDES now provides supplies and training to the Surfrider volunteers, who in turn collect the ocean beach water samples.

In addition to seasonal gaps, inadequate funding has also resulted in geographical gaps in State beach monitoring programs. In Mendocino, California, Surfrider volunteers have been collecting water samples from some of the more remote beaches and delivering them to the Mendocino County Environmental Health Department to increase the coverage of the County's beach monitoring program. The County does not

have the staff resources available on their own to visit all of its bathing beaches on a regular basis.

Limited funding for staff often forces State programs to prioritize which beaches they will sample. While high priority beaches can be sampled upwards of 3–4 times per week, other lower priority beaches are only visited monthly or yearly, leaving the actual water quality at these beaches uncertain for most of the year. State and county health departments often choose to monitor the beaches where they know there are water quality problems, rather than devote precious staff time and laboratory resources sampling beaches that have not been problematic in the past. Unfortunately this leaves public health at risk.

Local surfers often turn to Surfrider when they believe they have become ill from surfing in polluted water. Many, if not all of our chapters, have fielded such complaints, and have in turn voiced inquiries to their local health departments. From Newport, Rhode Island, along the Jersey Shore, and down to Florida, surfers and swimmers are noticing flu-like symptoms after being in the water. In urbanized areas of California, poor water quality is unfortunately becoming far too commonplace. One study performed by University of California researchers measured a 10 percent increase in illness for each additional 2.5 hours of weekly water exposure from surfing at beaches impacted by urban runoff in Orange County, in comparison to surfers from the more rural watersheds of Santa Cruz County.

Because many Surfrider members have a very intimate knowledge of the conditions of their local beaches, many State programs consult us before establishing their sampling sites and frequencies. Both in Oregon and New Jersey, Surfrider BWTF data have been shared with the Agency programs to demonstrate new water quality concerns. As a result, the agencies have added beaches to their monitoring programs that were not previously being sampled.

If Federal funding were appropriated at the levels recommended by the Beach Protection Act of 2007 introduced by Chairman Lautenberg, I believe many of the gaps and problems with current State implementation could be corrected.

Surfrider is also pleased to see language included in this bill allowing States to use their BEACH grants to investigate the sources of beach water pollution and to take action to correct these problems. Currently, Surfrider is working with many local governments and agencies to secure funding to perform these types of studies so that action can be taken to solve our watershed pollution problems and cleanup our beaches. In California, the San Luis Bay Chapter has cooperated with the County Health Department and city of Pismo Beach to submit a grant application to the California State Water Quality Control Board to determine what has been causing Pismo Beach to regularly fail to meet water quality standards. Likewise, the San Mateo County Chapter has applied to the Water Quality Control Board for funding to track the source of pollution at the impaired, 303D listed Capistrano Beach. Further up the coast in Oregon, the Newport Surfrider Chapter is putting up its own money and is working hard to obtain match funding from other environmental organizations and agencies to identify what is contributing to the bacterial contamination of Nye Beach.

There is certainly a great need in every coastal State to have better information available on what is causing our water quality problems, so that coastal communities can target these sources with effective management programs and practices. Providing water quality information to the public was a good first step. It is now time for the Federal Government to do more to protect public health, by providing financial assistance to help communities fix their beach pollution problems.

The Surfrider Foundation also agrees with the authors of the Beach Protection Act of 2007 that EPA needs to begin approving new methods that will give beach managers water quality information within a couple of hours. Current methods employ a 24-hour incubation period, so you know today that the beach was polluted yesterday. Many States also resample after receiving a result that does not meet the standards, so it may be over 48 hours before a water quality problem is confirmed and decisions are made to close beaches or to issue swimming advisories. We certainly should be able to do better than this. Great advancements in method development have been made recently in the research community. The EPA needs to develop a sound, but streamlined process to approve these new rapid methods.

This panel, however, should consider the time line this legislation sets for State implementation of newly approved methods. One year after approval may not be feasible. The new rapid methods that are now available, would require the States to not only purchase new and expensive laboratory equipment, but they also would either have to hire new employees or get their current employees the training they would need to run these highly specialized and technically demanding methods. Additionally most agencies would likely want to run the new methods simultaneously with their current methods for at least one season, as many did when they adopted

new standards in 2004. This would allow them to work out any problems with their new sampling procedures and give them confidence in their results. Perhaps, it would be better to require the States to submit a plan for implementing rapid testing methods within a year of EPA adoption.

There are rapid methods available now that the EPA should be considering for approval. If the EPA is able to move quickly toward the approval process, we should be able to see these methods being used at our beaches within a few years, even allowing time for State budgeting, procurement and training needs. I would recommend that this panel seek input from some of the State agencies on this specific provision and to be fully aware that any change in methodology is going to take a significant financial investment for equipment purchases and staff training.

In the Great Lakes region some coastal States are using water quality models to augment their beach monitoring programs. Models have been developed that are allowing beach managers to predict water quality based on weather and physical conditions of the water and make beach closure decisions almost instantaneously. Frustration, however, has been expressed from some of States because they are not able to use their BEACH grant funds to help develop or support their water quality modeling systems. Supporting the States in their endeavors to develop accurate water quality models may be an even quicker route to supporting rapid assessment of beach water quality and timely public health decisions.

The Surfrider Foundation is also supportive of this bill's requirements that State programs create public online databases. Many States already have these resources but there is discrepancy amongst States on the quality, quantity, and timeliness of information available. The EPA should take a stronger leadership role through the proposed annual reviews, to set the bar for some of the State programs whose programs are not as robust as some of the more experienced States who have been coordinating beach programs for decades and putting significant resources into their monitoring programs.

Another suggestion for the annual reviews is that the EPA should take a close look at how beaches are being posted. This has been an area of concern for many of our members. At Pismo Beach, California cardboard signs that were not standing up to the elements were previously being used to post swimming advisories. Through the cooperation of the local chapter and a newly formed Pismo Beach Water Quality Group, new permanent signs are now being developed. Additionally in Corpus Christi, Texas, the City has been reluctant to post beaches even when directed to do so by the Texas Beach Watch Program. This reluctance stems from fears by the commerce and tourism industries that posting beaches will have negative economic impacts. The Texas Coastal Bend Chapter has been trying to educate the City on how issuing swimming advisories and posting beaches actually protects the tourism industry from the certain economic disaster that would occur if a number of tourists become ill and the proper warnings were not in place.

In closing, the Surfrider Foundation would like to thank Senator Lautenberg and his cosponsors for taking the initiative to make much needed improvements in the BEACH Act. We also urge Congress to consider the real costs of running comprehensive State beach monitoring programs that are in the best interests of public safety, the environmental health of our beaches, and the vitality of our coastal economies.

Senator LAUTENBERG. Thank you, each one of you. Because this confirms the fact that there is, if we don't do this, there is terrific cost involved, not just the personal trauma of going swimming and coming home or winding up at the doctor the next day or even worse. But there is, to put it bluntly, it is a loss of income, expense. One of the reasons that I was so vigorous in writing the first BEACH law was because I felt New Jersey was more diligent about reporting problems than some of our neighboring States. Frankly, we didn't want to lose the business for being good actors.

So I think that message has to get through to the States: if you don't do it, they are all liable to find easier places to get to that are cleaner or other places to get to that are cleaner and abandon their interest in being in your State or on your coast. That would be a terrible blight. That is as bad as having a natural disaster come along. You are an expert now, Mr. Dufrechou, about natural disasters, what happened there.

I am curious about something. What happened with the waters in Lake Pontchartrain as a result of Katrina?

Mr. DUFRECHOU. After Hurricane Katrina, 120 square miles of the New Orleans metropolitan area were flooded, 120 square miles behind the levees, sir. Because of the topography, because most of New Orleans is, well, half of New Orleans is literally below sea level, all that 120 square miles is behind the levee system. So once the water was inside the levee system, the only feasible way to get it out in the near term was to pump it out. The pumping had to go into Lake Pontchartrain.

And by gravity, also, the topography, the little bit of relief we had, the highest point of the city is actually the Mississippi River, which is the south side of the city. It slopes gradually to the lake-front, which used to be a swamp, a cypress swamp, along the shoreline. The 120 square miles that were pumped out over a period of 4 weeks amounted to 66 billion gallons of water. There was a lot of hype in the media of toxic soup. It was not hype, it was true. It was everything from sewage to oil and gas and automobiles, household chemicals, anything that was in the urban area.

The reality, however, is that Pontchartrain, fortunately, had gone into the storm very healthy. It was back to 1950 conditions as far as water quality. We were fishable-swimmable prior to the storm. By volume, Lake Pontchartrain is a large body of water. It is 630 square miles. Still, that 66 billion gallons is a lot of water. When it was discharged, it hugged the south shore, basically the New Orleans shoreline. By volume, it was less than 7 percent of the Lake's volume.

So we are not advocating this, but what happened is, Mother Nature stepped in and the solution to pollution is dilution. That is exactly what happened. Over a period of about 6 weeks, we knew the Lake was going to recover, frankly, it recovered more quickly than we thought it was. But Christmas of 2005, the Lake again was suitable for primary recreation, which was amazing.

Senator LAUTENBERG. That is excellent.

Mr. DUFRECHOU. However, we are not suggesting that—
[Laughter.]

Senator LAUTENBERG. No, no. We don't stop there. When something is good, you always want more of it.

Mr. DUFRECHOU. Yes, sir. Thanks for asking.

Senator LAUTENBERG. Cindy, what benefits might evolve from more rapid testing for bacteria at the beach? Will the faster testing turnaround promote local agency and citizen groups such as Clean Ocean Action? What kind of benefits are derived from quick action on these things and more thorough testing? What are the practical effects? We know that people might develop less illness or less reaction to it. But are there other benefits? Are people waved off when they see these things, not to return? What is the effect?

Ms. ZIPF. I think that one of the primary effects is that we will catch more of the actual water quality problems. Right now, 70 percent of the beach closures happen within the first 24 hours. Well, it lasts about 24 hours. So if your test takes 2 to 3 days, you are not going to be able to get to some of those closures. Because of the link to track-down, you are not going to have an incentive to track down those sources of pollution.

So faster testing means we are going to have better water quality testing programs. Public health will be protected. We will find more areas that are of concern, which will lead to more track-down, which will lead to more reduction of those sources, which then will improve the habitat, not just for people, but for all marine life as well. I think that is one.

And then of course, I think that the other practical application is that there will be more confidence in the system by citizens.

Senator LAUTENBERG. Yes. Funny, the ancillary things that are happening. A specialty of mine is transportation. We now have better train service down to the surf communities. So keep the water clean and keep them coming, get them off the roads at the same time, stop the congestion. Wow, just one good world.

Ms. ZIPF. Perfect.

Senator LAUTENBERG. Surfrider, I didn't realize how extensive the interest is, or the organized interest in surfing. You talked about cold water surfing. I have been to the South Pole in my interest in the environment. I don't know how cold people go into the water, but I can tell you, what we are missing is a sufficient amount of cold water in places around the world, and to use it when it is clean recreationally to me is a great idea. Because it brings home the peripheral value of cold water. It is not just for a day of surfing if you are waved, but it brings home the reality of what is happening to our earth and our waters. I am also taking on that fight when we get finished with this.

But the quality of State monitoring and testing programs, I think you did say that it varies significantly in your own organization. Does your organization, the employees, have a presence all over?

Ms. DIAS. No, we don't have employees all over. I am an employee of the Surfrider Foundation. We probably have over 50,000 members and activists and volunteers. We have a staff of about 20, maybe 25. On the east coast, we have two people, one in New Jersey, one in Florida. I am the only environmental staff on the east coast. Our headquarters are in California.

But you have a lot of people who go to the beaches, they go to the beaches every day and they see things happening to the beaches that they don't like, and they want to be involved in what is happening in their communities and at the beaches and in the water quality. So we have Surfrider volunteers going out teaching school kids how to take care of water and the beaches. You have volunteers going to city planning board meetings and talking about coastal development and making sure that the public is still able to get to the beaches.

It is really grass roots, you have a lot of people out there.

Senator LAUTENBERG. They are acting in some way, and I am sure they might not like this characterization, but like the canaries in the coal mine, an early warning about what the water is like, because they get out there at some distances as well.

Ms. DIAS. Yes.

Senator LAUTENBERG. So we congratulate each one of you. Your testimony was excellent. You have provided the answers before I asked the questions, which was the best way. We are once again saying that all of the statements that you would like to furnish will be recorded in the record.

With that, we compliment the staff here who helped me, not my usual staffers but the committee team. They are very diligent about their work and I appreciate their support.

So we say good surfing, good fishing, good swimming, good health to all of you. Thank you very much and the hearing is over. [Whereupon, at 11:23 a.m., the committee was adjourned.] [Additional statements submitted for the record follow.]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE
STATE OF OKLAHOMA

Thank you Chairman Lautenberg for holding this hearing. While my State of Oklahoma is not required to comply with the Beach Act of 2000, Oklahoma did adopt EPA's 1986 bacteria criteria for recreational waters. Therefore, I am quite interested in EPA's progress in developing new criteria which it was mandated by the Beach Act to have done by October 2005.

The Beach Act has been very successful in increasing the public's awareness of potential problems at their local beaches. In 1997, 1,000 beaches were monitored for pathogen indicators. Thanks to the Beach Act, 3,500 of the Nation's 6,000 beaches are now regularly monitored providing potentially valuable information to the public about the safety of these recreational waters.

However, the information we are getting may not be accurately predicting the risk to people swimming in the water. According to a recent Government Accountability Report, local officials at 96 percent of the beaches in the Great Lakes States indicated it took between 18 and 36 hours to get test results back. By the time the beach is closed, the contamination has likely cleared up negating the need to close the beach but potentially having left the visitors from the previous day exposed. EPA is in the process of developing rapid response testing procedures. Further, our Chairman, as well as our two colleagues from the House each have bills that include provisions addressing real time testing. While having access to quick information is important, we need to be sure we are testing for the right indicators.

The Beach Act required EPA to finalize new criteria because of significant concerns raised about its 1986 criteria that all coastal States and many inland States have now adopted. It is important to look at some of the issues raised regarding the criteria so that similar mistakes are not repeated.

In its 2002 water quality assessment report to EPA, Oklahoma had more than 5,300 miles of rivers and streams impaired by pathogens. It is the State's No. 1 cause of impairments to rivers and streams and yet, like many inland States, Oklahoma has not seen a level of illness consistent with the impairments. Part of the problem may be that gastrointestinal illnesses often go unreported to health officials and an individual may assume the illness was brought on by something he ate as opposed to the day at the beach. However, the States have questioned the applicability of the criteria to all waters as well as whether the criteria adequately reflect daily exposure risks.

Furthermore, As GAO noted in its May 2007 report on the Beaches Act, according to EPA scientists, *E.Coli* may not be a good indicator because it occurs naturally in many environments. Additionally, on many remote coastal beaches, the bacteria are from animals which are largely believed to pose much less risk to humans than those from other humans.

With so many questions and concerns about the current criteria, it is critical that the new criteria be correct. Beaches across the country are being closed every day and as one of today's witnesses points out, it is costing States and local governments significant recreation dollars. To test, monitor and treat for the wrong bacteria will not only cost time and resources but it will not result in an improvement in public health. While Agencies should absolutely meet their statutory deadlines, I am quite concerned about rushing the process and sacrificing science in order to more quickly develop new criteria.

The Government Accounting Office recommended EPA develop a timeframe for the completion of these much needed studies and for the issuance of the new criteria. EPA has indicated that it may take as many as 5 years to complete the studies. The Agency recently convened a panel of 40 experts to determine the best path forward and I believe EPA is heading in the right direction. While we may all want answers tomorrow, we need to give the Agency the time it needs to develop scientifically sound criteria.

I look forward to working with the Agency and my colleagues as we look at whether the Beach Act should be reauthorized and how to ensure the nation's recreational waters are safe.

STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR FROM THE
STATE OF MARYLAND

Mr. Chairman. Thank you for holding this hearing today. We have a number of important witnesses to hear from, so I will keep my opening statement brief.

This hearing is especially timely. Today the high temperatures in Maryland are expected to be in the 90s. The sun is out. School children are on summer vacation. For many Marylanders, that means it's time to head to the beach.

Earlier this week I was in Ocean City, Maryland, one of the premier beach spots on the mid-Atlantic coast. On our drive back home, as we crossed the Chesapeake Bay Bridge, we could look down on Sandy Point State Park, which is one of the most popular beaches in the Chesapeake Bay.

Both of these vacation spots were crowded with families, swimming, surf fishing, and just getting their feet wet on a long, sandy walk. Across the State, people are enjoying some of the beauty of our State. In every instance, these beachgoers have a right to know that the water quality meets all EPA standards. Unfortunately, that's not always the case.

Yesterday, with the temperatures above 90 degrees, two Maryland beaches were closed because of high bacteria counts in the water. The Charlestown Manor Beach and the Buttonwood Beach, both in Cecil County, were closed by the local health department, which advised the public to stay out of the water.

The day before yesterday, two additional beaches were closed because of excessive bacteria levels. The Great Oak and Gregg Neck beaches in Kent County had to be closed to protect human health.

These closures, unfortunately, are not new and they are not uncommon.

The Maryland Department of the Environment monitors 81 beaches in the State. Last year 18 of them, or 22 percent, had at least one advisory during beach season.

A total of 31 beach notification actions were reported. Half of them lasted more than a week, including persistent problems with high bacteria counts at Sandy Point State Park.

Clearly, we need to continue the monitoring programs for the valuable information they provide us. But as the data reveal, we still have a long way to go to provide beach-goers in Maryland and around the country with water quality they have every right to expect on these hot summer days.

The Federal grants to States under the 2000 BEACH Act are being put to good use. We need to continue and expand that effort. But we also need to make some key improvements, including a provision to make these funds available to investigate and mitigate contamination sources.

I look forward to hearing from our witnesses today, and to working with you, Mr. Chairman, in taking some additional steps to deal with this important issue.

People in Maryland and across the Nation are ready to hit the beach. Let's make sure that they can actually go into the water.

Thank you, Mr. Chairman.



EXECUTIVE COMMITTEE

June 26, 2007

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TREASURER

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Director of Planning
& Coordination
Massachusetts Water
Resources Authority
Boston, MA

Dear Chairman Lautenberg and Sen. Vitter:

SECRETARY

Kevin L. Shafer
Executive Director
Milwaukee Metropolitan
Sewerage District
Milwaukee, WI

The National Association of Clean Water Agencies (NACWA) thanks the Transportation Safety, Infrastructure Security, and Water Quality Subcommittee for holding today's hearing, "Protecting Water Quality at America's Beaches," and for the important focus that the Subcommittee has put on protecting the water quality of our nation's recreation waters. NACWA's nearly 300 municipal members share your passion for ensuring the health of America's recreational waterways and beaches. We are committed to working with the federal government, state governments, and nongovernmental organizations to update and improve existing recreational water quality standards for bacteria to enhance public health and environmental protection.

PAST PRESIDENT

William B. Schatz
General Counsel
Northeast Ohio Regional
Sewer District
Cleveland, OH

EXECUTIVE DIRECTOR

Ken Kirk

NACWA strives to maintain a leadership role in the development and implementation of scientifically-based, technically-sound, and cost-effective environmental programs for protecting public and ecosystem health. Protecting the health of the nation's beaches has always been at the forefront of NACWA's environmental agenda. However, the failure of the U.S. Environmental Protection Agency (EPA) to meet its obligations under the Beaches Environmental Assessment and Coastal Health Act (BEACH Act) has put NACWA's members in a difficult position as they are deprived of information they need to make appropriate planning and design decisions for future wastewater and stormwater infrastructure investments. NACWA members subject to the BEACH Act are required to ensure

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that their effluent (discharge) meets limitations for pathogen indicators that have not been sufficiently validated and may not be appropriate for all coastal waters. Accordingly, NACWA recently intervened in *Natural Resources Defense Council v. EPA*, an important case challenging EPA's failure to take mandated actions under the BEACH Act.

NACWA supports the Subcommittee's important oversight of EPA's activities regarding recreational water quality criteria. We encourage the Subcommittee to work with EPA to ensure that any new criteria are based on valid science and supported by sufficient studies to adequately protect beaches and coastal waters. NACWA is happy to provide any additional input to the Subcommittee on this important issue.

Once again, thank you for your leadership and your work to protect the health of our nation's recreational waters.

Sincerely,

A handwritten signature in black ink, appearing to read "K Kirk".

Ken Kirk
Executive Director