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REVIEW OF THE USE OF DISPERSANTS IN RESPONSE TO THE DEEPWATER HORIZON OIL SPILL

HEARING

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

SPECIAL HEARING

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[1] Died, June 28, 2010.

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REVIEW OF THE USE OF DISPERSANTS IN RESPONSE TO THE DEEPWATER HORIZON OIL SPILL

THURSDAY, JULY 15, 2010

U.S. SENATE,
SUBCOMMITTEE ON COMMERCE, JUSTICE,
SCIENCE, AND RELATED AGENCIES,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:04 a.m., in room SD–192, Dirksen Senate Office Building, Hon. Barbara A. Mikulski (chairwoman) presiding.

Present: Senators Mikulski, Lautenberg, and Murkowski.

OPENING STATEMENT OF SENATOR BARBARA A. MIKULSKI

Senator MIKULSKI. Good morning, everybody.

We've been advised by the floor that there will be a vote at or around 11 o'clock on the financial reform legislation.

So while we're awaiting the arrival of Lisa Jackson, I'm going to move ahead with the hearing.

We are so pleased that Dr. Larry Robinson is here from the National Oceanic and Atmospheric Administration [NOAA], and when he concludes, hopefully Ms. Jackson's here. If not, we'll move on to those from the community. And we'll certainly go forward to hearing our very able administrator from EPA, who I traveled to the gulf with.

This hearing is now going to come to order. It is an official hearing of the Commerce, Justice, and Science Appropriations Subcommittee.

And the purpose of the hearing is to determine what it is that we know about dispersants. What is the impact that it's having on people, marine life and on communities? What do we know? Can we count on what we think we know? And what do we need to know more?

And as we get ready to put a bill for fiscal year 2011 together, we want to look at, are there things that we need to add in the Appropriations Committee to either the NOAA budget, or encourage it at EPA and others to see what we do.

Our No. 1 concern is the safety of the American people, safety of the air they breathe, and the food they eat. And when a catastrophe affects them, what are the consequences of that catastrophe?

We really salute our President for being so compassionately involved in this issue. Having talked with him and then having traveled to the gulf with key team members—like you, Ms. Jackson—we know that the administration is deeply committed to, really, not only stopping the leak, but making sure that we contain the negative consequences of the leak.

So today is day 86 of this national catastrophe. The world is waiting to see if the new cap will stop gushing. And I'm holding this hearing to examine the use of oil dispersants in response to the spill.

As of July 13, which was yesterday, BP had used 1.8-million gallons of oil dispersants in the gulf, over 1 million of these on the surface of the water, 735,000 below the surface. And we need to know, what does that mean? Has that been good? Has that been bad or is there information out there that we really need to pursue?

What we do know is that dispersants are chemicals that break up oil slicks into small particles, a tool that has often been advised to prevent oil from washing up on the shore to negatively impact habitat, wildlife and the beaches and public health.

We know that dispersants break up in small droplets, that they sink in the water and that they become invisible. Now, when they become invisible, they're eaten up by tiny microbes and then that becomes part of the food chain. Gee, what does that mean? And what does being invisible mean? Because it's invisible, it can't be overlooked and under evaluated.

I'm concerned because I feel, and I believe, and my reading verifies, that we don't know enough about the impact of dispersants and dispersed oil on people, marine life and water quality.

I'm very concerned, and my question is, should we ban them? Should we take a time out from using them? What are the short- and long-term consequences of using them?

I have been a Member of Congress for some time. There are those that say that's a liability. I want to turn that experience into an asset. So I believe—whatever I'm told, I want to trust, but verify.

I believe that often we're told, don't worry, honey, we'll take care of you and it won't hurt. We only then find out that a very good product—what we thought was a good product turns out to have vile consequences.

I don't want dispersants to be the Agent Orange of this oil spill, and I want to be assured, on behalf of the American people, that this is okay to use, and okay to use in the amounts that we're talking about.

So there are questions about how does it move, where will it go, do we clean it up, is it toxic, does it create dead zones, questions that have been raised in the public domain and by people sitting at the table, both really well known and well respected scientists and those who have been advocates.

As I said, I'm very concerned about it. Do they work? Do they linger? How toxic are they? And what happens to the food chain—does food change?

The use of dispersants in the Deepwater Horizon spill in this magnitude is unprecedented. In Exxon Valdez, we used 250,000

barrels. By comparison, Deepwater, the biggest oil spill in history, now uses 35,000 to 60,000 barrels per day. Wow. So we used more in 10 days than during the whole Valdez experience.

Responders tried to use these dispersants at the Valdez spill, but only used 4,000. BP has used 1.8 million gallons.

Subsea use of dispersants seems to be an uncharted territory. Dispersants have never been used under water like this.

So I'm here to listen to those people that have been confirmed by the Senate to tell us the truth. And we encourage you today, speak truth to power. Speak truth about what you know. Speak truth about what you don't know. Don't pull any punches, and knowing both of you as I do, I know that you won't.

I would really ask, on behalf of the people and those watching C–SPAN, don't use acronyms. I don't want to use that, we told BP that we have an RSC that we'll do with the CT and then we'll go back and review the RNC, and don't forget the DNC—but let's keep politics out of it. But we're not going to talk like that.

Let's do like our Vice President says, straight talk and plain talk. And that's what the people want. That's what I want. Let's really put our questions, our concerns and the good news we know out in the sunshine.

We have to learn from lessons past, and one of which is that we need to know early on, so we don't have to go find out the negative consequences later.

When I went to the gulf—Senator Cardin and I went to the gulf, we were told that our beaches were safe and our seafood was safe and that our people were safe. Well, let's hear where we are now.

I'm now going to turn our testimony over to our witnesses.

I want to, before I turn to both Ms. Jackson and Mr. Robinson, to say why some people aren't here. My very good friend and colleague, a man of the gulf, Senator Shelby, is on the floor because we're moving financial regulation.

This hearing was scheduled, as you know, well in advance, to comply with the committee rules. So Senator Shelby is here represented by his staff. He will submit questions in writing. You know he is a man that is duty driven in terms of protecting the people of the gulf. Alabama is one of the States affected. So he will try to join us.

So the second issue is that we invited a scientist from Alabama to testify, Dr. Shipp—again, a seasoned scientist from the gulf, from the University of Alabama.

Regrettably, Dr. Shipp fell and broke his ankle and is unable to travel. We wanted you to know that we also had invited him, and he will be submitting testimony for this record. So we're going to do long distance. We didn't want to get into video conferencing and so on, with the votes.

The other is that we invited the Nalco Company. Could I have the paper, so I can explicitly read who they are?

The Nalco Company represents the chemical industries that manufacture dispersants. They declined to participate in the hearing.

I want the record to show that, in addition to Government officials, those who work in the advocacy community, we also wanted

those who represent the chemical industry—because I do believe in better living through chemistry—also declined to participate.

I want the record to show that Nalco did decline, that its board of directors is made up of industry executives from BP, Exxon, Monsanto and Lockheed. And I'm sorry that they didn't come, because I think they do a lot of good things, and there are questions that we have.

But it's America and we're not going to subpoena them for this hearing. We might subpoena them at another hearing, and I reserve that right.

Now, though, I really would like to turn to what we do know and who is at the table and who the American people count on.

I want to ask—is it a doctor's, or a master's? I remember on our trip to the gulf, you said you were a chemistry person and a woman of the bayou. Lisa Jackson.

STATEMENT OF HON. LISA P. JACKSON, ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY

Ms. JACKSON. Thank you and good morning, chairwoman. Thank you for having me, and I do look forward and hope to see Ranking Member Shelby and other members of the subcommittee if they can join us.

Thank you for inviting me to testify about dispersants and EPA's role—EPA will be the only acronym I will use, for Environmental Protection Agency—in responding to the BP Deepwater Horizon rig explosion.

I do want to start by expressing my condolences to the families of those who have lost their lives in the explosion 3 months ago. We owe them our very best.

As we all know, efforts by BP to stop the oil release continue today. While the environmental disaster that the Gulf of Mexico is facing right now certainly has no easy answers, EPA is committed to doing its job—protecting communities, the natural environment and human health from the spill itself—as well as addressing any concerns resulting from the response to the spill.

Additionally, at the President's direction, I have personally traveled to the gulf—the region I grew up in and still consider my hometown, New Orleans—six times over the past few months. I'll be leaving for my seventh trip right after this hearing.

The U.S. Coast Guard is the National Incident Commander and has the primary responsibility of managing the response effort. But EPA has a large role in providing technical and scientific assistance to the Coast Guard as the response continues.

Since the crisis began, EPA has had more than 200 staff working on the emergency response, including scientists and engineers, contractors and other experts throughout the country.

In addition to our role in assisting the Coast Guard in the management of waste generated from the spill, we are performing rigorous testing and monitoring of air, water and sediment, and this monitoring is essential to ensure that communities are protected as we respond to the BP spill.

All of this information is being made public at www.epa.gov/bpspill as quickly as we can compile it.

EPA also has a role with the use of dispersants, which are chemicals that are applied to the oil to break it down into small droplets. Ideally, the dispersed oil mixes into the water column and is rapidly diluted and degraded naturally by bacteria and other microscopic organisms. The latest scientific accounts in popular media indicate that these microbes are thriving in the gulf.

EPA is responsible for managing the product schedule which lists the dispersants available for use in spill response and cleanup efforts, but decisions for their use are made by the Coast Guard as the Federal On-Scene Coordinator for this response.

In the use of dispersants, we are faced with environmental tradeoffs. The long-term effects on aquatic life are largely unknown and we must ensure that the dispersants that are used are as non-toxic as possible.

To date, BP has used, as you said, almost 1.8 million gallons of dispersant, a volume never before used in the United States.

The U.S. Coast Guard was first asked by BP, shortly after the explosion, to authorize use of dispersants in a novel manner, under water, at the source of the leak. The goal of this technique was to degrade the oil before it reached the water's surface and came closer to shorelines, our estuaries, our nurseries.

EPA demanded scientific data from the company to prove that such use of dispersants was indeed effective and that it could be monitored.

After that data were analyzed and shown that effectiveness was improved and that it could be monitored on a daily basis—and it was done by various labs at Louisiana State University—EPA required implementation of a rigorous monitoring system to ensure that underwater application would continue to be effective and would also track measurable environmental impacts.

After this monitoring system was in place, the Coast Guard conditionally granted authorization for this use of dispersant after it was made clear to the company and to the public that it reserved the right to halt the usage of subsea dispersant if we determined at any time that the impact to the environment outweighed the benefit of dispersing the oil.

There is good news. The good news is that we have not seen significant environmental impacts from the use of dispersants so far. Dissolved oxygen levels remain at an acceptable level which is a good indicator for overall aquatic health in the waters near the rig site where dispersants are applied subsea, and results of water monitoring do not show dispersant in waters on or near the shoreline.

In fact, yesterday, the State of Louisiana reopened some State waters to fishing after tests showed no presence of oil or dispersants.

The Coast Guard and EPA issued a directive to BP on May 26 instructing BP to apply no more than 15,000 gallons of dispersants per day and to halt use of surface application unless conditions on the ground limited the use of other methods of dealing with the oil—skimming and burning.

Since that directive was issued on May 26, we have seen the total daily volume of dispersants used fall by 72 percent from their

peak levels. We also ordered BP to work with Federal Government scientists to identify less toxic alternatives.

Two weeks ago, EPA released the first round of scientific testing of these alternative dispersants. The good news there is that none of the currently authorized dispersants appear to show significant endocrine-disrupting activity, and it appears that all the products have roughly similar impacts on the aquatic life tested. We await additional rounds of scientific testing which we expect in the near future.

Madam Chairwoman, we are in a situation with no perfect solution. As we emerge from this response, I believe we need to revisit the contingency plans and the Product Schedule that preauthorizes dispersant use.

Additionally, we need to make sure we have sufficient funding for the study of the long-term impacts of dispersant on human health and particularly on the environment.

As a New Orleans native, I know firsthand the importance of the natural environment to the economy and culture of the gulf coast. We have a great deal of rebuilding to do, and I urge that we do everything within our power to ensure a strong recovery and a promising future for the gulf.

As we know, efforts by BP to test the new cap continue today. We will all know more in the coming hours and days. I remain hopeful that the flow of oil will slow or it will be stopped completely. And with any significant reduction in the flow of oil, there should be a significant reduction in the amount of dispersant used—further reduction in dispersant used.

PREPARED STATEMENT

The people of the gulf prefer collection of oil to dispersing of oil, and we should demand that BP live up to their views.

Thank you for the opportunity to testify at this time. I welcome your questions.

Senator MIKULSKI. Thank you, Ms. Jackson.

[The statement follows:]

PREPARED STATEMENT OF HON. LISA P. JACKSON

Chairman Mikulski, Ranking Member Shelby and members of the subcommittee, thank you for the opportunity to testify on the role of the U.S. Environmental Protection Agency (EPA) in the Deepwater Horizon BP oil spill response. My testimony today will provide you with an overview of EPA's role and activities in the affected gulf coast region following the April 20, 2010 Deepwater Horizon mobile offshore drilling unit explosion and resulting oil spill as well as a summary of our primary environmental activities, including dispersant use, waste management, and beach cleanup. I also want to express my condolences to the families of those who lost their lives and those injured in the explosion and sinking of the Deepwater Horizon.

EPA'S OIL SPILL PROGRAM

EPA's Oil Spill Program focuses on activities to prevent, prepare for and respond to oil spills from a wide variety of facilities that handle, store, or use various types of oil. EPA regulates approximately 620,000 of these facilities, including oil production, bulk oil storage, and oil refinery facilities that store or use oil in above-ground and certain below-ground storage tanks. Additionally, EPA is the principal Federal response agency for oil spills in the inland zone, including inland waters. Such inland zone oil spills may come from, oil pipeline ruptures, tank spills, and other sources.

The National Contingency Plan (NCP) is the Federal Government's blueprint for responding to both oil spills and hazardous substance releases. Additionally, it pro-

vides the Federal Government with a framework for notification, communication, and responsibility for oil spill response. Under the NCP, the EPA or the USCG provide Federal On-Scene Coordinators (FOSCs) for the inland and coastal zones, respectively, to direct or oversee responses to oil spills. The exact lines between the inland and coastal zones are determined by Regional Response Teams (RRTs) and established by Memoranda of Agreement (MOAs) between regional EPA and USCG offices.

Other Federal agencies with related authorities and expertise may be called upon to support the FOSC. The NCP established the National Response Team (NRT), comprised of 15 Federal agencies, to assist responders by formulating policies, providing information, technical advice, and access to resources and equipment for preparedness and response to oil spills and hazardous substance releases. EPA serves as chair of the NRT and the USCG serves as vice-chair.

In addition to the NRT, there are 13 RRTs, 1 for each of EPA's 10 regional offices and 1 each for Alaska, the Caribbean, and the Pacific Basin. RRTs are co-chaired by each EPA Region and its USCG counterpart. The RRTs are also comprised of representatives from other Federal agencies and State representation, and frequently assist the Federal OSCs who lead spill response efforts. The RRTs help OSCs in their spill response decisionmaking, and can help identify and mobilize specialized resources. For example, through the RRT, the FOSC can request and receive assistance on natural resource issues from the Department of the Interior (DOI), the Department of Commerce, and the States, or borrow specialized equipment from the Department of Defense or other agencies. Involvement of the RRT in these response decisions and activities helps ensure efficient agency coordination while providing the FOSC with the assistance necessary to conduct successful spill response actions. Under the NCP, authority to use dispersants rests with the FOSC but requires concurrence of certain RRT members. For example, RRT representatives from EPA, DOI, the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), and the States with jurisdiction over the navigable waters under consideration may pre-authorize application of approved dispersant products so that the FOSC can authorize dispersant use without obtaining further concurrences.

EPA'S ROLE IN SPILL RESPONSE

USCG has been leading the response following the April 20, 2010 Deepwater Horizon mobile offshore drilling unit explosion and resulting oil spill. EPA is one of many agencies providing support to the USCG-led Federal response. EPA's monitoring and sampling activities provide the USCG, States, and local governments with information about the potential impacts of the oil spill and response on the health of residents as well as aquatic life along the shoreline. EPA is collecting samples along the shoreline and beyond for chemicals related to oil and dispersants in the air, water and sediment, supporting and advising USCG efforts to clean the oil and waste from the shoreline, and closely monitoring the effects of dispersants in the subsurface environment.

The USCG, in consultation with EPA and the States, approved waste management plans outlining how recovered oil and waste generated as a result of the BP oil spill will be managed. The plans take into consideration review of applicable Federal, State, and local regulations, planning for waste characterization, and, BP's proposed locations for waste management activities in order to consider the suitability of specific sites and the impacts on the surrounding communities. Given the unprecedented aspects of the BP oil spill, these plans may be updated as necessary to minimize any unforeseen environmental and human health impacts. EPA will post any updates to the plan on its Web site.

In addition, USCG, in consultation with EPA, issued directives to BP on June 29, 2010, on how the company should manage recovered oil, contaminated materials and liquid and solid wastes recovered in cleanup operations from the BP oil spill in the affected gulf States. The directives create enforceable requirements, implementation procedures and oversight plans related to BP's handling of waste materials by providing guidelines for community engagement activities and sets transparency requirements on information regarding the proper management of liquid and solid wastes, requiring BP to give EPA and State agencies access to facilities or any location where waste is temporarily or permanently stored. Access includes allowing the agencies to perform any activities necessary, such as assessments, sampling or inspections, and requiring BP to comply with all applicable Federal, State and local laws and regulations and to ensure that all facilities where waste is located or placed have obtained all permits and approvals necessary under such laws and regulations. The directives complement the State's activities by providing fur-

ther oversight and imposing more specific requirements. USCG and EPA, in consultation with the States, will hold BP accountable for the implementation of the approved waste management plans and ensure that the directives are followed in the Gulf Coast States.

EPA is also responsible for maintaining the NCP Product Schedule, which lists chemical and biological products available for Federal OSCs to use in spill response and cleanup efforts. Due to the unique nature of each spill, and the potential range of impacts to natural resources, FOSCs help determine which products, if any, should be used in a particular spill response. If the application of a product is pre-authorized by the RRT, then the FOSC may decide to use the product in a particular response. If the product application does not have pre-authorization from the RRT, then the FOSC must obtain concurrence from the EPA representative and the representatives of States with jurisdiction over the navigable waters under threat. In addition, the FOSC must consult with representatives of DOI and NOAA, as natural resource trustee agencies before authorizing incident-specific use of a dispersant.

USE OF DISPERSANTS

Following the April 20, 2010 Deepwater Horizon mobile offshore drilling unit explosion and resulting oil spill, the USCG, in consultation with EPA, DOI, NOAA, and the State of Louisiana, granted BP authorization to use approved dispersant on oil on the surface of the water in an effort to mitigate the shoreline impacts of the oil on fisheries, nurseries, wetlands and other sensitive environments. Dispersants contain a mixture of chemicals, that, when applied directly to the spilled oil, can break down the oil into smaller drops that can sink below the water's surface. Dispersed oil forms a "plume" or "cloud" of oil droplets below the water surface, and mixes vertically and horizontally into the water column, and is ideally rapidly diluted. Bacteria and other microscopic organisms are then able to act more quickly than they otherwise would to degrade the oil within the droplets.

The application of dispersant is part of a broader environmental triage approach to minimize the known threat to the environment to the greatest extent possible. The spill management strategies, practices, and technologies currently being implemented include mechanical removal techniques (use of sorbents, booming and skimming operations), in-situ burning, and lastly dispersants. There are environmental tradeoffs and uncertainties associated with the widespread use of large quantities of dispersants. We know dispersants are generally less toxic than the oils they break down. We know that surface use of dispersants decreases the environmental risks to shorelines and organisms at the surface and when used this way, dispersants break down over several days to weeks. In addition, the use of dispersants at the source of the leak represents a novel approach to addressing the significant environmental threat posed by the spill. Results to date indicate that subsea use of the dispersant is effective at reducing the amount of oil reaching the surface, and can do so by using less dispersant than is needed to disperse oil after it reaches the surface, and has resulted in significant reductions in the overall quantity of dispersants being used to minimize impacts in the deep sea.

On May 10, 2010, EPA and USCG issued a Directive requiring BP to implement a monitoring and assessment plan for both subsurface and surface applications of dispersants as part of the BP oil spill response. Additionally, on May 26, 2010, EPA and USCG directed BP to significantly decrease the overall volume of dispersant used and to cease use of dispersant on the surface of the water altogether unless conditions on the ground limited the use of other mechanical means. Since that directive, we have seen the total volume of dispersants used fall by 72 percent from their peak levels.

EPA has also established an extensive network to rigorously monitor the air, water, and sediments for the presence of dispersants and crude oil components that could have an impact on health or the environment. All monitoring information and data are posted on EPA's Web site at: http://www.epa.gov/bpspill/. In addition, for subsea monitoring, the toxicity data generated from this monitoring to date does not indicate significant effects on aquatic life. We are closely watching the dissolved oxygen levels, which so far remain in the normal range. Moreover, decreased size of the oil droplets is a good indication that, so far, the dispersant is effective.

Because of the unprecedented volumes of dispersant being used in the United States and because much is unknown about the underwater use of dispersants, Addendum 2 to the May 10, 2010 directive requires BP to determine whether a less toxic, equally effective product is available. Normally the manufacturers conduct such tests independently; however, EPA began its own scientific testing of eight dispersant products on the National Contingency Plan Product Schedule. EPA required

toxicity tests to standard test species, including a sensitive species of Gulf of Mexico invertebrate (mysid shrimp) and fish (silverside) which are common species in Gulf of Mexico estuarine habitats. The invertebrate and fish species tested are considered to be representative of the sensitivity of many species in the Gulf of Mexico, based on years of toxicity testing with other substances. Initial peer reviewed results from the first round of EPA's toxicity testing indicated that none of the eight dispersants tested, including the product currently in use in the gulf, COREXIT 9500 A, displayed biologically significant endocrine disrupting activity. The results are posted on our Web site at http://www.epa.gov/bpspill/dispersants-testing.html.

While we await the final round of scientific testing, it appears that all the products that are currently registered have similar impacts on aquatic life. While this is important information to have, additional testing is needed to further inform the use of dispersants. The next phase of EPA's testing will assess the acute toxicity of multiple concentrations of Louisiana Sweet Crude Oil alone and combinations of Louisiana Sweet Crude Oil with each of the eight dispersants for two test species.

RESEARCH AND DEVELOPMENT

Numerous questions have been raised on the effectiveness of dispersants, their inherent toxicity, the toxicity of dispersed oil, and how to deal with the shoreline and wetlands that are now being impacted as the spill moves to shore. Historically, EPA has had a modest oil spill research and development program. Events of the past several weeks associated with the Deepwater Horizon oil spill have made it evident that this modest investment must increase to address the uncertainties that have arisen. The administration has requested supplemental funds for dispersant research associated with the Deepwater Horizon oil spill. If the funds are appropriated, EPA plans to engage institutions and other Federal agencies, such as NOAA and DOI, who have the knowledge and expertise to assist the Agency. The $2.0 million requested by the President will support research that will begin to provide a greater understanding of the short and long term implications to the environment and public health associated with the spill and the application, surface and undersea, of dispersants. We will also further our research efforts to include innovative and expansive approaches to spill remediation.

The President's request represents an important step forward to improve our understanding of the impacts and implications of the use of dispersants and exposure to the dispersed oil and the potential impact on the environment and human health. EPA intends to continue to pursue an aggressive research agenda over time which will address the mechanisms of environmental fate, effects, and transport of the application of dispersants on released crude oil. This will be conducted by both assessing the risks to human health from exposure to chemical dispersants and chemically-dispersed oil mixtures through direct and indirect exposure and increasing our understanding of chemical dispersants and dispersed oil, including its toxicity over a broad range of aquatic and terrestrial ecosystems and species. EPA will also collaborate with NOAA and other Federal agencies to study the environmental and human health impacts of dispersants and chemically-dispersed oil.

SUMMARY AND CONCLUSIONS

EPA will continue to provide full support to the USCG and the Unified Command, and will continue to take a proactive and robust role in dispersant use as well as monitoring, identifying, and responding to potential public health and environmental concerns, including waste management and beach cleanup. EPA, in coordination with our Federal, State, and local partners, is committed to protecting gulf coast communities from the adverse environmental effects of the Deepwater Horizon oil spill. As local gulf coast communities assess the impact of the Deepwater Horizon oil spill on their economies, EPA, in partnership with other Federal, State, and local agencies, as well as other community stakeholders, will devote its efforts necessary to assist in the oil spill response. At this time I welcome any questions you may have.

Senator MIKULSKI. I now return to Dr. Larry Robinson, the leader in science from NOAA. We want to thank Dr. Robinson for being here. I had an extensive conversation with Dr. Lubchenco about 3 weeks ago. I know that she is on travel and rather than delay the hearing, we felt that Dr. Robinson would very ably represent her and we ask you to proceed.

STATEMENT OF HON. LARRY ROBINSON, ASSISTANT SECRETARY OF COMMERCE FOR OCEANS AND ATMOSPHERE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, DEPARTMENT OF COMMERCE

Dr. ROBINSON. Thank you, Chairwoman Mikulski and other members of the subcommittee for the opportunity to testify on the National Oceanic and Atmospheric Administration's role in the Deepwater Horizon BP spill response and the use of dispersants.

I'm Larry Robinson. I am the Assistant Secretary of Commerce for Oceans and Atmosphere. I appreciate the opportunity to discuss the critical roles NOAA serves during oil spills and the importance of our contributions to protect and restore the natural resources, communities and economies affected by this tragic event.

The Deepwater Horizon spill is a stark reminder that large oil spills still occur and that we must rebuild and maintain our response capacity.

When an oil spill occurs, there are no good outcomes. Once oil is spilled, responders may use a variety of oil-spill countermeasures to reduce the adverse effects of spilled oil on the environment.

For the Deepwater Horizon spill, the Unified Command's response posture has been to fight the oil offshore and reduce the amount of oil that comes ashore using a variety of countermeasures including dispersants.

Chemical dispersants can be an effective tool in the response strategy, but, like all methods, involve tradeoffs in terms of effectiveness and potential for collateral impacts.

Consideration of what we have learned from both research and real-world experience has factored into the decision making on the use of dispersants for this spill. Research on the effectiveness and effects of dispersants and dispersant and dispersed oil has been underway for more than three decades, but vital gaps still exist.

One area of focus has been on determining the toxicity of long-term effects of dispersants and dispersed oil on sensitive marine life. It is now clear that effective dispersed oil declines rapidly in concentration due to ocean mixing, and it degrades faster than untreated surface oil or shoreline oil.

The effect of dispersed oil on marine life depends on concentration and duration of exposure of organisms to the dispersed oil. At the sea surface, early life stages of fish and shellfish are much more sensitive than juveniles or adults to dispersants and dispersed oil.

There are no data on the toxicity of dispersed oil to deep-sea marine life at any stage, so we have to extrapolate based upon existing knowledge.

However, at the surface and subsurface, modeling and monitoring is confirming that dispersed oil concentrations decline rapidly with distance from the wellhead as it mixes with sea water and moves with the currents away from the treated areas.

NOAA has been conducting chemical analysis of seafood collected in the aftermath of the Deepwater Horizon incident. Seafood samples consisting of finfish, shrimp and oysters are analyzed for polycyclic aromatic hydrocarbons or PAHs, Madam Chairwoman, to measure uptake of these compounds present in oil by marine species.

To date, none of the seafood samples analyzed for these compounds have concentrations that exceed EPA's and FDA guidelines ensuring seafood reaching the marketplace is safe to eat.

To help support additional research, the administration has requested supplemental funds to support dispersant research associated with the Deepwater Horizon oil spill.

If appropriated, the $2 million requested by the President would allow NOAA, along with EPA and the Department of the Interior, to support research that will begin to provide a better understanding of the short- and long-term implications to the environment and human health associated with the spill and surface and undersea applications of dispersants.

The dynamic nature of the Deepwater Horizon oil spill has been a challenge for many and has raised many questions. To help answer those questions, NOAA launched a one-stop shop for detailed, near-real-time information about the response to the Deepwater Horizon oil spill.

Originally designated for respondents, the Web site www.geoplatform.gov integrates the latest data on oil spills' trajectory, fishery-closed areas, and oil shorelines, and positions research ships into one interactive map.

The launch of this public site is designed to facilitate transparency and communication and coordination among a variety of users from Federal, State and local responders to local community leaders and the public at large.

As the response to this spill continues, the Unified Command will continually reevaluate our response strategies, actions and planning. NOAA will continue to provide scientific support to the Unified Command.

I would like to assure you that we will not relent in our efforts to protect the livelihoods of gulf coast residents and mitigate the environmental impacts of this spill.

PREPARED STATEMENT

In conjunction with other Federal agencies, we will continue to monitor the use of dispersants and, as new information is generated, we will appropriately advise the Unified Command.

Thank you for allowing me to testify on NOAA's response efforts, and I'm happy to answer any questions that you might have.

[The statement follows:]

PREPARED STATEMENT OF HON. LARRY ROBINSON

Thank you, Chairman Mikulski and members of the subcommittee, for the opportunity to testify on the Department of Commerce's National Oceanic and Atmospheric Administration's (NOAA) role in the Deepwater Horizon BP oil spill response and the use of dispersants. My name is Dr. Larry Robinson and I am an Assistant Secretary of Commerce for Oceans and Atmosphere. I appreciate the opportunity to discuss the critical roles NOAA serves during oil spills and the importance of our contributions to protect and restore the natural resources, communities, and economies affected by this tragic event.

NOAA's mission is to understand and predict changes in the Earth's environment. NOAA also conserves and manages coastal and marine resources to meet our Nation's economic, social, and environmental needs. As a natural resource trustee, NOAA is one of the Federal agencies responsible for protecting, assessing, and restoring the public's coastal natural resources when they are harmed by oil spills. As such, the entire agency is deeply concerned about the immediate and long-term environmental, economic, and social impacts to the gulf coast and the Nation from

this spill. NOAA is fully mobilized and working tirelessly to reduce impacts on the gulf coast and will continue to do so until the spill is controlled, oil is cleaned up, natural resource injuries are assessed, and restoration is complete.

My testimony today will discuss NOAA's role in the Deepwater Horizon response and natural resource damage assessment process associated with the Deepwater Horizon oil spill, for which BP is a responsible party; NOAA's role in use of dispersants as a countermeasure to mitigate the impacts of the spill; and opportunities to strengthen the Federal response to future events through research and development.

NOAA'S ROLES DURING OIL SPILLS

NOAA has three critical roles mandated by the Oil Pollution Act of 1990 and the National Contingency Plan (NCP):

—During the emergency response, NOAA conducts research and monitoring and communicates scientific information to the Federal On-Scene Coordinator (FOSC). The Scientific Support Team is designated as a special team in the NCP and provides a broad array of scientific services to the response.

—As a natural resource trustee, NOAA conducts a Natural Resource Damage Assessment (NRDA) jointly with co-trustees to assess and restore natural resources injured by the oil spill. NRDA also assesses the lost uses of those resources, such as recreational fishing, and swimming, with the goal of implementing restoration projects to address these losses.

—Finally, NOAA represents the Department of Commerce in spill response preparedness and decisionmaking activities through the National Response Team and the Regional Response Teams.

Response

The U.S. Coast Guard (USCG) is the FOSC and has the primary responsibility for managing coastal oil spill response and clean-up activities in the coastal zone. During an oil spill, NOAA's Scientific Support Coordinators deliver technical and scientific support to the USCG. NOAA's Scientific Support Coordinators are located around the country in USCG Districts, ready to respond around the clock to any emergencies involving the release of oil or hazardous substances into the oceans or atmosphere. Currently, NOAA has deployed all of its Scientific Support Coordinators from throughout the country to work on the Deepwater Horizon oil spill.

With over 30 years of experience and using state-of-the-art technology, NOAA continues to serve the Nation by providing its expertise and a suite of products and services critical for making science-based decisions. Examples include trajectory forecasts on the movement and behavior of spilled oil, overflight observations, spot weather forecasts, emergency coastal survey and charting capabilities, aerial and satellite imagery, and real-time coastal ocean observation data. Federal, State, and local entities look to NOAA for assistance, experience, local perspective, and scientific knowledge. NOAA's Office of Response and Restoration was called upon for scientific support 200 times in 2009.

Natural Resource Damage Assessment

Stewardship of the Nation's natural resources is shared among several Federal agencies, States, and tribal trustees. NOAA, acting on behalf of the Secretary of Commerce, is the lead Federal trustee for many of the Nation's coastal and marine resources, and is authorized by the Oil Pollution Act of 1990 (OPA) to recover damages on behalf of the public for injuries to trust resources resulting from an oil spill. Regulations promulgated by NOAA under the Oil Pollution Act encourage compensation in the form of restoration of the injured resources, and appropriate compensation is determined through the NRDA process. Since the enactment of OPA, NOAA, together with other Federal, State, and tribal co-trustees, has recovered approximately $500 million for restoration of natural resources injured by releases of oil or hazardous substances, as well as injuries to national marine sanctuary resources, including vessel groundings.

National and Regional Response Teams

The National Oil and Hazardous Substances Pollution Contingency Plan, more commonly called the NCP, is the Federal Government's blueprint for responding to both oil spills and hazardous substance releases. The NCP's purpose is to develop a national response capability and promote overall coordination among the hierarchy of responders and contingency plans. NOAA represents the Department of Commerce on the National Response Team and Regional Response Teams which develops policies on dispersant use, best clean-up practices and communications, and

to ensure access to science-related resources, data, and expertise during responses to oil spills.

NOAA'S ROLE IN THE DEEPWATER HORIZON RESPONSE

NOAA's scientific experts have been assisting with the response from the first day of the Deepwater Horizon BP oil spill, both on-scene and through our headquarters and regional offices. NOAA's support includes daily trajectories of the spilled oil, weather data to support short and long range forecasts, and hourly localized "spot" forecasts to determine the use of weather dependent mitigation techniques such as oil burns and chemical dispersant applications. NOAA uses satellite imagery and real-time observational data on the tides and currents to predict and verify oil spill location and movement. To ensure the safety of fishermen and consumer seafood safety, NOAA scientists are in the spill area taking water and seafood samples, and NOAA has put fisheries closures in place to maintain consumer confidence in the safety of consuming seafood from the Gulf of Mexico region. In addition, NOAA experts are providing expertise and assistance regarding sea turtles, marine mammals, and other protected resources such as corals.

At the onset of this oil spill, NOAA quickly mobilized staff from its Damage Assessment Remediation and Restoration Program to begin coordinating with Federal and State co-trustees and the responsible parties to collect a variety of data that are critical to help inform the NRDA. NOAA is coordinating the NRDA effort with the Department of the Interior (another Federal co-trustee), as well as co-trustees in five States and representatives for at least one responsible party, BP. NOAA and the co-trustees are in the initial phase of this process and are currently gathering data on resources such as fish, shellfish, birds, and turtles, and mammals; their supporting habitats such as wetlands, beaches, and corals; and human uses of affected resources, such as fishing and recreational uses across the Gulf of Mexico. The trustees will then quantify the total losses and develop restoration projects that compensate the public for their losses.

THE USE OF DISPERSANTS

The Deepwater Horizon spill is a stark reminder that large oil spills still occur, and that we must rebuild and maintain our response capacity. When an oil spill occurs, there are no good outcomes. Once oil has spilled, responders use a variety of oil spill countermeasures to reduce the adverse effects of spilled oil on the environment. The goal of the Unified Command is to minimize the environmental damage and speed recovery of injured resources. The overall response strategy to accomplish this goal is to maximize recovery and removal of the oil being released while minimizing any additional damage that might be caused by the response itself. This philosophy involves making difficult decisions, often seeking the best way forward among imperfect options.

Under section 311 of the Clean Water Act, the U.S. Environmental Protection Agency (EPA) is required to prepare and maintain a schedule of dispersants and other mitigating devices and substances that may be used in carrying out the NCP. The NCP requires Regional Response Teams (RRT), in which NOAA participates, and Area Committees to plan in the advance of spills for the use or non-use of dispersants, to ensure that the tradeoff decisions between water column and surface/shoreline impacts are deliberated. As the FOSC for this spill response, the U.S. Coast Guard is responsible for approving the use of the specific dispersant used from the NCP Product Schedule. Because of the unprecedented nature of the dispersant operations, the monitoring and constraints on application volumes and methodologies are being closely managed. In particular, EPA has specified effectiveness and impact monitoring plans, application parameters, and action thresholds. Any changes to specific Deepwater Horizon dispersant plans require the concurrence of EPA and other RRT decision agencies, including NOAA, under the NCP.

NOAA's Scientific Support Team is designated as a special team in the NCP and provides a broad array of scientific services to the response, including recommendations to the FOSC on the appropriate use of dispersants. NOAA is also a member of the Special Monitoring of Applied Response Technologies (SMART) program, an interagency, cooperatively designed program to monitor the efficacy of dispersant and in situ burning operations. SMART relies on small, highly mobile teams that collect real-time data using portable, rugged, and easy-to-use instruments during dispersant and in situ burning operations. Data are channeled to the Unified Command to help address critical questions. NOAA also uses SMART data to inform 24, 48 and 72 hour oil fate and trajectory models as dispersants can augment the behavior of the spilled oil.

The Gulf of Mexico shorelines, and Louisiana's in particular, possess extensive marsh habitats that are critical for wildlife and fisheries and shoreline protection. NOAA's environmental sensitivity index maps rank shoreline vulnerability to oil spills, and marshes are considered the most sensitive. Louisiana's marshes are already in a weakened condition and large areas are lost every year. These marshes and biota are extremely sensitive to oil, very difficult to clean up, and highly vulnerable to collateral impacts from response efforts.

For the Deepwater Horizon spill, the Unified Command's response posture has been to fight the spill offshore and reduce the amount of oil that comes ashore, using a variety of countermeasures including subsurface recovery, booming, skimming, burning, and dispersants. No single response method is 100 percent effective, and each has its own "window of opportunity" defined by the state of the oil and weather and sea state conditions, thereby establishing a need to consider the use of all available methods. It is important to note that, given the size and complexity of the Deepwater Horizon spill, no combination of response actions can fully contain the oil or completely mitigate the impacts until the well is brought under control. But given the enormous volume and geographic extent of the spill, the response to date has been somewhat successful in limiting shoreline impacts.

Chemical dispersants can be an effective tool in the response strategy, but like all methods, involve trade-offs in terms of effectiveness and potential for collateral impacts. Although mechanical recovery using skimmers is the preferred method of offshore oil spill response because it removes the oil from the environment, it is generally ineffective unless seas are fairly calm. The use of dispersants to mitigate offshore oil spills is a proven and accepted technology to reduce the impacts to shorelines and, under certain conditions, can be more effective than mechanical response. This is largely due to the fact that spray aircraft can encounter much more of the floating oil, and more quickly, than can skimmers Dispersants have been used effectively to respond to spills both in the United States and internationally. In the United States, notably in the Gulf of Mexico, dispersants have been used during the past 15 years against much smaller spills off Louisiana and Texas. The largest use of dispersants in North America (2.7 million gallons) was in the Gulf of Mexico during the 1979–1980 Ixtoc I blowout in Campeche Bay, Mexico.

The NCP establishes a framework for the use of dispersants in an oil spill response. The NCP states that RRT and area committees will address, as part of their planning activities, the desirability of using dispersants and oil spill control agents listed on the NCP's National Product Schedule. The NCP goes on to state that area contingency plans (ACP) will include applicable pre-authorization plans and address the specific contexts in which such products should and should not be used. If the RRT representatives for EPA, the Department of Commerce, and Department of the Interior natural resource trustees, and the States with jurisdiction over the regional waters for which the preauthorization plan applies, approve in advance the use of certain dispersant products under specified circumstances as described in the preauthorization plan, the FOSC may authorize the use of the products without obtaining additional concurrences. In Region VI, which includes the Gulf of Mexico, dispersant use is pre-authorized in offshore water, beyond the 3-mile limit. The preauthorization of alternative countermeasures in the response plans allows for quick implementation of the pre-approved countermeasures during a response, when timely action is critical to mitigate environmental impacts.

For all dispersant operations, the FOSC must activate the SMART monitoring team to monitor the effectiveness of the dispersant. Dispersant use for the Deepwater Horizon oil spill was, and continues to be, performed in accordance with ACP guidelines and with RRT approval. In consideration of the size and duration of the oil spill, the amounts of dispersant being used, and the unusual sea bed injection method of application, a directive was approved by EPA and State representatives for the Region 6 Regional Response Team to put specific restrictions and monitoring requirements in place concerning dispersant use for the Deepwater Horizon BP spill as a condition of FOSC authorization for use. NOAA's Scientific Support Coordinators, supported by NOAA's team of scientists at its Emergency Response Division and in consultation with trustees, is advising the FOSC on when and where dispersants should be used to determine the most effective and appropriate use of dispersants.

Dispersants are chemicals that may be applied directly to the spilled oil in order to remove it from the water surface by dispersing it into the upper layer of the water column. Dispersants are commonly applied through specialized equipment mounted on an airplane, helicopter or ship. The dispersant must be applied as a mist of fine droplets and under a specific range of wind and sea state conditions. Once applied at the surface, dispersants help break up the oil into tiny micron-sized droplets (size of the cross section of a hair) which mix into the upper layer of the

ocean. Because of the high encounter rate of aircraft, they allow for the rapid treatment of large areas. Dispersed oil does not sink; rather it forms a "plume" or "cloud" of oil droplets just below the water surface. The dispersed oil mixes vertically and horizontally into the water column and is diluted. Once formed, bacteria and other microscopic organisms then act to degrade the oil within the droplets more quickly than if the oil had not been dispersed. It should be noted that oil spilled from the Deepwater Horizon incident is also naturally dispersing into the water column due to the physical agitation of the wind, waves, and vessel operations.

The Deepwater Horizon spill has also for the first time in the United States implemented the use of subsurface dispersants at the wellhead. This is being applied through the use of Remotely Operated Vehicles (ROV). The decision to use subsurface applications was made by the FOSC with concurrence by RRT Region VI after several test applications to determine the efficacy, and development and implementation of a monitoring protocol. Monitored levels of dissolved oxygen levels within the dispersed oil plume and rotifer toxicity test results are reviewed daily to determine whether changes in the sea bed injection protocol should be considered. Further, the amount of dispersant applied through sea bed injection is limited to 15,000 gallons during any calendar day without written approval from the FOSC to exceed this level.

Spill response often involves a series of environmental trade-offs. The overall goal is to use the response tools and techniques that will minimize the overall environmental damage from the oil. The use of dispersants is an environmental trade-off between impacts within the water column, on the sea surface (birds, mammals, and turtles in slicks) and on the shore. Dispersants do not remove the oil from the environment. When a decision is made to use dispersants, the decision maker is reducing the amount of oil on the surface where it may affect birds, mammals and turtles, when they are at or near the surface, and ultimately that oil that may come ashore, in exchange for increasing the amount of oil in the upper layer of the water column 40 miles off shore. The effects of dispersants and dispersed oil below the surface on diving birds, marine mammals, and sea turtles are unknown. Under ideal conditions, each gallon of dispersant applied offshore prevents about 20 gallons of oil from coming onto the beaches and into the marshes of the gulf coast.

The gulf coast is home to coastal wetlands and marshes that are biologically productive and ecologically important to nesting waterfowl, sea turtles, fisheries, and essential fish habitat. The Gulf of Mexico region's ecological communities are essential to sustaining local economies, recreational experiences, and overall quality of life. The extensive marshes themselves provide coastal communities with protection from severe storms, such as Hurricane Katrina. These habitats are highly sensitive to oiling. Once oil does impact marshes, there are limited cleanup options, and potential for significant long-term impacts. As oil has moved ashore from the Louisiana coast to the Florida panhandle from the BP Deepwater Horizon spill, we have seen firsthand the impacts this oil has on these habitats, and to birds, turtles and other wildlife. Although it may not be readily apparent, use of dispersants offshore and in deep water, is reducing the amount of oil reaching the shoreline, reducing the amount of shoreline cleanup that will be required, and helping to reduce recovery time of injured nearshore resources. Without the use of dispersants, the shoreline impacts along the gulf coast from the Deepwater Horizon spill would be greater.

RESEARCH ON THE EFFECTIVENESS AND EFFECTS OF DISPERSANTS AND DISPERSED OIL

Research on the effectiveness and effects of dispersants and dispersed oil have been underway for more than three decades but important gaps still exist. Much of what we have learned from both research and real world experience is presented in detail in the 2005 National Research Council (NRC) book "Oil Spill Dispersants: Efficacy and Effects." The NRC identified gaps in our knowledge. These gaps were narrowed by research and development activities carried out through projects conducted by the Coastal Response Research Center (CRRC), and State and Federal agencies, and academia. The CRRC was a successful joint partnership established in 2004 between the University of New Hampshire and NOAA's Office of Response and Restoration.

One area of focus has been on determining the toxicity and effects of dispersants and dispersed oil on sensitive marine life. It is now quite clear that effectively-dispersed oil declines rapidly in concentration due to ocean mixing, degrades faster than untreated surface or shoreline oil, and that the toxicity of dispersants is considerably less than the toxicity of the oil that is dispersed. The acute (4 day) toxicity of dispersants and dispersed oil for the most sensitive species and life stages of fish and crustaceans occurs at concentrations in the low part per million (ppm) range (data compiled from NAS 2005: Oil Spill Dispersants: Efficacy and Effects). Despite

this general statement, reports exist of more sensitive life stages and species. For example, effects on fertilization and metamorphosis of coral larvae are reported at sub-part per million concentrations (e.g., Negri and Heyward (2000), Marine Pollution Bulletin 41(7–12): 420–427). Very little is known about the species found in the deep ocean near the Deepwater Horizon Release site or the susceptibility of these species to dispersed oil toxicity at cold temperatures and high pressures.

On June 28, 2010, the EPA released the first two of its newly-updated studies on the toxicities of dispersants on silverside fish and small crustacean species. The primary purpose of these studies was to determine the toxicity differences among different dispersant products. COREXIT 9500, the main product used in the Deepwater Horizon BP oil spill response, was found to be "slightly toxic" for one test species and "practically non-toxic" for the other. LC50 concentrations, the concentration at which half the test organisms died, were 42ppm and 130ppm respectively. While these are favorable results, we note the two species tested are not considered particularly sensitive and early life history stages of these species were not considered. EPA continues to perform toxicity testing on the dispersants and will release additional reports as the results become available.

The effects of the dispersed oil on marine life depend on concentration and duration of exposure of organisms to the dispersed oil. At the sea surface, early life stages (eggs and larvae) of fish and shellfish are much more sensitive than juveniles or adults to dispersants and dispersed oil. This increased sensitivity coupled with the fact that these organisms reside just below the surface of the ocean (as do plankton, zooplankton) where concentrations of the dispersed oil are initially greatest means that these organisms are most likely to be impacted. There are no data on the toxicity of dispersed oil to deep-sea biota at any life stage, so we have to extrapolate based on existing knowledge. However, in both regions (surface and deepwater), modeling and monitoring is confirming that dispersed oil concentrations decline rapidly with distance from the well head as the "clouds" or "plumes" mix with sea water and move with the currents away from the treatment areas.

NOAA's National Marine Fisheries Service laboratories in Seattle, Washington have been conducting chemical analysis of seafood collected in the aftermath of the Deepwater Horizon BP oil spill. Seafood samples, consisting of finfish, shrimp, and oysters are analyzed to measure uptake of polycyclic aromatic hydrocarbons (PAH) present in oil by marine species. To date, none of the seafood samples analyzed have PAH concentrations that exceed EPA and Food and Drug Administration guidelines, ensuring seafood reaching marketplace is safe to eat.

NOAA also has expertise in determining the effects from exposure to oil on fish. The research shows that early life stages of fish are sensitive to the predominant polycyclic aromatic hydrocarbons in oil. Studies with the model fish species, zebrafish has shown that cardiovascular development in fish embryos and larvae is a marker of exposure to oil. NOAA's Northwest Fisheries Science Center is conducting preliminary studies to assess sub-lethal effects of crude oil from the Deepwater Horizon oil spill on embryonic larvae of zebrafish. These results are being compared to earlier studies on embryos with Alaska North Slope crude oil. In addition, the researchers are planning on using the zebrafish model to assess any effects from exposure to dispersants and in particular the effects from dispersant and oil combinations.

While numerous studies have been conducted on the fate and transport of oil dispersed on the surface, the fate and transport of oil dispersed at depth is less understood. While the application of dispersants into a subsurface plume has never been studied, we expect the result to be similar to that of surface dispersant application, and thus result in even smaller droplets of oil in the plume. These very small droplets (100 microns) will rise extremely slowly while being mixed by background turbulence, so that they stay at depth, moving with the currents, until biodegraded, consumed by naturally occurring micro-organisms, or adhere to sinking sediment. Preliminary modeling suggests average rise could increase from a few hours to several days with sub-surface dispersant application. We also expect some fraction to sink because of adherence to sinking sediments.

Another major activity involving marine resource trustees has been a series of nearly 20 Consensus Ecological Risk Assessment (C–ERA) Workshops which were held all around the United States and adjacent international coastlines. These workshops, many lasting 1 week or more and sponsored by the U.S. Coast Guard, EPA and Department of the Interior, focused the attention of trustees of alternative response scenarios of large spills, including no response, on-water mechanical removal, in situ burning, dispersant use and shoreline clean up. Trustees evaluated the impacts and benefits of each realistic response option to their trust resources (marshes, shorelines, mammals, birds, fish, etc.) and then had to work on reaching consensus regarding the least damaging mix of response options for their specific

area. The results of these workshops have provided valuable information for revising response plans in a number of states and countries.

ACTIVITIES TO ASSESS PRESENCE OF SUBSURFACE OIL FROM DEEPWATER HORIZON SPILL

Since the beginning of May, NOAA has been conducting and coordinating sampling of the subsurface region around the Deepwater Horizon well-head and beyond to characterize the presence of subsurface oil. The sub-surface search involves the use of sonar, UV instruments called fluorometers, which can detect the presence of oil and other biological compounds, and collection of water samples from discrete depths using a series of bottles that can be closed around a discrete water sample.

NOAA, Federal partners, academics, and others in the research community have mobilized to research and quantify the location and concentration of subsurface oil from the spill. NOAA Ships *Gordon Gunter* and *Thomas Jefferson* have both conducted missions to collect water samples from areas near the wellhead as well as further from the wellhead and in the coastal zone. Water samples from many of these missions are still being analyzed and additional missions are in progress or being planned to continue the comprehensive effort to define the presence of oil below the surface and understand its impacts.

Water samples taken by researchers on the *R/V Pelican* and the *R/V Weatherbird II* have also been analyzed for the presence of subsurface oil. These samples from the *R/V Weatherbird II* confirmed low concentrations of surface oil from the Deepwater Horizon spill 40 nautical miles northeast of the wellhead. Additionally, hydrocarbons were found in samples 45 nautical miles northeast of the wellhead-at the surface, at 50 meters, and at 400 meters-however, the concentrations were too low to confirm the source.

In accordance with FOSC and EPA requirements for the use of subsurface dispersants, BP contracted ships, *R/V Brooks McCall* and the *Ocean Veritas,* have been collecting water samples in the area close to the wellhead. NOAA, EPA, and the White House Office of Science and Technology Policy (OSTP) released a summary report about the subsea monitoring in the vicinity of the Deepwater Horizon wellhead conducted from the *R/V Brooks McCall* from May 8–25, 2010. The report also confirms the existence of a previously discovered cloud of diffuse oil at depths of 3,300 to 4,600 feet near the wellhead. Preliminary findings indicate that total petroleum hydrocarbon (TPH) concentrations at these depths are in concentrations of about 1–2 parts per million (ppm). Analysis shows this cloud is most concentrated near the source of the leak and decreases with distance from the wellhead. Beyond 6 miles from the wellhead, concentrations of this cloud drop to levels that are not detectable. Decreased droplet size is consistent with chemically-dispersed oil. Dissolved oxygen levels in the water column are largely what are expected compared with historical data.

The Unified Command has established an inter-agency Joint Analysis Group (JAG) to aggregate and analyze all the relevant data from the many subsurface oil missions in order to have a comprehensive picture of the situation. This group is made up of Federal scientists from NOAA, EPA and OSTP.

CONCLUSION

As the response to this oil spill continues, the Unified Command will continually reevaluate our response strategies, actions, and planning. NOAA will continue to provide scientific support to the Unified Command and continue our coordination with our Federal and State co-trustees on the NRDA. I would like to assure you that we will not relent in our efforts to protect the livelihoods of gulf coast residents and mitigate the environmental impacts of this spill. In conjunction with the other Federal agencies, we will continue to monitor the use of dispersants and as new information is generated we will appropriately advise the Unified Command. Thank you for allowing me to testify on NOAA's response efforts. I am happy to answer any questions you may have.

Senator MIKULSKI. Thank you very much, Dr. Robinson.

The impact of this oil spill is not only in the Gulf States, and the consequences of issues, like safety of the seafood and the food, goes far and wide. We, in the State of Maryland, rely heavily on our friends in the gulf for oysters, for the well-known and yummy gulf shrimp, and they are a good supplement to our wonderful Chesapeake Bay blue crabs.

We need to know that seafood is safe, and the American public needs to know that seafood is safe for the simple reason that we want them to continue to feel comfortable buying gulf products, so that the economic consequences are not multiplied.

Well, first of all, they've closed the fishing areas. They've closed the beaches, but they've closed the fishing areas, and then people say, "Well, I'm not going to buy it because I worry about it." So, one, we need to assure the safety, and then we need to be able to have good public information about that.

I'm going to come back to that, but I want to go right to this idea of the Unified Command and who does what. I've been concerned about the Unified Command, because it sounds to me—when I heard it, it sounded so cool and "command" and "control" and "decisive" and "quick witted" and "swift of boat and foot."

But when I got there, it was a committee, and it was a committee of coordinators. And I'm not knocking it, because the enormity of this is something also quite stunning to see, all the boats and all that's affected, and the vastness of 7,000 miles of gulf coast shoreline.

But who—Ms. Jackson, when you make your recommendations, is it the Coast Guard in this Unified Command that calls the shots? Are you advisory to the Coast Guard or could you—do you have the power to ban or limit the use of dispersants or any other product that you would deem, scientifically based, would have a negative consequence? What power do you have to act?

Ms. JACKSON. The National Incident Commander is Retired Admiral Thad Allen.

Senator MIKULSKI. Yes.

Ms. JACKSON. The Federal On-Scene Coordinator has rotated. It's currently Admiral Z [Zukunft]. I can't pronounce his last name, so I'll say Z. We all call him Admiral Z. But it's been a succession of admirals.

They are the final decisionmakers. In any chain of command, there is a pyramid, and they are at the top reporting directly to Secretary Napolitano and the President.

That said, as head of the Environmental Protection Agency, I have made my opinions and views and scientific concerns known on a range of issues during this response. And Admiral Allen has been very receptive, very receptive to understanding that there are dimensions to this response that are environmental, not simply about the operational day-to-day fighting of the oil.

Senator MIKULSKI. So can you ban dispersants or limit their use or does he have to give the approval?

Ms. JACKSON. Can I personally—I think it is a matter of untested law as to whether EPA—there is no permit that EPA has given to allow use of these dispersants. So I would not know, and I am not an attorney, but perhaps I can get you the information.

Senator MIKULSKI. No, but you are the head of EPA, so if you said, Admiral Allen, we're now heading into a danger zone or flashing yellow light so significant, better be safe than sorry——

Ms. JACKSON. Yes.

Senator MIKULSKI [continuing]. I'm going to either ban or limit the use of dispersants, could you have the power to act unilaterally?

Ms. JACKSON. I believe I do, chairwoman, but I do want my lawyers to get you a response on record——

Senator MIKULSKI. I know, but that's a question you needed to know from day one, Ms. Jackson, because, look, everyone at this table, we're coastal Senators and we love our Coast Guard. I am telling you, we in Maryland love our Coast Guard.

But they're operational people. They do search and rescue. They have the authority to clean up a limited oil spill if it would occur—God forbid—in the Bay—et cetera, but the Coast Guard are not scientists. They are not scientists. They are under the Department of Homeland Security, which means they are protectors.

So how would they know whether your idea was good or not when you are the idea basis, and Mr. Green's science, combined with you, are the repository of scientific knowledge in these fields?

Ms. JACKSON. Well, part of the reason I'm hesitating, chairwoman, is twofold. No. 1, that hasn't been tested, because I haven't had to walk into Admiral Allen's office, even figuratively, and say, I believe you need to stop. And he has yet to disagree when I have been forceful in saying we need to do something. That's why we have directors.

And one more thing, chairwoman, there is a——

Senator MIKULSKI. I'm not being critical of you and I'm not—we're looking at public policy areas where we need to really tighten up so we don't screw up.

Ms. JACKSON. I absolutely agree. You started with the idea of the Unified Command—that one of the public-policy decisions has to be, how do you do what we need to do operationally on the ground, which is work, as you said, in a large organization, but ensure that there is a chain of command that ends with the Federal Government.

And that is something that I think should be discussed. I think a Unified Command makes sense for smaller spills, but on something like this, there needs to be additional clarity.

But I also want to acknowledge the role of NOAA. They are, by law, scientific advisors to the Coast Guard. That is their job——

Senator MIKULSKI. And I presume they're scientific advisors to you.

Ms. JACKSON. I'm sorry, say again——

Senator MIKULSKI. I mean, don't you two talk to each other?

Ms. JACKSON. Constantly.

Senator MIKULSKI. I mean, from the way I saw you in action that day——

Ms. JACKSON. Yes.

Senator MIKULSKI [continuing]. Yes, I was impressed with that aspect of it.

Ms. JACKSON. Yes, ma'am, but they are also—they have a legal role to advise the Coast Guard on science because they have a trust responsibility to the ocean and——

Senator MIKULSKI. Right. I'm going to come back to them and in my time, with both Senators Lautenberg and someone who lived through an oil spill with the Valdez, I want to be sure my colleagues have time to ask a question.

And, again, we're not bashing anybody, but here, as I understand it, EPA had concerns about the amount of dispersants being used

and the amount that was being used and also were concerned enough to direct BP to stop using them on the surface. Am I correct?

Ms. JACKSON. That's right——

Senator MIKULSKI. And that you, then, gave that advice to Admiral Allen. Is that correct?

Ms. JACKSON. Essentially, yes.

Senator MIKULSKI. And then what happened? Did they begin to limit their use? And then who monitors that? And it says in my reporting data that it was limited by a 72-percent decline. Was that for 1 day or has that been persistent? And then why did you ask them to limit it if everybody felt this was okay?

So my question was, did you ask that dispersants be limited? Why did you ask that? And when you asked that, who paid attention or didn't pay attention to you? And then who ensures the compliance with both your and the Unified Command's directive?

Ms. JACKSON. Thank you, chairwoman.

A couple of things: yes, we remain, at EPA, concerned about the volume of dispersant that has been used to date. As we've all noted, this is the largest volume that has ever been used in the country.

Dispersants have been used in the Gulf of Mexico for 15 years, but it's the volume that any average person, whether they have a chemistry degree or not, would be concerned. Certainly, I remain concerned about that. We've had many, many discussions about it. I did express those concerns, not only to Admiral Allen, but, since you ask, yes, Admiral Allen.

The result was a directive directing BP—cosigned by the Coast Guard and EPA—to use no more than 15,000 gallons of dispersant in the subsea and to use spraying—aerial spraying, for lack of a better term—of the chemical as a last resort.

And the day that that directive was issued, or the day before—don't quote me on dates—BP had gotten up to 70,000 gallons of chemical used in 1 single day. That was an alarming number.

Senator MIKULSKI. Well, yes, and to go to our friends—where we should have learned—lessons learned from the Valdez, which was a horrific experience for our neighbors in Alaska; they used 250,000 gallons for the whole spill.

Ms. JACKSON. Yes, chairwoman. I do want to compare and contrast——

Senator MIKULSKI. Yes. Then I've got to go to Robinson——

Ms. JACKSON [continuing]. With respect to the Senator who knows her State well, but I do want to talk a little bit about the Valdez incident and now, because I think there are very important scientific issues here.

The Gulf of Mexico is no Prince William Sound, and, of course, Prince William Sound is no Gulf of Mexico. We're talking about a different climate. We're talking about a different type of crude. We're talking about a different—we're talking about a biological——

Senator MIKULSKI. Yes, talk about Valdez with her. Let me finish with mine, and I don't mean to cut you off.

Ms. JACKSON. Okay.

Senator MIKULSKI. But we do have a vote at 11 o'clock. So here is my question: So why did you tell them to limit it? Were you that concerned about the unknown factors of dispersant? Why did you tell them to limit the use?

Ms. JACKSON. Absolutely. Because there are scientific unknowns, we had to make decisions that are a series of tradeoffs. And, basically, in common language, it was either nothing or in moderation, and my best judgment was that it should be in moderation.

But we should not say no, you may not use any dispersant, because, at the time, we were risking that which we've all seen on TV, which is large amounts of oil at the surface, which got by the skimmers and got by the burners and would end up in the marshes where they do the most damage—and in the shallows.

That tradeoff isn't easy. Every single thing being done out at sea comes at some cost. Burning has air pollution risk and wildlife risks, and skimming has wildlife risks. But the simple question was: Do you say no or do you say in moderation.

Senator MIKULSKI. So you said in moderation. And I'm going to ask you to submit for the record what additional research you think needs to be done and what needs to be done as we move forward in our appropriations.

If I might, colleagues, I just want to go to Mr. Robinson.

Does or does not NOAA have a protocol to evaluate the safety of seafood?

Dr. ROBINSON. Yes, ma'am, we do. The first step we take is very conservative with regard to the fisheries closures. We look for any visible evidence of oil, and we project where the oil may go in the next couple of days. And so our first strategy is to limit the possible take of fish from any areas that have been impacted by oil.

The next thing we do, in partnership with other Federal colleagues at FDA, EPA and the States, is we developed a fairly comprehensive seafood safety protocol.

We have actually taken samples from the gulf area to analyze them, not only for oil, but for some of the constituents of oil. These polycyclic aromatic compounds that I mentioned earlier are fairly toxic to human beings. Thus far, we haven't found any evidence of these contaminants in any of the species that we've taken outside of the contaminated area.

So this is a fairly comprehensive set of protocols that we have. It's done, I want to emphasize, in collaboration with our colleagues at other Federal agencies, and it includes the States who are trustees as well.

I want to point out, however, that our jurisdiction is outside of the 3-mile area off the coast.

Senator MIKULSKI. And whose jurisdiction is within the 3 miles?

Ms. JACKSON. That's the State's.

Senator MIKULSKI. And then who certifies the States in terms of a level of competency to test for this?

Ms. JACKSON. The States then work with the Food and Drug Administration [FDA].

Senator MIKULSKI. They work with, but who—is FDA in there saying—because it's got to be NOAA, FDA on the safety of the seafood.

Ms. JACKSON. That's correct, and so FDA works with the States to help ensure that fish doesn't reach the marketplace that's taken within the 3-mile limit that's contaminated with any of these products. And we provide any assistance that they need in that process.

Senator MIKULSKI. We'll come back to you. I know I've been taking this time.

I'd like to turn to Senator Murkowski, whose State lived through one of the very—geologically—I mean, the whole terrain's different. Senator Murkowski, then we'll go to Senator Lautenberg.

Senator MURKOWSKI. Thank you, Madam Chairwoman.

There's—gosh—so many questions you could ask. I want to get to the seafood issue and understanding a little bit more about the coordination between what's happening at the State level within 3 miles and then what NOAA is doing, because fish could care less where that 3-mile line is, and in terms of how we then market our products, we want to be able to ascertain that, yes, in fact, the seafood is safe regardless of where it comes from.

Dr. ROBINSON. That's correct.

Senator MURKOWSKI. And so the word that gets out about the safety of our seafood and the process that it has gone through, whether it's the FDA working with the States or whether it's NOAA, that that assurance is given.

Because I can tell you, as far away as Alaska, with our wild salmon, our seafood is being impacted by what's going on in the gulf, as I'm sure Senator Mikulski's seafood here on the eastern seaboard is, because people—in the Midwest of this country, seafood is seafood. They're not really sure where it's coming from, so if they're concerned about it, they're going to err on the side of not eating it, and this impacts all of us.

Administrator Jackson, I wanted to ask you a little bit about just where we have come since the Exxon Valdez. And you had mentioned that the Gulf of Mexico is not Prince William Sound and vice versa, most absolutely so. You've got different conditions, different oil, different spill, and a different climate.

But one thing that seems to strike me as kind of commonality here is 20 years ago, with the Exxon Valdez, we weren't really certain how safe these dispersants were. We were concerned about their use then, and, now, 20 years later, we're concerned about the use of dispersants or certainly the volume of the dispersants used as we're dealing with the impact of the Deepwater Horizon.

Can you tell me how much study EPA has actually conducted since the Exxon Valdez in terms of use of dispersants, and not only their usage in an environment like Prince William Sound, but how do you make sure that we really understand, in the various conditions that are out there, that the levels that are being used are appropriate? Give me some background on the research here.

Ms. JACKSON. Thank you, Senator. There has been significant research, not only by EPA, on dispersants since the Exxon Valdez incident in the 1990s. That said I want to be clear at the outset that I don't think it's enough research.

So we will get, for the record, for you, if you wouldn't mind, a list of varying studies. Some were done by the National Academy of Sciences. That's one from the 2005, 2006 era that——

Senator MURKOWSKI. And in all different conditions or—can you speak to that?

Ms. JACKSON. That one looked at coastal southern Louisiana conditions. There have been studies by the institutes set up after Valdez on west coast dispersant used. Woods Hole Oceanographic Institution has done a variety of work. There is an annual conference that NOAA has, which Larry will know the name of, I will not. Dr. Robinson will.

Dispersants are routinely subjects of research papers and—after every oil spill—and, sadly, there are small incidents that are not infrequent—there's a look at what happened with dispersants.

Part of the reasons they're not used in the gulf region, for example, within 3 miles or near shore, is a result of people's belief that the risk there, as you get closer to shore, in the shallower waters, was not worth it.

There is a significant body of——

Senator MURKOWSKI. In your opinion, is there enough evidence to suggest that it is, in fact, not worth it when you get that much closer into shore? I mean, are we defining the dispersants in and of themselves as pollutants?

Ms. JACKSON. I would defer to all the research that's out there and the experts, but I believe there is more than ample reason to not want to use them near shore, in part because the reason they're effective at degrading quickly, but you need to give them time to degrade in the deep ocean, so that they don't show up.

Our samples are showing up negative for dispersants near shore, and that's presumably, because they're breaking down in the time it takes for the material to reach the shoreline. We don't see it in air. We don't see it in water. So something's happening——

Senator MURKOWSKI. The research that has been done prior to Deepwater Horizon, has the research been focused equally on the volumes used or are we just talking about the various products? How much has been done on volume and safety there?

Ms. JACKSON. We'll get you a response for the record, Senator, but I'm not personally aware of any research on volume, on upper limit. And another crucial piece of research gap is on this subsea dispersant.

Senator MURKOWSKI. Yes, because this is the first time that we have seen it applied directly at the source of the spill. Is that correct?

Ms. JACKSON. That's right, Senator.

Senator MURKOWSKI. And so we have not yet done that level of research, whether it's NOAA or any other entity. You're not just speaking about EPA's research. You're suggesting to me that we haven't done that research anywhere.

Ms. JACKSON. That's correct, Senator.

Senator MURKOWSKI. Is that equally true, then—is there anything internationally? Have the Norwegians done anything? Is there a source out there that we could look to that's beyond just the national research that's been done?

Ms. JACKSON. I believe there was some limited testing. I believe it was in Europe, and we will get you that information for the record as well, Senator. It is certainly not the body of research you would want in dealing with this matter.

Obviously, this is an unprecedented event and we had to look at that research and then design a program to try to deal with the fact that we were dealing with unknowns here.

Senator MURKOWSKI. Well, I think we do recognize that this is unprecedented, but we also recognize that we have been operating in offshore conditions for decades now. We look to the dispersants as a means of responding in the event of these terribly tragic accidents. And I think, in order to put the issue somewhat at ease, it's clear that we need to do the sufficient testing in all areas.

We are concerned, of course, not only by what goes on in the Gulf of Alaska area, but as we look to explore and develop even further north. Those are different conditions altogether. We need to know—we need to have that assurance that, in fact, these dispersants do what we hope they do and do not add additional risk when we're dealing with a spill.

Thank you, Madam Chairwoman.

Senator MIKULSKI. As we turn to Senator Lautenberg, I'd like to bring to my colleagues' attention—that the National Research Council had published a book in 2005 on oil-spill dispersants, and it was a compilation of the work that had been done primarily in the 1990s and early 2000. If you recall, in 2001, a lot of our thinking shifted.

This is a good document, but it ends in 2005. The work was done primarily in the 1990s.

They have a question that goes like this: "Better information is needed to determine the window of opportunity and percentage effectiveness of dispersant application for different oil types in different environmental conditions."

And then that goes on to say we know something, and what we know is based on 1996, 1997, et cetera. So what we have is some research. But that's the nature of research. You always need new and better.

So I would recommend to you and your staff this, and, really, the executive branch, because we're a committee. We're an appropriations committee. You're the ones with the executive branch and the people—research to be pouring over, and also then see what else we know.

But, Senator Lautenberg, who's been a staunch defender of the coast, and we were happy to join with him in telling the President we didn't want Mid-Atlantic offshore drilling.

And a real champion of the environment.

Senator LAUTENBERG. Thank you very much, Madam Chairwoman.

Despite my tardy arrival, I had an opportunity to listen to our most competent chairwoman remind us about what we've got to do to make sure that what we're putting in the water isn't more dangerous than—or as dangerous, in part—as the oil spill.

And it's interesting, as we talk about the safety, I think subliminally there are questions about the efficiency of this material, and I don't know whether that question has been fully answered.

But I'm announcing that I will soon introduce the Safe Dispersants Act. The bill requires long-term testing, approval and disclosure of all ingredients in dispersants before they can be used in response to a spill.

And I am one of those who still is opposed to offshore drilling in the Atlantic, but for areas where drilling continues, the law's got to require robust testing and disclosure of all chemicals and dispersants.

And so I want to—I'm happy to see these two expert witnesses. Lisa Jackson has New Jersey flowing through her veins and that makes her a better student and a better expert on what kind of things we have to worry about when we get to our coastlines.

Current law requires only minimal safety testing of dispersants. And while you, Ms. Jackson, have taken steps to go beyond what the law requires, do we need changes in the law to mandate a more complete range of tests that would better protect the health of workers, residents and marine life?

Ms. JACKSON. Yes, sir, I believe we do. I also believe the law would give us critical transparency and openness protections that right now EPA cannot provide by law.

Senator LAUTENBERG. So it's very obvious, at least to me and, I'm sure, to my colleagues, that the law ought to be changed to give the public the right to know about health and environmental effects of chemicals in the dispersants.

There's an old expression about what you know can hurt you, and, here, what I come away with is what we don't know can hurt us and we've got to step up to this and do our work in advance and not be relying on catch up to find out whether or not these dispersants, the chemicals therein, are threatening human health and the environment.

On May 20, EPA ordered BP to find a dispersant that's less toxic than the one it was using. BP refused and, to this day, continues using the same material.

Now how can BP simply ignore the directive? And does EPA have enough muscle, enough strength in law to issue a command that says, hey, you've got only a limited time to continue the use of these without responding? What's the situation there, Ms. Jackson?

Ms. JACKSON. Well, sir, I think it's obvious where the actions of BP have always favored the use of dispersants. They don't necessarily think they should be limited, and they like the one they've chosen.

I think their answer was designed to throw concern on all dispersants, so that we would then have to acknowledge that which is a truth and I think has been brought out through this hearing, which is that we need more research. We need more information on all dispersants, and that is not only a BP problem. That is something that I believe needs to come out of this issue.

So, yes, we clearly have the authority to order them to switch or to order them to use dispersants at a much lower volume. They are doing that. They haven't sprayed—I think in 5 or 6 days they have not sprayed dispersant. That's through constant management of the operational process, but none of that replaces the fact that we need more information.

And one of the things that I certainly hope comes out of this is information, not only on what's in the chemicals, but different and better testing, so that we, Dr. Robinson and his staff and my staff,

don't have to try to run models to come up with judgment calls on the fly.

Senator LAUTENBERG. Well, as you heard me say, next week, I'm going to be introducing what we're calling the Safe Dispersant Act. It requires long-term testing, approval, disclosure of all ingredients in dispersant before it can be used in response to a spill. Do you think that this might be a sensible course to track and get on with that?

Ms. JACKSON. Yes, Senator, we will review the actual bill. I think you sent it over maybe yesterday. We will look at the language, but the intent and the principles you've outlined line up well with the idea of greater transparency, additional testing and, hopefully, a move to less toxic dispersants.

That same National Academy of Sciences [NAS] report says dispersants are much less toxic. It concludes they should be a first-response use, but there are critical questions about volume, how they're applied, and we should be able to get even less toxic dispersants.

Senator LAUTENBERG. And also with the regional character of the weather and stream flows, et cetera, et cetera.

Thanks very much, Madam Chairwoman.

Senator MIKULSKI. Well, thank you for your leadership, Senator Lautenberg. We look forward to looking at that legislation and perhaps being joined as an early cosponsor with you. Your work early on, particularly on Superfund cleanup and others, is actually legendary.

Senator LAUTENBERG. Thank you.

Senator MIKULSKI. And you've made a difference and you've got a real expertise, and we look forward to working with you.

Senator LAUTENBERG. Thank you.

Senator MIKULSKI. Before the vote begins, I will have a question from Senator Shelby, and it's this—I'll come back to that.

But I really have a question for both of you. Lessons learned from other countries, and particularly those that are our allies, that share our values around safety and efficacy, whether it's on pharmaceuticals or dispersants.

The UK, as I understand it, banned dispersants. That gave me pause, and, in fact, it gave me heartburn that the UK would ban it, a nation surrounded by water. And if the UK banned it, why weren't we banning it? Because they're surrounded by oceans, too, they've had their share of oil spills up in the North Sea.

So what is your response to it? Do they know something we don't know? You did know the UK banned it.

Ms. JACKSON. Yes, chairwoman. The UK took COREXIT off their approved list, just like we have a product schedule. It wasn't due to toxicity concerns. It wasn't due to lethality concerns.

It was due to what they call a Rocky Shore Test, which primarily deals with whether or not there's a factor that causes mussels and clams to lose adhesion on a rocky shore.

They have since made clear that they think it is a useful dispersant on heavier fuel oil. They're looking at a test protocol to determine whether they should be allowing its use offshore.

We don't have a rocky-shore issue here, because we don't allow this to be used anywhere near the shoreline. The closest I think it's been used is 30 miles from shore.

So it is fair to say that they had concerns, but I just want to be clear to the people of the gulf, it wasn't because of toxicity. If there were toxicity issues, that would be different. It had to do with the shoreline impact on a rocky shore, which obviously is different here as well.

Senator MIKULSKI. Well, I appreciate that clarification.

Dr. Robinson, has NOAA reviewed the way other nations are using dispersants and the impact there from the NOAA perspective on marine life and the safety of seafood?

Dr. ROBINSON. Yes, our scientists have scoured the literature to look at what's known about the impacts of dispersants on those trusted resources that we are required to protect in this region and around the country.

But, in spite of that, Madam Chairwoman, we are just as concerned about the gaps that Administrator Jackson has pointed out, as well as those of you here in the Senate. And we really welcome the opportunity that will be provided by the $2 million the President has proposed to begin a more comprehensive research program into the long-term impacts of dispersants in these and other systems.

Senator MIKULSKI. So do other countries ban the use of dispersants because of their concern about the impact on seafood? And why don't we go to NATO countries or EU countries or countries that are allies like Japan?

Dr. ROBINSON. Well, I don't know comprehensively what all of those countries do, but——

Senator MIKULSKI. Well, I'd like to know. I mean, that's the NOAA job.

Dr. ROBINSON. Right.

Senator MIKULSKI. I would hope that you would look. Did you look there?

Dr. ROBINSON. Yes, what we have done—well, we are bound by the oil producing act of——

Senator MIKULSKI. The oil producing act won't let you find out what another country does——

Dr. ROBINSON. Right.

Senator MIKULSKI [continuing]. That is willing to fight and die alongside of us in Afghanistan.

Dr. ROBINSON. Right. And what we've done with our colleagues around the world is to try to get a better sense of not only the regulatory framework that they work in, but what is the impact these types of compounds are having on these valued resources. So, yes, Senator, we are quite interested in learning more about what——

Senator MIKULSKI. Well, Dr. Robinson, I want you more than interested.

Dr. ROBINSON. But——

Senator MIKULSKI. Sir, I need NOAA on the edge of their chair.

Dr. ROBINSON. Right.

Senator MIKULSKI. I need a sense of urgency here. We're going to fund the research. We have a sense of urgency. We need you to have that urgency.

Dr. ROBINSON. Right. And we——

Senator MIKULSKI. And I'd like a list from you—meaning from NOAA—by next week on what do NATO nations and those that are part of our strategic alliance, we know their value and scientific capability, like Japan—what is their listing on the use of dispersants. And I'd like it from the EPA perspective and the NOAA perspective.

Dr. ROBINSON. We'll get that——

Senator MIKULSKI. And I would like that by this time next week.

Dr. ROBINSON. We'll get that information to you, Senator.

Senator MURKOWSKI. Madam Chairwoman, thank you, just very quickly one last question for you, Dr. Robinson. With the testing that NOAA has done on the issue of dispersants in the seafood, have you detected anything that is noticeable or reportable in the seafood that you've been testing?

Dr. ROBINSON. Our seafood tests are for oil as well as dispersed oil. Our protocols are not specifically looking at dispersants or the byproducts of dispersants themselves. That's not——

Senator MURKOWSKI. Are you intending to do that?

Dr. ROBINSON. I think that would be an excellent thing for us to consider as we've learned from this situation that there are other potentials here, perhaps even for bioaccumulation of dispersants and their byproducts into seafood. So that's something we have on our list of things that we would like to know more about.

Senator MURKOWSKI. Is FDA testing this? You know, we were talking earlier about the FDA role with the States in those areas 3 miles within our shores. Are they testing for dispersants in our seafood?

Dr. ROBINSON. I don't think that the protocols presently call for the testing of seafood with regard to seafood safety for dispersants or dispersants' byproducts. It's really the oil and the oil byproducts that we're looking for in seafood at the moment.

Senator MURKOWSKI. So how can we give the consumer the assurance that the seafood that is coming from the gulf, in these waters, is safe for consumption?

Dr. ROBINSON. The evidence that we presently have is that the dispersants are broken down fairly quickly and biodegrade fairly quickly.

We don't know with absolute certainty, Senator, that there are no traces of dispersants in seafood. Our tests, however, looking at the more toxic agents in seafood, focus on the oil and the oil byproducts.

Senator MURKOWSKI. Well, I understand that, but it seems to me that we've got an issue here where we're not certain. I mean, the Administrator was not able to tell me with certainty whether or not we consider these dispersants as pollutants.

If they get into that food chain, at whatever level, are we testing for this? It sounds like, at this point in time, no. We're looking for the oil products on the fish. That's one thing, most certainly, but it would seem to me that, as we do the research on the effectiveness of these dispersants and the tradeoff, you have to consider the impact to our fisheries, to marine culture as a whole when we're looking at this.

And I want to be able to give a level of assurance to people that whether you are eating wild Alaska salmon from Prince William Sound or whether you're taking it from the gulf, that the dispersants have not had an impact on the safety of that.

And so if we are not testing for that, I would certainly hope that we would be doing that now, yesterday. That is something, again, a level of assurance that we need to be able to provide the consumer and give them that certainty that these dispersants—even though the purpose of them is to disperse the oil quickly, if we've dispersed the oil, but we've replaced it with another substance that has toxicity levels that impact that seafood, that's something that we all need to be concerned about, Administrator.

Ms. JACKSON. Thank you, Senator. I did want to follow up on your point, because, you're right, what we have done is we've shared the formulations of the dispersant. Although they're confidential business information, the manufacturer has made sure we share that with FDA and NOAA, as well as the State of Louisiana and other States who've asked for it, so that they can look at their own testing.

We're testing water and sediment. But one other thing we've done is look at the bio-accumulation potential of all of the constituents that are in the dispersant. So dispersants are—the vast volume of it is actually oil—petroleum. That's actually—it's in a petroleum base, and then you have other chemicals added in. The other chemicals—so that's why pollutant is hard, but there are chemicals in there, obviously, and they can pollute if they're in high enough concentrations. They don't stick around, by the looks of what we've done.

Now, those are not field studies. Those are looking at bioaccumulation potential through peer-reviewed modeling. And the thing that sticks around is the oil.

So it's why certainly one of the things I looked at in the decision-making process of whether to take dispersants off the table entirely, rather than use them in moderation, was are they worse. Is the cure worse than the disease?

They are not. They are much less toxic and the constituents that are added to them are not nearly as bad as the oil.

So I think—not getting into seafood safety—one of the reasons that I've seen NOAA and FDA say they want to first make sure there's no oil there is because the constituent in the dispersant that's most likely to stick around would be the same stuff that's in the crude itself.

Is that fair or——

Dr. ROBINSON. That's fair.

Senator MURKOWSKI. And I appreciate that explanation.

Again, I think what it's going to get down to—and this is going to be critical for the economic recovery in the gulf, where you've got shrimpers and oystermen and people who rely on seafood for their industry—those fish, those shrimp may be absolutely perfectly safe, but as long as the public believes that they have been tainted, that market does not come back.

Those shrimpers may be out. They're in their boats. They're on the water. They're collecting their shrimp and no one's going to buy them.

And so we've got to be working together then, if, in fact, we've demonstrated that there is clearly that level of safety. How do we market this? How do we give that level of consumer assurance? And I think this is where we need to rely on NOAA. We need to rely on the FDA, and they need to be able to come out and unequivocally state things are safe. But it's going to impact all of our seafood markets around the country.

And so if, in fact, we've determined that it is safe and that it is risk free, we need to get that word out and we need you to help us make that case.

Dr. ROBINSON. Yes, Senator, we are——

Senator MIKULSKI. Senator Murkowski, the vote is on.

Senator Murkowski, we want to work with you on this. We share your concern, because we are a seafood-dependent State. It's important to our business people, our restaurants, people who sell seafood, people who are the wholesale dealers. This is big business. It's big business, but it's small business that does it, you know, wholesale seafood processing.

So this doesn't have to be the first hearing, because once we have the validation of our science, we're going to talk to Secretary Locke. If the Commerce Department can spend money to improve exports, we can spend money to help our brothers and sisters in the gulf and all of us who are seafood-dependent for our economy to ensure that.

So we're going to do this, and let's all work together. Let's have a working group to do this.

I'm going to temporarily recess this hearing, so that we can go vote. I'm going to excuse the administrative witnesses. I know you're heading to the gulf, madam administrator.

Before I recess, I want to read a question from Senator Shelby. He is quite concerned about hurricanes and hurricane preparation. He's concerned that with what is going on in the gulf, any reaction to the hurricane in preparation will have to address booms, the anchors holding the booms, cleanup crews, et cetera. And if oil dispersants wash ashore, what will that be in impact?

I'm going to read the question, share it with you, and I think, in the interest of Senator Shelby, would like that answer in writing for him, which is——

Can you tell us the status of the emergency plan for the gulf if a hurricane hits? When does the agency plan to advise the local communities on what they need to do? They haven't heard anything.

Since contamination could exist in the surge waters, what agencies will be on site to make the call for the safety of residents and property owners and people in the seafood industry?

You call them fishermen. We call them watermen. Whatever we do, we call them working Americans.

And the hurricane surge or tidal waters, we need to know what's going to be the cleanup of water and oil and the related damage.

So we want you to have this question in writing. I'll ask my staff to share it.

Senator Shelby wanted so much to be here, and he might be able to come back for the second half.

We're going to recess this. We've got homework for you.

But I want to say something about the worker bees in the gulf. Having been there, I was impressed at how hard everybody was working and how—whether it was the NOAA people, Fish and Wildlife Service, the EPA, people on the ground and so on. So I want to say hats off to our Federal response and working with the community.

But I think we, in Washington, have to really pick it up, and I think this Unified Command has got to get a little bit more juice. I really do.

I am distressed about the changing admirals on the scene. Okay? Admiral Allen has served the Nation with distinction. He's the Unified Command commander, but the admiral on the ground's got to be on the ground or on the water, and that's a separate topic. We'll take that up with the President.

But, right now, we need you. You're operational in one sense, but you are the science. You are the science of the United States of America, and they're counting on you. We're counting on you. So we look forward to it, as we get ready to mark up our bill next week. That's why we need these lists.

So, you know, OMB can vet and this one can cogitate and science advisors can review, but, as the Administrator of EPA and to Dr. Lubchenco, through you, Dr. Robinson, I am asking for those lists, and we don't have time for a lot of in-house, bureaucratic vetting, scurrying around. Okay? We have a sense of urgency. And I know you do, too, but sometimes our own processes get in our way.

And so this subcommittee is temporarily recessed. I'm going to go vote, come back. Hopefully, other members will. And, at that time, we're going to take testimony from the Louisiana Bucket Brigade and the Environmental Working Group to get the view from the NGOs.

Thank you, and I thank our executive branch witnesses for their diligence in this matter. We got a lot to do.

Thank you very much and I look forward to further conversations.

The subcommittee will reconvene, and we hope that Senator Shelby will join us. The cloture has now been invoked and he might have to stay on the floor. But he wanted us to know of his very keen interest. His staff will be preparing memos on this. Of course, we have a public record on the hearing.

I want to welcome to the table those NGOs that have been active in the gulf area itself—Anne Rolfes, the founding mother of the Louisiana Bucket Brigade, a grassroots organization empowering citizens in the gulf about their health and the environment; and Ken Cook, who is very well known to us, the president of the Environmental Working Group, which is a consortium of the major environmental organizations. Mr. Cook is the president of that, and it focuses on public health in the environment.

And one might say, well, what's Commerce, Justice doing on public health? Well, we think water quality, the impact on marine life and seafood and what these dispersants mean to the people who are working at the cleanup or who are going to live in the gulf the rest of their lives, and we don't want a gulf war syndrome.

And I'm really hot about this, and that's why I said to our colleagues from the executive branch, urgency. Let's go to the edge of our chair, and we need to know more.

So before I ask you two to speak, I'm going ask unanimous consent that I enter into the record the testimony of Dr. Robert Shipp, the chairman of the Department of Marine Sciences at the University of South Alabama, who also chaired the Gulf of Mexico Fishery Management Council.

And he shared with the subcommittee that he was adamantly against using the dispersants in this catastrophe, because he is concerned about toxicity and really if they have any efficacy of purpose. He submitted a very crisp testimony. We're going to ask the good doctor to submit it.

Dr. Shipp is not testifying at the request of a Democratic liberal trying to make a point. This came from Senator Shelby, because he wants all views on the table. And we want the best science to protect our people and their lives and their livelihood.

So I ask unanimous consent that that goes into the record.

[The statement follows:]

PREPARED STATEMENT OF ROBERT SHIPP, CHAIRMAN, DEPARTMENT OF MARINE SCIENCES, UNIVERSITY OF SOUTH ALABAMA, CHAIRMAN, GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

My name is Robert Shipp, I am chairman of the Department of Marine Sciences at the University of South Alabama, and I also chair the Gulf of Mexico Fishery Management Council.

I want to provide comment on the use of dispersants related to the Deep Horizon oil spill.

I am adamantly against the use of dispersants for this catastrophe. I'll try to present the rationale for my concerns briefly.

As an overview, oil on the surface can be burned or skimmed. Many components will evaporate relatively harmlessly to the atmosphere. Booms are only effective in protecting against floating oil. Oil below the surface, in the water column, will likely have devastating but unknown impacts on the marine ecosystem.

I see two major issues regarding the use of dispersants. The first is their toxicity and the second their purpose.

The toxicity issue seems to raise the most rancor among opponents. And this is also the issue about which very little is known. The recent reports regarding toxicity (e.g. June 30: "EPA releases first round of toxicity testing data for eight oil dispersants") stress relative toxicity. These reports compare different dispersants, including COREXIT 9500 (the one in use) with various other dispersants. Findings are that some are more toxic to finfishes, others to invertebrates such as mysid shrimp. Other findings are that acting alone they may or may not be more toxic than when in conjunction with oil. And they seem to be less toxic than oil.

This appears to me to be a red herring. They are toxic! Relative toxicity is irrelevant. But what is totally unknown but of grave concern is the toxicity toward fragile life stages of marine organisms. Most of these have especially delicate respiratory apparatuses, and the toxic nature of dispersants is probably most lethal to these. Testing done on hearty adult minnows, and on their endocrine system, tells us absolutely nothing about impact on the fragile gills of larval fishes or invertebrates.

So that brings us to the question of purpose. Why use dispersants? The two principal reasons are: (1) they break down fresh oil to smaller particles to speed up bacterial degradation into less toxic components, and (2) by suspending oil in the water column, the amount of oil reaching critical estuarine and surface habitats is reduced.

Let's address each. The breakdown into smaller particles is true, and these are likely to be degraded more rapidly. That is what we know. What we don't know is how rapidly this occurs, what role temperature plays, and what the final end product will be. We do know that the degradation requires oxygen, and this results in creation of potentially hypoxic areas. These are most likely in shallow areas where the temperatures are higher. At depths, where much of the dispersants are applied, the process will be much slower and will require less oxygen in the short term. And

since the oil is comprised of a complex cocktail of different components, ultimate breakdown products are unknown.

But it's the suspension of the oil in the water column that is of greatest concern. The argument that suspension reduces the likelihood of the oil reaching fragile coastal ecosystems would be valid were this a limited spill. But this is of such massive proportions that those benefits are trumped, and the coastal habitats are already overwhelmed, as are the offshore floating habitats like Sargassum communities. In addition, to a limited degree, booms can protect coastal habitats from floating oil. Oil in the water column passes beneath booms, moving directly toward shorelines.

In the water column, when marine organisms encounter the oil droplets, the effects can be devastating. For example, many marine organisms are filter feeders. They strain water as it passes through their filtering organs, such as gills. But rather than food items, they collect oil particles, which if in high enough concentrations, is fatal.

As an example, anchovies swim through the water with their mouths agape, collecting food on the fine filaments of their gills. Recently at Ft. Morgan, Alabama, where oil in the water column was evident, the beach was littered with dead anchovies. While we don't know the direct cause, this doesn't occur during normal ecological cycles.

Vast clouds of organisms in the oceans make nocturnal migrations to the surface, then descend to the depths with daylight. These are comprised of myriads of species, including larval forms, barely visible crustaceans, and a plethora of other species. Wherever there are plumes of oil, regardless of the concentration, these organisms will pass through. What the impact is, one can only surmise, but it isn't likely beneficial to the ecosystem.

Eventually, oil in the water column will settle on substrate, regardless of the degree of degradation. This, along with dispersant remnants, will enter the food web. The ultimate fate in the higher trophic (feeding) levels is unknown.

To re-emphasize my earlier comments: oil on the surface can be skimmed or burned, and the volatile components dissipate naturally. Reason suggests that it should remain on the surface. Oil in the water column has the potential for massive negative impacts on marine organisms, the extent and duration of which are unknown, but which we will have to experience and measure in the years to come.

Senator MIKULSKI. Now, I'd like to hear from you first, Mr. Cook, and then Ms. Rolfes from the Louisiana Bucket Brigade. One of the things I'm going to ask is how did you get that nifty title?

But, Mr. Cook, why don't you proceed and share with us your views? You know the purpose of the hearing.

Mr. COOK. Yes, ma'am.

Senator MIKULSKI. You know, so—

STATEMENT OF KENNETH A. COOK, PRESIDENT, ENVIRONMENTAL WORKING GROUP

Mr. COOK. Madam Chairwoman, thank you very much for convening this hearing, and I want to thank the members of the subcommittee.

We would like to submit our full written testimony for the record, and I'll summarize it very succinctly, I hope, and briefly, here.

From the moment on April 20 that the blowout preventer of the Deepwater Horizon failed, killing 11 workers and sinking, we have been engaged, as you put it so well in your statement, Madam Chairwoman, in a scientific experiment. No good options. Not much good news.

When I heard today that the little bugs that like to eat oil are thriving in the gulf, maybe that's the one bit of good news, thank goodness something's thriving there now.

But we basically have entered into this with a complete lack of preparedness.

You remember, Madam Chairwoman, at the very beginning of this discussion, when it was suggested that it might be months before this problem was solved, that was newsworthy. The American people just assumed we were prepared to shut this thing down.

Now, today, as the science experiment is underway, we're focusing on one aspect of this, which is the dispersants. And my staff of scientists, like many others have been trying to figure out what exactly is going on at this stage in the experiment. And we don't have very good answers, just like for all their good efforts, you didn't get very good answers, to me, today from our first panel.

And the reason is very simple: We didn't start by asking the right questions in a timely way, so that we would have any answers by the time we reached this point.

This is an unnatural catastrophe. It's made by us. We didn't plan for it, and, as a consequence, we don't have basic answers.

The kinds of issues that came up this morning are the kinds of issues we face constantly with chemicals. And let me go through them, because they're so relevant here and relevant in particular to what Senator Lautenberg was talking about this morning.

First, we hear that we can't tell you very much about them because of confidential business information and limitations of the law, the Toxic Substances Control Act.

Then we hear that there's no evidence of harm. We hear that sometimes from the Government. We certainly hear it from the company, no evidence of human harm from the use of these chemicals.

Then we hear its safe, when the pressure starts building.

Then we hear we're concerned.

Then it shifts to, we're evaluating the chemical. We're looking at its safety.

And then, finally, based on our review, we hear, as we heard this time, we're shifting to a safer alternative.

So it's exactly the backwards way you would want to do this. You would want to have done the research ahead of time to know what the very safest alternative was.

Then, as a crisis unfolded like this, important questions like: Is it different with regard to safety and the environment when there's a larger volume? We could have had at least some footing on which to answer that, but we don't.

The first point to be made is that under our current Toxic Substances Control Act, most of the information, rudimentary information we would have wanted about what this chemical is, was protected as confidential business information from the get go.

We know that one of the compounds that was substituted and used after the initial compound was withdrawn was put in place because of safety concerns about the original compound that emerged during the Exxon Valdez incident, where workers were clearly affected by a toxic chemical that was contained in the dispersant.

We also know that some industry and Government spokespeople are trying to reassure us that this chemical is really no different than some of the chemicals we find in everyday detergents and other consumer products. Unfortunately, we don't have a safety system that assesses those chemicals in those applications either.

We know that this is the first time we're using this material at great depths, and we heard today that there's essentially no information about efficacy and no information about safety to the marine organisms or to workers when it's used in that fashion. The Government and the oil industry long ago should have made sure that we had these answers.

I think the only thing that might have focused BP's mind, and the other contractors down there, at the start of this incident, would have been: Would you have given us these answers if you knew that your company, its future was at stake if you didn't give us those answers? That's, I think, what it might have taken for a wake up call.

We're recommending in our testimony additional money for research. Obviously, that has to be done yesterday from both EPA and NOAA. We need that protocol to understand how to find and whether it's occurring in game fish and commercial fish, if these dispersants are showing up, what the impact might be and rudimentary questions like that.

PREPARED STATEMENT

But in this unnatural catastrophe, Madam Chairwoman, I am forced to conclude, after we've reviewed as much evidence as is in the public domain—and a lot of it is not—that we walked into this almost completely blind, almost completely unprepared to understand the impact of the use of these dispersants on human beings, the marine environment and the long-term health of the gulf and beyond.

Thank you, Madam Chairwoman.

[The statement follows:]

PREPARED STATEMENT OF KENNETH A. COOK

Madam Chair and distinguished members of the subcommittee: My name is Kenneth A. Cook, and I am the President and Co-founder of Environmental Working Group (EWG), a nonprofit research and advocacy organization based here in Washington, DC with offices in Ames, Iowa, and Oakland, California. I thank the members of the subcommittee for holding this important hearing and for the opportunity to testify. My testimony focuses on the use of oil dispersants.

BP has dumped more than 1.8 million gallons of chemical oil dispersants into the Gulf of Mexico near the site of the undersea gusher caused by the April 20 blowout that set fire to the Deepwater Horizon drilling rig and killed 11 workers. Since the explosion, our team at Environmental Working Group has been striving, along with many other experts and journalists, to understand what those chemicals are and how they behave. This much is well accepted: dispersants do not make all that oil vanish. As the science journal Nature reported, "they help large globs of oil 'disperse' into smaller pieces—hence their name—which are easier for sea-living microbes to break down." (Cressey 2010).

According to a 2005 National Research Council of the National Academies of Sciences Report entitled "Oil Spill Dispersants: Efficacy and Effects," we know far too little about the fate of dispersed oil in the ocean. (NRC 2005). Many experts assume that chemical dispersion will dramatically reduce the impact on seabirds and aquatic mammals, but there have been few studies since 1989 to validate this assumption. (NRC 2005). In the case of coral, we do know that mixtures of dispersants and oil are more toxic to coral than oil alone. (NRC 2003). And, according to some marine toxicologists, fish and smaller marine organisms can mistake dispersed oil droplets for food. (Shaw 2100). Some dispersants build up in the tissue of creatures that ingest them, and they may cause internal bleeding in some marine life. (Shaw 2010). The National Oceanic and Atmospheric Administration (NOAA) has indicated that the dispersants in the gulf biodegrade within 5 to 7 days, but, according to press accounts, Nalco's own studies show that it takes more than 28 days for them to break down. (Werau 2010).

The important question is: Are these dispersants minimizing the damage—or making things worse?

It is inexcusable that we do not know the answer and have turned the Gulf of Mexico into an enormous science experiment. After all, we've been dealing with oil spills from the moment we started pumping oil. According to the 2005 NRC report, 3 million gallons of oil and refined petroleum get spilled annually in and around U.S. waters, mostly in smaller batches. (NRC 2005).

The particular dispersants going into the gulf have been around for decades. According to the NRC report, COREXIT EC9527A came on the market in the 1980s. COREXIT 9500 was introduced in the 1990s. Both are made by Nalco and have been approved by the Environmental Protection Agency and U.S. Coast Guard for spraying on the ocean surface. (NRC 2005).

On May 26, EPA asked BP to curtail its use of dispersants at the surface. Now, BP appears to be applying most of them a mile deep. (EPA 2010)(Attachment A). It's our understanding that NOAA Administrator Jane Lubchenco has conceded that dispersants have never before been used in deep water spills, and has said that we will learn much from this incident that will inform their use in the future.

No doubt we can and must learn from the gulf disaster, but what do we know now?

WHAT WE KNOW ABOUT DISPERSANTS THROUGH EPA

First of all, there's a lot the public is not permitted to know about these concoctions because of our broken Federal toxics law, the Toxic Substances Control Act of 1976 (TSCA). This failed law makes it hard for EPA to release health and safety data to the public on chemicals and provides way too much secrecy for chemical companies. We commend EPA Administrator Lisa Jackson for releasing the full list of chemical ingredients of COREXIT EC9527A, sometimes called COREXIT 9527 and 9500. We think the public needs to know what, exactly, a chemical is and understand the impact of its use on human and environmental health before a company, or the Government, decides to dump millions of gallons of it into the sea. That didn't happen.

COREXIT 9527 contains three chemicals considered hazardous: 2-butoxyethanol; organic sulfonic acid salt; and propylene glycol. Nalco, which makes these dispersants, has conceded that with respect to COREXIT 9527, "No toxicity studies have been conducted on this product." It also says: "Based on our hazard characterization, the potential environmental hazard is: Moderate. Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Low." Just how the company has reached that conclusion isn't at all clear.

We do know that breathing 2-butoxyethanol exposures or skin contact with it may irritate the nose and eyes and cause headache, a metallic taste in the mouth and vomiting. (ATSDR 1999). Tests can detect it in a person's blood and urine within 24 to 48 hours of exposure—before it breaks down and leaves the body. Animal studies have shown that high doses of 2-butoxyethanol can cause reproductive problems and minor birth defects and can destroy red blood cells. (ATSDR 1999).

COREXIT 9500, the newer formulation, is made without 2-butoxyethanol. According to the NRC report, Nalco developed COREXIT 9500 because it discovered that "prolonged exposure to COREXIT 9527 caused adverse health effects in some responders. These effects were attributed to its glycol ether solvent (2-butoxyethanol)." (NRC 2005).

Paul Anastas, the head of EPA's Office of Research and Development, attributed the removal of 2-butoxyethanol to a newer generation of more "environmentally friendly" dispersants (EPA 2010). Yet hundreds of household and school cleaners and other products contain the same 2-butoxyethanol linked to adverse health effects. (HPD 2010).

In the early days of the spill, EPA permitted BP to spray the older product, COREXIT 9527, until enough 9500 could be located. We still have many questions about COREXIT 9527. The New York Times reported just last week that BP has detected 2-butoxyethanol over safety limits set by the National Institute for Occupational Safety and Health (NIOSH) in more than 20 percent of gulf oil spill workers. (Schor 2010). These exposures raise questions about the use of other cleaning agents containing this chemical in cleanup operations, potential longer-term air quality problems as a result of COREXIT 9527 and perhaps, BP's possible continued use of this substance.

It's more than a little disquieting that the "material safety data sheet" for COREXIT 9500 actually warns: "Do not contaminate surface water." Also, the document says, "Component substances have a potential to bioconcentrate."

It doesn't help the situation that Nalco had earlier placed the ingredients in COREXIT 9500 under a cloak of "confidential business information" or CBI, which under current law barred EPA from releasing the details of its ingredients on the grounds that they would give away a valuable trade secret to the company's competitors. But as the newswire Greenwire has reported, the mere listing of the ingredients didn't include one piece of potentially important information: how much of each one is in COREXIT 9500. It quoted Nalco spokesman Charlie Pajor as saying:

"Having the full ingredients out there is only part of the information that someone wanting to copy the product would need."

That was an interesting admission in light of the chemical industry's insistence that it needs the right to claim CBI, which keeps the public from learning the chemical identity of 17,000 chemicals on EPA's inventory, in order to protect manufacturers' trade secrets. It makes you wonder whether disclosure of these chemical identities, which is vitally important to cleanup workers in the gulf—and to emergency responders, research scientists and the public—is really such a threat to these companies' intellectual property and their profits.

Environmental Working Group found a BP chart that listed EPA-approved alternatives to COREXIT. Because of the draconian secrecy protections of TSCA, however, almost all the health and safety data were described as "not known" because ingredients were "confidential" or "proprietary." (Attachment B). As evidenced by this chart, confidentiality even stymied BP's attempt to evaluate alternatives. The company wrote on May 19: "There may be only limited information on the constituents of the dispersants, since the dispersants typically contain proprietary substances whose identities are not publicly available." (BP 2010).

Given our work on toxic chemicals, we were not surprised that critical information on the vast majority of dispersant alternatives was secret under TSCA. A recent EWG investigation found that industry has placed "confidential business information" (CBI) claims on the identity of 13,596 chemicals introduced since 1976. That's nearly two-thirds of the 20,403 chemicals that have been brought onto the market in the past 34 years. A significant number of these secret chemicals are used every day in consumer products, including artists' supplies, plastic products, fabrics and apparel, furniture and items intended for use by children. (EWG 2010).

Some industry spokespeople and Government officials are trying to assure the public that dispersants are safe because they contain ingredients common in many household cleaners or cosmetics, such as lotions. But that's not a bit reassuring. The reality is that chemicals used in household cleaners, detergents, and lotions are not tested for safety before they are sold. The very chemical that prompted the shift from using COREXIT 9527 to COREXIT 9500 is still contained in the cleaning products sold for household and school use. All too often we do not have complete health and safety data. Even more disturbing is that many industrial chemicals are polluting people's bodies. EWG's studies have shown that even newborn babies are born pre-polluted by chemicals in everyday consumer products. (EWG 2009). The unfortunate reality is that just because it's in a household cleaner or detergent doesn't mean it is safe.

WHAT WE KNOW ABOUT DISPERSANTS AND THE SPILL THROUGH NOAA

NOAA's main role in the gulf disaster is to provide real-time scientific data and on-site testing of the efficacy and environmental impacts of dispersants. NOAA also supplies the Coast Guard and the teams applying the dispersants with information on the best places and methods to use them. (NOAA 2010).

We are troubled that NOAA, as the agency charged with assessing the dispersants' use, has apparently said that the COREXIT formulas biodegrade within 5–7 days. These assertions seem to contradict Nalco's publicly reported statements. On May 25, Chicago Tribune reporter Julie Wernau wrote:

"According to Nalco, as part of the registration of COREXIT 9500 for use in French water, the product's biodegradation was required to be measured by an independent laboratory, a test that is not required by the EPA. COREXIT passed the test in France, Nalco said, with 78 percent of the product biodegrading over 28 days."

NOAA has done some tests on dispersed oil plumes in the vicinity of the blowout and has found underwater plumes of dispersed oil and dispersants 6 miles from the gushing oil well. University scientists, meanwhile, have discovered plumes of dispersed oil as far as 75 miles away. University researchers have also expressed concern about very low levels of dissolved oxygen in the seawater, but it appears that NOAA has not found troubling low levels of dissolved oxygen around the submerged

oil. (Farenthold 2010). These discrepancies are confusing. It's still unclear to the public what NOAA's role is in tracking the dispersants as they drift in ocean currents. What if any, potential impacts or dead zones could be created by these underwater plumes? What is the possible effect of hurricanes or other weather patterns on the dispersed oil? Hurricane Alex disrupted the cleanup efforts even though it was hundreds of miles away. How is NOAA preparing the response team for hurricane season?

Even more disconcerting are recent press accounts that NOAA is not sharing its data. BP can access the monitoring data collected from the six NOAA research vessels monitoring and testing in the gulf, but apparently the public cannot have access to the same data. We urge NOAA to release this important monitoring data immediately so that academic researchers and other independent experts can evaluate and the public can know the extent of the gulf disaster. (Froomkin 2010).

It's been well established that until this mother-of-all-oil-spills, EPA, NOAA and other Government agencies had not developed a thoroughly researched plan for managing this sort of crisis. Since spills are a constant threat, the Government and the oil industry should long ago have financed far more research into dispersants and how best to clean up oil spills. They should have developed other longer-term health and safety information. It is shocking that there appear to be no public long-term studies on health effects of the Exxon Valdez oil spill on workers or studies of its ecological impacts. This is a stunning gap in our knowledge and a lesson we should have learned from the past.

At the moment, what we know about dispersants seems to be as murky as the gulf's troubled waters.

RECOMMENDATONS

In conclusion, the Federal Government must invest more resources into research on the impact of oil spills and dispersants on the marine environment and on public health. After 3 decades, we are still in the dark about the precise make-up and behavior of these products and other chemical agents that are used in huge quantities. We commend Administrator Jackson's call for TSCA reform and the steps that she has taken to address abuses of confidential business information claims and to release more information on the composition of dispersants. To protect our children's health, workers' health and our oceans, however, Congress must give EPA strong authority to shift the burden of proof to industry to show a chemical is safe before it goes on the market. EPA must have express authority to require more transparency about chemical health and safety data from companies. EPA must do more to promote transparency in the cleanup process and assessment of the gulf disaster.

NOAA needs more funding for research on the behavior of underwater plumes of dispersants and how deep sea application may affect ocean ecosystems. If NOAA is indeed holding back on release of important data on the extent of the spill, the location of dispersed oil or potential environmental impacts, it should release this information so that academics, university researchers, health organizations and the general public can form independent conclusions about the human and environmental consequences of the gulf disaster. It is crucial to act quickly and collect as much information as possible about dispersants, including how dispersed oil plumes move in deep sea and where they end up. We cannot continue to depend on disasters to highlight our regulatory failings and scientific naivety.

Thank you for your time. I welcome the opportunity to answer any questions you may have.

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ATTACHMENT A—BP TIMELINE

OIL SPILL TIMELINE & DISPERSANT USE

April 20.—Deepwater Horizon drilling rig explosion occurs. NOAA mobilizes to provide trajectory support, weather and biological response services.

April 22.—100,000 gallons of dispersants are pre-positioned and pre-approved for use by EPA; Coast Guard states no leak is apparent. www.deepwaterhorizonresponse.com

April 24.—First oil leaks discovered.

April 29.—BP reports that 76,104 gallons of dispersant have been deployed. http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7061663

April 30.—Response crews use nearly 3,000 gallons of subsea dispersants for testing; BP and NOAA begins to evaluate these tests to determine feasibility of continued use. http://www.deepwaterhorizonresponse.com

May 3.—Shares of Nalco jump 18 percent after it is revealed BP will use its dispersant products, particularly COREXIT, for cleanup. http://chicagobreakingbusiness.com/2010/05/nalco-holdings-shares-rise-after-bp-cleanup-news.html

May 15.—Coast Guard and EPA authorize BP to use dispersants underwater. http://www.deepwaterhorizonresponse.com/go/doc/2931/551271/

May 20.—EPA issues directive requiring BP to identify a less toxic and more effective dispersant from the list of EPA authorized dispersants within 24 hours. http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/0897f55bc6d9a3ba852577290067f67f!OpenDocument

May 22.—BP's response to EPA's dispersants directive released. BP claims some sections of response contain CBI and cannot be made public. http://www.deepwaterhorizonresponse.com/go/doc/2931/559595/

May 26.—EPA directs BP to significantly scale back overall use of dispersants. At this point, more than 700,000 gallons of chemicals had been applied to combat the spill. http://www.epa.gov/bpspill/dispersants.htmlhttp://www.nytimes.com/2010/05/25/science/earth/25disperse.html?hpw

—UNH Coastal Response Research Center, NOAA, EPA & Coast Guard convene science meeting to discuss unprecedented dispersant use and effects of disbursed oil. http://www.epa.gov/bpspill/dispersants/science-meeting.pdf

June 8.—EPA releases on its Web site the chemical components of COREXIT 9500 and 9527, two main dispersants used by BPA in the Gulf of Mexico. http://

www.nytimes.com/gwire/2010/06/09/09greenwire-ingredients-of-controversial-dispersants-used-42891.html

June 24.—NYT reports that BP has applied 272,000 gallons of surface dispersant and 342,000 gallons of sub-surface dispersant since EPA's May 26 directive. http://www.nytimes.com/gwire/2010/06/24/24greenwire-bp-continues-to-use-surface-dispersants-in-gul-80293.html

June 30.—EPA Releases First Round Of Toxicity Testing Data for Eight Oil Dispersants and states "all of the dispersants are roughly equal in toxicity, and generally less toxic than oil." http://www.epa.gov/bpspill/dispersants-testing.html

July 13.—Surface dispersant used: more than 1.07 million gallons; Subsea dispersant used: more than 735,000 gallons; Total dispersant used: more than 1.8 million gallons. http://www.deepwaterhorizonresponse.com/go/doc/2931/778111/

ATTACHMENT B.—BP'S ALTERNATIVE DISPERSANT ASSESSMENT

Evaluation Criteria	Comment	COREXIT ® EC9500A	COREXIT ® EC9527A	JD–2000	Dispersit SPC 1000™	Nokomis 3–F4	Sea Brat #4	Saf-Ron Gold
E. Persistence, Bioaccumulation and Chronic Effects and Endocrine Disruption: Constituents.	Based on Information Provided by Manufacturer.	Proprietary Mixture.	Proprietary Mixture.	Proprietary Mixture.	Proprietary Mixture.	Formulations may contain nonylphenol polyethylene ethoxylates (BPE), which biodegrade to nonylphenol, a potential endocrine disruptor. NPE use restricted in EU, under review in US.	Proprietary Mixture.	Proprietary Mixture.
G.1. Behavior in the Environment: Solvent.	Based on Information Provided by Manufacturer.	Petroleum based solvent with propylene glycol.	2-butoxyethanol and propylene glycol.	Proprietary Mixture, insufficient information.	Water based containing emulsifiers, dispersants, and water dilutable coupling solvent.	Water and propylene glycol.	Water and propylene glycol.	Proprietary Mixture, insufficient information.
G.1. Behavior in the Environment: Biodegradation.	Based on Information Provided by Manufacturer.	Manufacture describes as biodegradable, majority of components expected to readily biodegrade.	Manufacture describes as biodegradable, majority of components expected to readily biodegrade.	Proprietary Mixture, insufficient information.	Manufacture describes as "completely biodegradable surfactants"—Proprietary Mixture Currently Insufficient Composition Information to Assess.	Nonylphenol, degradation product of NPE, potentially resistant to biodegradation during subsurface application—Proprietary Mixture Currently Insufficient Composition Information to Assess.	MSDS describes product as highly biodegradable.	Proprietary Mixture, insufficient information.

ATTACHMENT B.—BP'S ALTERNATIVE DISPERSANT ASSESSMENT—Continued

Evaluation Criteria	Comment	COREXIT ® EC9500A	COREXIT ® EC9527A	JD–2000	Dispersit SPC 1000™	Nokomis 3–F4	Sea Brat #4	Saf-Ron Gold
G.1. Behavior in the Environment: Potential for Bioaccumulation.	Based on Information Provided by Manufacturer.	Manufacture reports component substances have a potential to bioaccumulate.	Manufacture reports component substances have a low potential to bioconcentrate.	Proprietary Mixture, insufficient information.	Proprietary Mixture, insufficient information.	Proprietary Mixture, insufficient information.	Proprietary Mixture, insufficient information.	Proprietary Mixture, insufficient information.

Chart reference: BP 2010. BP's response to EPA's dispersant directive (PDF) May 22, 2010. http://www.epa.gov/bpspill/dispersants/5-21bp-response.pdf.

Senator MIKULSKI. That was very powerful, and it goes to what I asked our executive branch, more of a sense of urgency here. Pick it up.

We'll come back to some questions.

Senator MIKULSKI. Ms. Rolfes.

STATEMENT OF ANNE ROLFES, FOUNDING DIRECTOR, LOUISIANA BUCKET BRIGADE

Ms. ROLFES. Thank you very much for having me.

A few minutes before leaving my office yesterday in New Orleans to travel here, I received an e-mail from the Louisiana Department of Health and Hospitals, and it included an updated fact sheet for workers who are cleaning up the oil spill.

And on this fact sheet is a list of hazards about which they should be aware, and I brought it with me today. And on this list is oil, heat, slips, trips and falls, trench foot, noise, heavy equipment, poisonous plants, spiders, mosquitoes and chiggers. And then, underneath mosquitoes and chiggers, it says to follow label directions carefully to avoid over-exposure to repellant products.

Now, what you might notice is not on this list is anything about dispersant. And this fact sheet, although it's distributed by the State, is, unfortunately, extremely representative of the information that we're getting—or rather not getting—on the ground along the gulf coast about dispersants.

I have been in a number of forums in every gymnasium and community center in these small towns in Louisiana with Federal officials present, including EPA and NOAA, and they are all very well prepared to talk about heat exhaustion. There's a real focus on the heat. But no one is prepared to talk about dispersant, and yet there is information available.

A report earlier this month came out that says that BP cleanup workers are absolutely being exposed, 20 percent of them, to 2-Butoxyethenol, a chemical in dispersant that is absolutely known to have made Exxon Valdez workers sick, and yet there is no fact sheet about this.

NOAA has no fact sheet warning workers. EPA has no fact sheet. And there's something wrong when we have no information—solid information—that is not being transferred about dispersant health.

Senator MIKULSKI. You want to repeat that again? I just want to be sure I heard it. I was——

Ms. ROLFES. Yes. There is a report that came out this month, written by Elana Schor, that said that 20 percent of the BP oil-spill workers have been exposed to 2-Butoxyethenol, which is a chemical known to have made Exxon Valdez workers sick.

There is no fact sheet that has been distributed about that from EPA or from NOAA. And, in my office, we were commenting that we're sure——

Senator MIKULSKI. Health and Human Services [HHS] or the Department of Labor.

Ms. ROLFES. Anybody. That's right, anybody.

Senator MIKULSKI. Well, you know, we got the Occupational Safety and Health Administration [OSHA] and the surgeon general.

Ms. ROLFES. Absolutely. And my question is why aren't there monitors on every single boat and in every single community for these dispersants.

Senator MIKULSKI. We'll come back and have a discussion.

Ms. ROLFES. But, in fact, there's little information being made available to the public from NOAA. I know groups that have been begging NOAA for information from May.

And then, meanwhile, 2 days ago, at the Oil Spill Commission hearing in New Orleans, Mathy Stanislaus from EPA, said that the agency has just begun—those were his words—just begun testing for the combined effects of oil and dispersants.

And, obviously, day 86 of this catastrophe just beginning to study that combined effect is really too little, too late.

And so I come to you today with this landscape of a complete lack of information to regular people like me along the gulf with three recommendations.

One is to increase the capacity of NOAA and EPA, and of OSHA and all of the agencies involved, to both monitor and test for dispersant, and then, equally important, to distribute this information in a timely and comprehensible fashion to the general public.

NOAA is not the body seen as most knowledgeable about the plumes of dispersant in the water. And I think that's a real problem when it's non-profit agencies and universities who are seen to have the best science.

And then, likewise, when Administrator Jackson asked BP to please look into the use of a different kind of dispersant, she was essentially blown off by BP.

And so when I talk about increasing the capacity of the agencies, I mean potentially law changes as well, because BP was allowed to just essentially thumb its nose at the administrator of the EPA, and that's a problem.

Another important recommendation that I have is to be really aware of BP's control of information.

From reports, BP is able to get the NOAA information that the public is not able to get, and that's a problem. Also, there is BP security that is keeping people away from documenting the information.

There are also BP emergency medical services, a BP EMS, and that is not widely known, that when oil-spill cleanup workers have a problem, they don't go to the State and they don't go to the private hospitals. They are seen by BP EMS, and we have a real concern about where that data is going, as well as what kind of diagnoses they're getting.

Of course, I imagine that there's a lot of diagnosis of heat exhaustion, which may be true, but there's a real question about how likely a BP EMS is to talk about dispersants.

They've also hired a notorious company called the Center for Toxicology and Environmental Health [CTEH]. After Katrina, this agency was actually gathering samples for EPA, and the company has really a rogue's gallery of clients in some of the worst environmental catastrophes in the world and has never found a problem that is worthy of protecting public health. So this is something that should be looked into, how much of EPA's testing is relying on CTEH.

But, finally, I want to ask you—a final recommendation is to resist pressure to open fishing, which you will certainly get.

In the paper yesterday, it said that the Department of Fish and Wildlife policy is aimed at—fishing closures is aimed at protecting public health, but frustration with the closures has been mounting in the recreational community.

And you're going to get tremendous pressure from Louisiana to open up fishing, and I'm asking you to save us from ourselves.

All of the protocols involve testing for oil and not for dispersants, and I don't believe that our Louisiana Department of Wildlife and Fisheries is accounting for the unseen plumes of dispersant in the ocean.

I think that this problem of dispersant is a problem with our larger chemicals policy. It's a problem with chemicals policy that has now inflicted near chaos on our disaster response.

PREPARED STATEMENT

We have a crystal ball. We know what happened with the rampant use of chemicals in the gulf war and, to some extent, in Exxon Valdez. We know the results aren't good, and so we're asking you to use all of your power as a Senator to protect us.

[The statement follows:]

PREPARED STATEMENT OF ANNE ROLFES

My name is Anne Rolfes and I am the Founding Director of the Louisiana Bucket Brigade, a non profit environmental health and justice organization. Since 1999 I have collaborated with communities impacted by the petrochemical industry, spending much of that time in neighborhoods right across the street from refineries. This time has given me insight into how the oil industry conducts itself in this region. I am also familiar with the State and Federal regulatory agencies vested with the responsibility to safeguard our health and our environment.

In April 2010, 47 people were killed because of this Nation's reliance on fossil fuels. Seven workers at Tesoro Corp's refinery in Washington State,[1] 29 miners in West Virginia[2] and 11 people on BP's Deepwater Horizon rig in the Gulf of Mexico.[3] While the subject of this hearing is limited to dispersants used in the wake of the BP Oil Disaster, it is important to recognize the human costs of this country's addiction to fossil fuels. The tragic events of April 2010 should be our pivot point from fossil fuels to renewable energy.

All of the information detailed here has been documented since April 20, 2010 during time spent in the impacted coastal communities of Louisiana. In some cases the press has documented the problem. I encourage Senators and their staff to go to the gulf coast, not as a Congressional entourage with VIP status, but as ordinary citizens looking for information. By being on the ground without fanfare, our representatives can learn the truth.

Given the lack of information about dispersants, there should be no assurances of safety by any party, especially the EPA, NOAA, other Government bodies or BP. There is no scientific basis for such statements. I have seen a knee jerk response over the years to tell the public that they are safe. In the case of this terrible spill, no one has any information on which to base such claims that disperants are completely safe and so such claims should not be made.

I am concerned about the effect the lack of information about dispersants has on NOAA's ability to track and test for them. How, for instance, is NOAA going to track dispersants through the currents and water column, especially below the surface? What long-term effects will these dispersants have on sea life and up the food

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[1] Associated Press, "Seventh Person Dies from Wash State Refinery Fire," April 24, 2010, http://www.kgw.com/news/national/92006674.html.

[2] Urbina, Ian, "No Survivors Found after West Virginia Mine Disaster," New York Times, April 9, 2010, http://www.nytimes.com/2010/04/10/us/10westvirginia.html.

[3] Times Picayune, Meet the Eleven Men Who Died on the Deepwater Horizon Rig in the Gulf, May 1, 2010, http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/05/details__on__scene__as__deepwater.html.

chain? How can the Federal Government ask these questions when they can't even get and/or share basic safety information about the dispersants being used? What about the long-term health effects to the people being exposed to the dispersants?

APPLICATION OF DISPERSANTS

Attached to this testimony are the three patents available for COREXIT. The recommended ratio of application is one part dispersant for every 12 parts oil. This ratio has not changed even if the patent name holder has.

The following account comes from attendance at a community forum in Thibodaux, Louisiana on Thursday, July 8 by my coworker Callie Casstevens. These forums are now common in south Louisiana and presumably along the gulf coast. The forums are supposed to be information fairs, with tables representing Federal and State agencies as well as private contractors. What follows is an excerpt from Ms. Casstevens blog about the forum:[4]

"Moving to the third table, test tubes filled with dispersant were front and center, with small computers showing planes flying over the gulf dropping the dispersant. I pulled the patent out and asked, 'The patent states the dispersant is supposed to be distributed 1 part for every 12 parts oil, but since we have never known how much oil has been coming out/spilling, how do you know you're appropriately applying it?' The woman laughed, and stated she would let her coworker handle the question. The man was from the UK, it was in fact his plane we were watching on the computer screen dropping the dispersant onto the ocean's surface. His name was Andrew Nicoll, the advocacy manager for the Oil Spill Response and East Asia Response Limited Company, (OSRL). He stated that they had special aerial measurements, taking into consideration the area/density and then applied it."

BP's estimate of the amount of oil released has been on the low end of the spectrum and is constantly changing. BP's Chief Operating Officer Doug Suttles has in fact, stated that understanding the flow rate does not matter.[5] Since BP, then, has potentially no sound basis for understanding how much oil is leaking, how are they to apply the dispersant responsibly?

Ms. Casstevens conversation continued. "Curiosity led me to ask why the UK banned the dispersant. In response he said that it failed the LC 50 test for the shore. That led me to question why the UK shore is any different than our shore. He said, 'It's not reaching your shore.' I then showed him pictures of COREXIT slime that lines the shores of many beaches in the south. He stated it was not COREXIT, simply sea foam. My last question to him was, 'So, why is it used in the United States, is it because we have weak regulations?' He said, 'Yes . . . I mean no, I mean, the UK has very rigid standards.' "[6]

HEALTH IMPACTS

Time and again I have heard fears of chemical exposure categorized as effects from the heat. It is very hot in Louisiana at this time of year, but health assessments are not based on examinations of the patients but instead on opinion. Ms. Casstevens' continues.

"The media has misinformed people, the issue is not with the chemicals but with the heat, it's hot out there." This is what I heard consistently at the community meeting in Thibodaux, Louisiana yesterday.

"The health and safety table had smiling faces . . . and the first thing I noticed was every single flyer on their table described the symptoms of heat stress, nothing about the dangers of being exposed to the oil, dispersant 9527 or COREXIT 9500. Nothing."[7]

According to the U.S. Coast Guard's Jim Rachwal at the same forum, "all of the injuries claimed are a result of heat or pre-existing condition."

The Louisiana Department of Health and Hospitals are monitoring the health complaints. Their information, unavailable at the community forums, but available on their Web site, reports the following.

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[4] Casstevens, Callie, "CTEH? Don't know them. Actually, we do use their results," July 11, 2010, Louisiana Bucket Brigade Blog, http://labucketbrigade.wordpress.com/.

[5] Hammer, David, "BP's Doug Suttles says company threw everything at gushing oil well," Times Picayune, June 25, 2010, http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/06/bps__doug__suttles__says__company.html.

[6] Ibid.

[7] Casstevens, Callie.

"There have been 227 reports of health complaints believed to be related to exposure to pollutants from the oil spill. One hundred ninety-three reports came from among workers and 34 from among the general population. Seventeen individuals had short hospitalizations. Most frequently reported symptoms include headache, dizziness, nausea, vomiting, and upper respiratory irritation. The general population complaints were related to odors, and symptoms were considered mostly mild."[8]

On Thursday, June 2 my coworkers Anna Hrybyk and Shannon Dosemagan spoke to a nurse who was staffing the medical tent within the BP zone in Grand Isle, Louisiana. This nurse was part of the official parish response that was advertised as the place that workers and others should go to if they experience health problems from the spill. The nurse was incredibly frustrated. She had arrived on the scene to treat medical emergencies, and her equipment included IV's, suture stitching materials and more. She reported that she was told she could only offer aspirin and band aids. She reported that BP is running its own Emergency Medical Service and that the sickest people are being taken there and avoiding the parish emergency center.

Ms. Hrybyk recently returned to the medical tent, and stated that contract clean up workers are required to be treated by BP's own contracted out EMS area, not the public response team.

Her account is below:

"Two weeks ago (6/24), I returned to the BP worker compound in Grand Isle looking to get more information on what types of health issues workers were being treated for.

"All oil clean-up workers under contract with BP must go to a privately contracted CARE EMS. While we were standing in the West Jefferson Medical Center (WJMC) tent, a BP clean-up contractor came in about a worker who had open sores and blisters on his hands and forearms after having come into contact with the water. The doctor that saw him wanted this worker to be treated by the West Jeff staff, presumably because of their excellent reputation. However, much to the nurse's discontent, she was bound by the protocol to refer the worker to the BP EMS even though his doctor referred him to the WJMC. According to her, contractors who know and trust the work of the WJMC are 'livid' about this BP imposed protocol.

"BP's CARE EMS area is heavily guarded but we managed to speak with the EMTs on duty. They said they were creating detailed incident reports for every worker they see and those are getting sent to the Houma Unified Command Center. I have been chasing the Head Nurse at the Houma Command Center for weeks trying to get those reports. I am now going to submit a Freedom of Information Act request to the U.S. Coast Guard for their reports on worker health incidents."[9]

A pharmacist in Port Sulphur told me that use of asthma and respiratory medications—both over the counter and prescription—are up 10 percent from this time last year. One clean up worker walked in the door and bought all of the medication off the shelf to share with his co-workers.

BP'S MONITORING

BP insists that its air samples have shown no problems, but this is at odds with workers' experiences of falling ill after breathing in chemicals. It is also at odds with news reports about hospitalized workers.[10]

One of the most troubling aspects of BP's monitoring is that it has contracted with a notorious firm called the Center for Environmental and Toxicological Health. This firm is the go-to firm for companies responsible for environmental disasters. "The private contractor hired by BP PLC as the primary monitor of offshore workers in the Gulf of Mexico is no stranger to environmental calamity. After a million gallons of oil spilled on a Louisiana town in 2005, after a flood of toxic coal ash smothered central Tennessee in 2008 and after defective Chinese drywall began plaguing Flor-

[8] Louisiana Department of Health and Hospitals, http://www.dhh.louisiana.gov/offices/publications/pubs-378/__OilSpillSurveillance2010__06.pdf.

[9] Hrybyk, Anna, "Chemical Exposures," July 8, 2010, Louisiana Bucket Brigade blog, http://labucketbrigade.wordpress.com/.

[10] Associated Press Associated Press, "Hospital treating 7 oil spill cleanup boat crewmen," May 27, 2010, http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/05/hospital__treating__7__oil__spill.html.

ida homeowners, the same firm was on the scene—saying everything was fine."[11] More information about CTEH is included in the attachments.

More investigation is needed to determine how much of EPA's sampling is reliant on CTEH. They share office space. It is not in the public's interest for CTEH to be a partner in protecting the public. According to the Coast Guard's Jim Rachwal from the forum in Thibodaux, "CTEH does a couple thousand samples compared to the USCG which does a few hundred. Unified Command shares a trailer."

NEED FOR LONG-TERM HEALTH AND ENVIRONMENTAL MONITORING

According to the EPA, the effects of dispersant use are unknown. Given this lack of certainty, robust monitoring of gulf coast residents' health and environment should begin now. The Louisiana Department of Health and Hospitals has begun monitoring, but their effort is small. The healthcare systems of the gulf coast do not have the capacity to diagnose and treat people with chemical exposure. The region needs to be fortified with experts in toxicology. Where monitoring is necessary, local people should be employed to carry it out.

SEAFOOD SAFETY

Monitoring is also necessary to determine if oil and dispersant is in our seafood. There will be intense pressure from every corner—from our Governor, local parish presidents and likely our congressional delegation—to reopen fishing waters and claim that everything is fine. But public health concerns should prevail and a robust, protective and transparent monitoring system should be put in place.

ENVIRONMENTAL PROTECTION AGENCY

The EPA is to be commended for their responsiveness and inclusion of NGO's like mine. Best practices for disaster response emphasize that resilience happens best when locals are supported, and Administrator Jackson has done that.[12] She has also been very forthright that the EPA does not know much about dispersants and that they are having to do science on the fly. Since EPA is monitoring for dispersants, these comments are in regard to that monitoring. Most of these comments are in regard to air since that is my area of expertise.

These recommendations for improvement are made in a spirit of gratitude for the EPA's collaborative spirit thus far.

The EPA has repeatedly stated and put in writing that air sampling data for this time of year is consistent with the normal range of air quality. The EPA has no data from years' past, however, to back up this claim.

The fixed monitoring sites have not been selected based on the best locations for public health but rather for factors of convenience, like an available source of power. The agency continues to use limited data to extrapolate to a broad region. Although the EPA is doing more monitoring now than has ever been done in this part of the country, this is a reflection on the sorry state of air monitoring along the gulf coast rather than on any particularly comprehensive sampling measures. Given the relatively limited scope of the sampling, data should not be used for general characterizations. If the EPA does not have the data then they should simply state that fact.

The EPA has a response number on its Web site with the purported goal of responding to odor complaints from the public. The public, however, does not know about this program. The EPA needs to publicize this number.

The EPA is now saying that air quality levels in some coastal regions may be harmful for sensitive groups. This is a welcome assessment. For the first 2 months the agency was engaging in unfortunate knee jerk assurances of safety that had no basis in data.

The EPA data for all media—water, air and sediment—is too hard to understand. Making this data comprehensible to the average citizen is admittedly a tall order, but the staff tasked with this job could do a much better job.

When I approached the EPA table at a community forum in LaRose Louisiana, I was greeted by an EPA employee who immediately told me, before I could even ask a question, that "all we are getting is non detect." An ordinary person would never understand what this meant. I knew that he was characterizing EPA's sampling results. I also knew that it wasn't true.

One of the problems with any kind of responsive monitoring—be it the response team or EPA's Trace Atmospheric Gas Analyst (TAGA) truck—is that it is unlikely

[11] Schor, Elana, "GULF SPILL: Tests raise questions about cleanup workers' chemical exposure," Greenwire, June 11, 2010, http://www.eenews.net/public/Greenwire/2010/06/11/1.

[12] Mock, Nancy, WTUL interview with Crystal Kile, June 25, 2010, http://www.tulane.edu/~wc/sophieaudio/RadioFreeOilzilla25June2010WTUL.mp3.

to capture the complaint that was originally filed. Even in the best scenario a response team will like take a couple of hours to arrive. EPA needs to embrace a new model of participatory research and train local gulf coast residents to use sampling equipment. Many of the people impacted by the spill are comfortable using equipment, and it makes sense to put them to work as samplers. This model would provide much better results than the current regimen of response teams.

Based on 11 years of experience with the Louisiana Department of Environmental Quality (LDEQ), we have no confidence that the agency is capable of taking any steps to protect people or the environment. This agency should be invested with as little responsibility as possible. We are pleased that EPA seems to be taking the lead in the response and that should continue.

BP CONTROL

Of Clean Up Crews

Many of the residents of the coastal communities are afraid to speak out on these issues for fear of repercussion, including loss of employment from BP.[13] This fear has been voiced repeatedly to me and to my coworkers since April 20. There is word that workers are required to sign a gag order, though I have not seen one.

Some workers have been required to sign an agreement not to talk to anyone about the impacts that they have witnessed.[14] When this issue was raised in a town hall meeting with BP, they replied that this is not their fault, that the agreement is the subcontractors' policy. BP has the power to negotiate whatever it wants in its subcontracts; this clause should be removed.

I spent time with a Vietnamese woman in Plaquemines Parish. She has been hired as a translator by BP. She told me that fishermen line up twice a week in hopes of receiving one of the 100 food vouchers distributed by Catholic Charities. The line begins forming as early as 3 a.m. I asked if we might talk to people in line one morning and she told me that no one would talk for fear of losing their jobs with BP. So intense is the pressure that people will not even speak under the shroud of anonymity.

Of Health Protections

Clean-up workers are being told by BP that they will be fired if they wear respirators to protect themselves from chemical exposure.[15] We have heard these stories since May 14, 2010 from fishermen in Barataria, Lafitte, Grand Isle and Venice. Workers have requested respiratory gear because of the exposure happening while they work. Because BP is the employer, these fishermen will not speak out publicly for fear of losing one of the only opportunities they have at earning money.

BP has made statements detailing the health protective gear it has provided.

"We want to ensure workers' health and safety are protected, so we give them Tyvek suits, nitrile gloves, safety glasses, hard hats when working near overhead hazards, rubber boots, plus hearing protection, insect repellant, sunscreen, lip balm, personal floatation devices and steel-toe boots," Curry said.[16]

This statement is at odds with what we are seeing on the ground. What's more, this does not mean that all workers are consistently being provided with such equipment and does not even mention respirators.

Of great concern is a recent article in The New York Times stating that 2-butoxyethanol has been detected up to 10 parts per million (ppm) in 20 percent of oil clean-up workers in the gulf. The NIOSH standard for 2-butoxyethanol is 5 ppm. That same article cites "a June 9 report on worker test results, BP confidently asserted that the health hazards of exposure to both dispersant chemicals and the components of leaking crude 'are very low.'" [17]

Of Information

"To me that's one of the most frightening things—BP's control. Their brazen control of the clean up, of the disaster. Putting oil on property doesn't give them the

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[13] Cohen, Elizabeth, "Fisherman's Wife Breaks the Silence," CNN, June 3, 2010, http://www.cnn.com/2010/HEALTH/06/03/gulf.fishermans.wife/index.html?hpt=C2.

[14] Grand Isle Louisiana Town Hall Meeting, June 2, 2010.

[15] Lawrence, Grant, "Fishermen Hospitalized: BP not Allowing Clean Up Workers to Use Respirators," Alternet.org, May 27, 2010, http://blogs.alternet.org/grantlawrence/2010/05/27/fishermen-hospitalizedbp-not-allowing-clean-up-workers-to-use-respirators/.

[16] Hammer, David, "BP clashes with critics on Gulf of Mexico oil crisis response," Times Picayune, May 31, 2010, http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/05/post__6.html.

[17] Schor, Elana "Gulf Spill: New BP data show 20 percent of responders exposed to chemical that sickened Valdez workers" The New York Times, July 08, 2010, http://www.nytimes.com/gwire/2010/07/09/09greenwire-new-bp-data-show-20-of-gulf-spillresponders-e-82494.html.

right to control the property. How much power do these people have?" (Terrebone Parish on June 7, 2010)

For the last 2 months, BP has restricted access to shoreline and marsh areas where there is oil or other apparent damage. Air traffic above the spill is also restricted. Among those prevented from accessing the sites are the media and scientists working in the public interest. Earlier this month, access became even tougher, with the Coast Guard preventing access within 20 meters.

Private security forces are hired to keep people off of public beaches. While the public does need to be protected, this protection needs to be within reason. The beach closures on Grand Isle, including Elmer's Island, appear not to be about health protection but preventing residents, the media and others from documenting the oil spill. Security forces deny access even for organizations and institutions with trained professionals working on the spill. Going through official process to get BP approval takes days and usually does not result in access.

A May 29 piece in The Huffington Post discussed that a CBS news story said one of its reporting teams was threatened with arrest by the Coast Guard and turned back from an oiled beach at the mouth of the Mississippi River. The story said the reporters were told the denial was under "BP's rules."[18]

The long-term impact of this short term control of information is that BP is preventing full documentation of the disaster's impacts.

Of Federal Agencies

OSHA.—Workers are prevented from wearing protective gear and air quality information is absent.

EPA.—BP continued to use COREXIT even after the EPA asked them to change to a less toxic alternative.[19]

NOAA.—BP has consistently underestimated both the amount of oil leaking[20] from the well, the potential impacts of dispersant and the area impacted by the spill.

The following reports about dispersant and health have been submitted to the Tulane/Louisiana Bucket Brigade Oil Spill Crisis Map—www.oilspill.labucketbrigade.org. These reports have been filed by people along the gulf coast.

7/10/10—Burning Feet After Sand Gets in Flipflop Long Beach, MS

My feet burned after sand from toxic beach in Long Beach, MS got in my shoes (this is the second report of burning after potential contact with dispersant).

7/2/10—Health Problems for My Three Year Old Son, Pass Christian, MS, Health Effects, Livelihoods Threatened

My 3-year-old son was diagnosed with pneumonia on Monday morning. He was admitted to the hospital Monday afternoon and finally discharged Wednesday afternoon. He was a perfectly healthy and happy 3-year-old boy until this incident. I read that children have been susceptible to dispersant-related pneumonia. If this is true, I have a feeling that this was his problem, as he has had no significant health problems up to this point. He was in the hospital for 3 days, with the 4th day at home. I was, of course, by his side the entire time. Due to my being there with my son, I had to miss nearly a week of work.

6/30/10—Respirators for Workers Port Sulphur, LA

The marina outside Port Sulphur yielded several insights into the BP HAZMAT classes. Two local Tankermen were interviewed regarding their experience with the BP classes. They claimed that the issues addressed in the class stressed developing differing "stations" for cleaning yourself, undressing, sterilization etc. Washing hands and taking rests whilst working were also said to be stressed.

Both Tankerman seemed concerned that respiration of toxic chemicals were not addressed during the courses. One of the men interviewed stated that when the course's director was questioned regarding respiration of chemicals the question "was basically ignored."

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[18] Brown, Matt, "Gulf Oil Spill: Media Access Being Slowly Strangled Off," Huffington Post, May 29, 2010, http://www.huffingtonpost.com/2010/05/29/gulf-oil-spill-media-access_n_594592.html.

[19] Tilove, Jonathan, "BP is Sticking with its Dispersant Choice," Times Picayune, May 21, 2010, http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/05/bp_is_sticking_with_its_disper.html.

[20] Gillis, Justin, Calculations of Gulf Spill Underestimated, Scientists Say, New York Times, May 13, 2010, http://www.nytimes.com/2010/05/14/us/14oil.html.

"I had to wear respirators to deal with switching piping on the tanks, why are the workers in the spill not all wearing respirators?"—Oil Tankerman, Port Sulphur.

6/16/10—Where Does the Decon Water Go? Grand Isle, LA

Several BP security personnel patrolling the beach near zone 11 stop and remind me that I must not cross the orange barrier. I ask where and how will they dispose of the contaminated water left behind in the decon wash containers (kiddie pools) after clean up crews wash off their boots when they leave the Hot Zone (highest area of contamination). No one seems to have the answer to that question including the workers themselves.

6/14/10—Foot Burned Grand Isle, LA Health Effects, Grande Isle, LA

On Grand Isle Breach I was walking and had flip flops on (we were about to change into rubber boots) taking pictures and trying to get a grasp of which way to go first . . . I stepped in what appeared to be sludge, it was green and smelled toxic. The small irritation I had from the flip flop tong between my toes started burning, I realized the sludge flipped onto my flip flop and my foot felt like it was on fire, like someone took a match and was holding it underneath my foot. It had actually given me what appears to be a second degree burn. the team helped me wash it off and address it asap, just a warning though, stay away from this stuff if you have ANY type of small cut or abrasion, it will and is harmful.

6/12/10—Oil Spill Clean-up Worker With Open Sores on his Hands and Arms, Grand Isle, LA

Supervisor for BP subcontractor reported to first aid tent that he had a worker referral from a physician to the nurses for open sores on his hands and forearms. The sores contained blood and pus. Reported that this worker is "known for safety violations" like not wearing protective gear.

Senator MIKULSKI. Well, thank you very much.

First of all, as a former grassroots organizer and somebody who believes in this, I believe in the empowerment of people. I believe in giving people news that they can use to be able to look out for themselves.

But that means that they have a government on their side and a government that brings out the best in the private sector, because often they do have the information and, for either civic or liability reasons, should be willing to share.

So let's go to the news that the people really need to have that you've outlined.

What I would like from you is a realistic assessment of what you think they are, because I've been distressed, too.

You heard me say earlier, I'm not really hot on this Unified Command. I think it's been oil spill by committee, and nobody seems to have the go power, just veto power.

And as much as I admire the Coast Guard and their daring-do rescue—I mean, we ask them to go into triple storms and pluck people out, and we saw what they did in Katrina. We know how we rely on them—for search and rescue, environmental enforcement, but they're not a scientific agency.

And I am concerned that while we're worried about the deployment of skimmers, which we need to, we haven't deployed the other people to make highest and best use of our protective assets.

So here's where I am: I asked Sebelius herself, where is HHS?

So they go down—they stand on the beach, but what happens after the cameras leave? And that goes to your question. You want us to come not as VIPs. You'd like the cabinet people to come down and—not as VIPs. Maybe they will. Maybe they won't. They're great people.

But I want that after the bigwigs leave and the cameras leave people have things in their hand that tells them what to do or not do and where to go if they can't breathe right, if their child keeps coughing.

I was very distressed in your testimony about this chemical that seems to trigger pediatric pneumonia. That was pretty scary to me.

So we want to hear from you where we need to have this information. And we intend to go to the executive branch, all agencies in the executive branch, to look at, what is the news—I'll call it the news you can use, and I think that's what you're talking about. So let's even start with the basics.

But let's go to your other recommendations. Could you elaborate on your first policy recommendation?

Ms. ROLFES. Yes, that regarded giving the EPA and other agencies—NOAA and OSHA, whoever it is—more capacity, which may be a money issue, but certainly I think is a legal issue.

And there was a pretty dramatic back and forth in May between Administrator Jackson and BP regarding dispersants, and one of the issues was around using a less toxic alternative and then one was about just using less of the dispersant.

And you can see the letters. I mean, they're public record. They're on Web sites. You can see the letters in which they tell the Administrator of the United States no, they will not investigate a less toxic alternative, and that's a real problem. I mean, it seems as if she does not have the legal authority that's needed here.

Senator MIKULSKI. Well, that's what we're going to find out. You heard what I asked her.

But, Dr. Cook, and also Ms. Rolfes, but, Dr. Cook, you have a whole group of scientists working with you. Do you recommend that we stop dispersants? Could you——

Mr. COOK. At this stage, Madam Chairwoman, we——

Senator MIKULSKI. And I'm not saying ban them.

Mr. COOK. I understand.

Senator MIKULSKI. There's a continuum of actions here. One is an outright ban. That, I think, has to be well founded on solid research. The other is stop. And then the other is what Jackson was talking about, well, just use a little bit until we find out. What's your view here? Should we stop it?

Mr. COOK. Madam Chairwoman, we have thought long and hard about this. We have scoured the available literature, and we are hard pressed to tell you that the right choice at this stage is to stop the application of this dispersant in the deep water, because we know how toxic the oil can be.

And so, again, the question becomes, when you put yourselves in the jeopardy that we put ourselves in with this kind of technology, and you don't have the most rudimentary responses available to you, starting with shutting off the flow, much less dealing with the oil that escapes—and since we started this hearing, depending on what rate you pick—and I'm sure BP won't question me on this, at least I hope they won't—the oil would be 15-feet deep or more in this room right now, just from the start of this hearing.

So if that is the case and we're losing that much oil that quickly, we have to be concerned about any opportunity to reduce its impact

on marine life, and we just don't know if dispersants are going to help that situation or hurt it.

So we are in the same jeopardy——

Senator MIKULSKI. So what do you think? So do you think we ought to stop or take a pause?

Mr. COOK. I don't think it makes sense to take a pause as long as we know that physically dispersants work and they can help break up this material.

But I think it comes down to guesswork in the absence of studies, doesn't it? I mean, Administrator Jackson is a trained chemical engineer. There's never been anyone with her scientific credentials at the top of EPA before.

Senator MIKULSKI. Right. And she's a woman of Louisiana herself.

Mr. COOK. And she cares deeply about that area. She would do nothing, I am confident, to cause more harm. But the fact of the matter is she just doesn't know. She is flying blind.

So use a little less. Maybe that's the right call. Stop it altogether. Maybe that's the right call, but we just don't know. And so we're not in a position to say stop it immediately because of those uncertainties.

We don't want to cause harm that we know the oil will cause, given the uncertainties about the dispersants and the fact that we did not do our job to begin with to understand the impact that that volume might have.

Senator MIKULSKI. Well, I think we have to be clear that for the last 10 or so years this has been an area that wasn't hot and cool, so maybe people weren't studying it.

The other is that Government resources—EPA has a very small research budget. NOAA has a larger one, and so does the NSF in terms of that. So let's go to research. Research takes a long time, and you're a scientist. You know how scientists are. Oh, we need more studies, and you're talking here about longitudinal studies.

I don't want to get into methods and whatever, but really, one of my concerns is we're in a Catch-22. We need more research to know about safety and efficacy, but it takes time to do research, and the impact is on people now——

Mr. COOK. We're in the emergency room and what we're essentially asking right now is are the methods we're using to treat the patient—should we study them more or should we treat the patient? And it's a no-win, no-good-options set of circumstances.

But what I would say is BP has the money. They've been making a lot of money in the gulf for a long time, and, again, I would put it to them this way: If you knew that this spill and the controversy around it, including the dispersants, might spell the end of your company, would you have done the studies then? Would you have been better prepared then? Since nothing else seemed to dissuade them from telling us that this event will never happen. There's no need to prepare, no need to do studies, because it just can't happen. Well, now it has.

Senator MIKULSKI. Well, my concern—first of all, I believe that we must—that we're the research and the funding for research, because whatever we do, I'm going to be sure it's independent. I'm going to make sure it's valid, trustworthy and independent.

And not only do I want the study to have scientific integrity, but I want the American people to believe that it has scientific independence and integrity. No gag rules. No muzzling. No selectivity of the information. So I believe that's got to come from the United States Government.

I also do have confidence in our universities, and particularly many of the universities in the region. So, for example, we've got the scientists in the gulf, but they don't know the bay the way Virginia and Maryland scientists at the University of Maryland—you know—have been working with it.

So my view would be to look at, of course, national repositories of scientific talent and assets, but also to enlist the scientific community in the gulf who would have both expertise of the region and the terrain of the region and a passion for getting it right.

Do you think that this is the way to go? And also to be looking—enlisting public health in a way that also is gathering epidemiology.

Mr. COOK. Well, I would just briefly——

Senator MIKULSKI. But do you see it that way?

Mr. COOK. I do see it that way. I think——

Senator MIKULSKI. Because we're going to fund the research.

Mr. COOK [continuing]. The science ought to be done—I think we ought to get BP to pay for some of this, but it ought to be done by independent, impartial experts.

Senator MIKULSKI. Well, we'll figure out how to involve BP to do that.

Ms. ROLFES. May I make a comment on that?

Senator MIKULSKI. Yes. Sure.

Ms. ROLFES. BP has already granted $500 million saying it's for research in the gulf, and there are universities in the region, of course, interested in that money. BP has to approve your project. So just be aware that that——

Senator MIKULSKI. No. See, that's where it's got to——

Ms. ROLFES. Exactly.

Senator MIKULSKI [continuing]. And so on.

This is why I come back to our Government. But, you know, we are the United States of America. There's nobody with our size and our scope. Okay? And, you know, we can bill them for the research in the same way we're billing them for a skimmer.

Mr. COOK. Exactly.

Senator MIKULSKI. So that's maybe the way to go.

And I know the President has talked about $2 million. You know, these things are going to be a little bit more pricy than that.

So what we would like from the consortium is what direction you think the scientific research should be done. What are kind of the must-do categories? Because I don't want Congress to be prescriptive in terms of scientific research, but I want us to be descriptive in terms of the outcomes that we would like to have from their research. I don't mean like conclusions, but policy, and policy areas for recommendations.

I'm really worried about this, and I will repeat it, and I concur with you. We do not know whether we're going to end up with a new gulf war syndrome, whether this is the Agent Orange or DDT.

And, by the way, DDT, Rachael Carson would tell you, if she were sitting here—a sister Marylander—it had some good things and it had some terrible things. So——

Mr. COOK. We'll get that to you, yes, Madam Chairwoman.

Senator MIKULSKI. Do you have any points that you think we need to make?

Do you have anything else you would like to elaborate on?

Mr. COOK. Could I just add one point? That I am struck, once again—and I assume the American public will be struck by this, too. Who are the people in the front lines that we rely on to deal with these crises?

Just like we did in 9/11, we send them in. Really, they're, in effect, the heroes going in to try and—whatever they can do to save the day, and we treat them as if they're disposable.

In the case of this situation, as Anne has so well described, we are not giving workers basic information. We are worried that if they are to be protected from the oil and the dispersant they're going to have to wear protective gear. And then it turns out that we've discovered that people don't wear protective gear when it's really hot.

So, again, we're sending people into a situation where they are destined to be exposed to toxic chemicals. We have to have known that going in. All the more reason to make sure that if these types of events are going to happen—and I don't think anyone can deny, as we've heard for years, that deepwater rigs are safe. I don't think anyone's going to make that claim anymore, but they made it for years.

Going forward, we have to know that oil is sometimes extracted in warm places, and when that happens, if it spills, we have to take extraordinary measures to make sure that the people who clean it up are informed and protected, and compensated for that high-risk work.

They're our heroes. We're sending them in to clean up the mess that these big companies profited by making. And that, I think, is an important lesson to come out of all of this.

I'm not out in the gulf every day. My colleagues aren't always in the gulf every day, although I think the environmental community has done a great job making the case that we need to solve this problem and soon.

But the people who live there, who are working day in and day out now to try and make the best of this mess, they're not being treated right.

Senator MIKULSKI. Did you want to comment about—before I wrap up—about the EMS that BP runs? Do you feel that we could get access to their data or——

Ms. ROLFES. The information is reportedly going to the Unified Command, and we've put in a request for it. We haven't received it yet.

But there's the issue of the data itself. But the diagnosis, that's something that nobody will be able to do anything about once the diagnoses are made. And I think there's got to be some intervention there to get those workers back into the mainstream system, because, otherwise, that is data that BP will absolutely own, and,

again, the data itself might be useless, because they're going to say heat exhaustion. They're not going to say dispersant or oil.

Senator MIKULSKI. Well, and that goes to the epidemiology.

Ms. ROLFES. Absolutely. You have a lot of people making claims based on no science. Just as there's no science around dispersant, there's no science around just deciding somebody got heat exhaustion.

Senator MIKULSKI. This is big, because it will also go to personal-injury claims.

Ms. ROLFES. Absolutely.

Senator MIKULSKI. You know, a week from now, a month from now, a year from now——

It's time now to really conclude the hearing, and we thank you for your generosity of time.

I do think about these workers, and I think many of my colleagues do, and we also think about past experiences where people who did wonderful things ended up with very serious consequences and we were told the chemistry was okay or it wasn't a problem.

And I think about a conversation I had Saturday with a gulf war vet, a wonderful young man, who still bears the permanent impact of that war and is still, if you see him from a distance, handsome and fit, and when you talk to him, he still can't go to work, but it's because they said, Oh, don't worry. It's all okay.

If my good friend and former colleague, Senator Clinton, were here, or Senator Schumer, they would talk about the wonderful men and women who worked at the 9/11 cleanup, there were New York firefighters and EMS. They came from all over America, including my own home State, and I was so proud to meet them there, and then just the consequences of this.

And now we have this oil spill, and it's one more, oh well, we don't know and we're going to need more research. And also where people are being treated for what they're experiencing on the ground in real time, we're not going to have access to that data.

So we're going to do something about it. First thing we're going to do is find out what legal authority Lisa Jackson has, and while she's talking to her lawyers, we're going to talk to our lawyers and work, of course, with the Lautenberg team who have been exceptional in this area, and we're going to get the legal authorities straightened out.

You heard what we said in terms of the additional research. We're going to look at what you recommend, but we also want the executive branch to be more involved here with the dispersant issue.

I want that seafood to be safe, but I want those workers to be as safe as the shrimp, and I'm not going for a funny one liner.

So we want to thank you. We see this, Dr. Cook—Mr. Cook—Dr. Cook——

Mr. COOK. It's Mr. Cook, but I really appreciate——

Senator MIKULSKI. Mr. Cook, we see this as what you said. It's unfortunately a great scientific experiment, but we're part of it. We want to have a working group on this. And you could see, we've got good bipartisan support here, and we look forward to more conversations with you.

CONCLUSION OF HEARING

We want to thank you for your own time, what you do on behalf of fellow Americans, and we thank you for your advice and your counsel and your advocacy.

This subcommittee is recessed.

[Whereupon, at 12:15 p.m., Thursday, July 15, the hearing was concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

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