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**COAST GUARD READINESS:
HOW FAR CAN WE STRETCH OUR NATION'S
ONLY MULTI-MISSION, MILITARY FORCE?**

HEARING
BEFORE THE
SUBCOMMITTEE ON OCEANS, ATMOSPHERE,
FISHERIES, AND COAST GUARD
OF THE
COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE
ONE HUNDRED FIFTEENTH CONGRESS
FIRST SESSION

NOVEMBER 16, 2017

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED FIFTEENTH CONGRESS

FIRST SESSION

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COAST GUARD READINESS: HOW FAR CAN WE STRETCH OUR NATION'S ONLY MULTI-MISSION, MILITARY FORCE?

THURSDAY, NOVEMBER 16, 2017

**U.S. SENATE,
SUBCOMMITTEE ON OCEANS, ATMOSPHERE, FISHERIES,
AND COAST GUARD,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
*Washington, DC.***

The Subcommittee met, pursuant to notice, at 10:06 a.m. in room SR-253, Russell Senate Office Building, Hon. Dan Sullivan, Chairman of the Subcommittee, presiding.

Present: Senators Sullivan [presiding], Peters, Nelson, Wicker, Fischer, Inhofe, Young, Cantwell, Blumenthal, Schatz, and Markey.

OPENING STATEMENT OF HON. DAN SULLIVAN, U.S. SENATOR FROM ALASKA

Senator SULLIVAN. The Subcommittee on Oceans, Atmosphere, Fisheries, and the Coast Guard will now come to order.

Today's hearing will focus on the readiness of the U.S. Coast Guard, specifically, how a string of recent natural disasters have affected our Nation's only multi-mission military force's ability to continue operations at such a high tempo. Although the Coast Guard is the Nation's smallest military branch, and as I'm sure the Commandant can attest, it is definitely a military branch of the U.S. military, it's an organization that clearly punches above its weight class. As we sit here today, the women and men of the U.S. Coast Guard are deployed across the globe, throughout our country, from the Arctic to the Persian Gulf, and everywhere in between.

The recent hurricanes that have made landfall this year have significantly stretched the Coast Guard's service capabilities. In these three disasters alone, the Coast Guard has rescued over 11,000 Americans, utilizing 95 aircraft, 55 cutters, 129 rescue craft, and mobilized almost 3,000 additional personnel. This tremendous effort comes at a cost measured in dollars, maintenance hours, and personnel. Coast Guard rotary-wing aircraft alone flew almost 1,600 hours, over double the total program annual hours for a Jayhawk helicopter, and almost four times the annual program hours for a single DoD equivalent Black Hawk series aircraft.

The initial cost estimate to the Coast Guard for storm preparation, search and rescue, and infrastructure reconstruction is approximately \$1 billion. That is another reason why we need to move the Coast Guard Reauthorization Act that the Commerce

Committee favorably voted out of the Committee in a bipartisan way several months ago. The Coast Guard's assets are spread thin, but likely nowhere more so than in the vast areas of my home state of Alaska. There are places where the Coast Guard often has the only available assets capable of providing lifesaving medical transportation and service that the majority of the lower 48 states often taken for granted, and even these assets of the Coast Guard are often hours and hundreds of miles away from constituents of mine in Alaska.

I had the privilege of accompanying Admiral Zukunft earlier this summer on a trip throughout Alaska, in particular, a trip to King Cove, a community on the western tip of the Alaskan Peninsula. King Cove is a robust fishing community and, like much else of Alaska, is accessible only by air and sea. Emergency medical transportation is very challenging, and this is especially true during severe weather, which restricts accessibility of King Cove's local air-strip over 100 days a year.

Nearby the community, though, is Cold Bay, which has one of the longest runways in Alaska, one of the longest runways in the country, which is rarely closed and is capable of handling large jet aircraft. As a matter of fact, the Commandant and I actually saw a diverted FedEx aircraft land at King Cove when we were out at Cold Bay.

Despite being only a few miles apart, there is no road access to Cold Bay from King Cove, leaving the U.S. Coast Guard as the only alternative to evacuate patients during inclement weather, which, as I said, is often. These Coast Guard assets are normally dispatched from Kodiak, over 500 miles away, the closest air station, and costs the Coast Guard and the taxpayer as much as \$210,000 per trip. As a result, the City of King Cove, Aleutians East Borough, the local tribal entities, and others have long sought a simple 11-mile, one-lane, gravel emergency use road that would connect these communities.

In 2009, Congress and former President Obama signed into law legislation that authored a land exchange and construction of the road. This legislation would have seen the State of Alaska and various Alaska Native entities add 56,000 acres of land to the Izembek National Wildlife Refuge in exchange for just 206 acres and the ability to construct this road. However, on December 23, 2013, former Secretary of Interior Sally Jewell callously denied this exchange and blocked the road, what we call in Alaska the "lump of coal on Christmas Eve" from Sally Jewell.

I strongly opposed Secretary Jewell's decision, as I believe the safety of the inhabitants of King Cove is paramount to other interests. No community, no community, in America should be deprived access to necessary emergency care, and Senators from the lower 48 would have howled at something this outrageous.

In the 5 years since that proposal was blocked, almost 70 medevacs have taken place out of King Cove, a significant portion of which were conducted by the U.S. Coast Guard. And as the Commandant mentioned in this hearing room almost 3 years ago, this is more than a financial cost, these rescue missions, there is a very real cost of risk that this is not a benign operating environment at all, some of the most dangerous weather in the world.

As it stands, we are allocating the Coast Guard very finite resources and risking the lives of the brave men and women in the Coast Guard on a problem that could easily be mitigated by a simple 11-mile road that would solve this problem and provide the peace of mind and basic access to emergency medical treatment for the residents of King Cove. One of the residents whose life was saved by the Coast Guard medevac is here with us today. We look forward to her testimony.

And I want to thank all our witnesses for being here, many of whom traveled thousands of miles from Alaska. And, of course, it's always great to have the Commandant of the Coast Guard here as well to testify on our first panel.

I now recognize my friend and colleague Senator Peters for his opening statement.

**STATEMENT OF HON. GARY PETERS,
U.S. SENATOR FROM MICHIGAN**

Senator PETERS. Well, thank you, Mr. Chairman.

And good morning, Admiral Zukunft. It's great to see you here. And I want to take this opportunity to thank all of team Coast Guard for your endless, hard work responsibilities to numerous different incidents and natural disasters.

As we all saw the past few months, the Coast Guard's response to the hurricanes that ravaged the Gulf Coast, Puerto Rico, and the U.S. Virgin Islands was nothing less and I think continues to be outstanding. And certainly our thanks go out to all of the men and women of the Coast Guard for those outstanding efforts.

I'm looking forward to learning more today about the Coast Guard's response capabilities and how we can help you maintain your readiness standards. The Coast Guard, made up of just 88,000 personnel, is multi-mission. There are 11 different missions with the Coast Guard in every region of our Nation and give them presence all around the world.

Even after an unusually active hurricane season, the Coast Guard's duties do not let up. Yes, winter is coming, as we talked about before the hearing, and I want to emphasize that the Coast Guard's missions will not stop because the weather is getting colder. While we don't have hurricanes in the State of Michigan, we do have a lot of bad weather as well, and many times some of the worst storms hit during the winter and the challenge of ice becomes great.

In recent years, the Great Lakes have seen record levels of ice cover threatening to interrupt commercial shipping that is vital to the Michigan economy. We need continuous icebreaking support in the winter months provided by the Coast Guard to keep our ports, cities, and towns open for business. Keeping commerce moving is vital to our Nation's economy.

The Coast Guard also has a vital role in keeping the Great Lakes pristine. The Coast Guard's mission includes Marine Environmental Protection. MEP is essential to the Great Lakes and most critical at the Straits of Mackinac, where a 64-year-old oil pipeline runs along the bottom across a 5-mile stretch of water connecting Lake Huron with Lake Michigan. According to a University of Michigan study, the Straits are the worst possible location across

the Great Lakes for an oil pipeline and the potential for a spill or leak under them.

Despite the challenge, the Coast Guard works hard to be prepared just in case the worst happens there, and I look forward to working with you, Commandant, to further increase our readiness.

We ask a lot of our Coast Guard. Their 11 missions protect our people, our waters, and our nation, but if we are not careful, we could end up hurting, not helping, the men and women who make up the Coast Guard. If we do not ensure that service members have the right equipment, if we do not ensure that they are being taken care of in terms of retirement and medical benefits, then we are not doing our job.

Back in March, I was part of a bipartisan group of Senators that prevented the administration from cutting the Coast Guard's budget by \$1.3 billion. And I'm proud of that accomplishment, but it is not enough. The Coast Guard needs to recapitalize its assets and improve its shore facilities and military housing in order to continue to do the hard job that we ask them to do.

We cannot expect the Coast Guard to be always ready if the service is not able to repair its infrastructure or give its members the best equipment that they need to carry out their missions safely and successfully.

Admiral, as we close in on 2018, which will bring your last few months to lead the Coast Guard, I hope that today's hearing will allow for a very direct and frank conversation about the Coast Guard's response capabilities and your needs and how we can help you meet those needs.

Thank you, Admiral.

Senator SULLIVAN. Thank you, Senator Peters.

And we have the Ranking Member of the full Commerce Committee here, Senator Nelson, who I know is a big fan of the Coast Guard.

And, Senator Nelson, sir, if you would like to say a few words at the outset, you're more than welcome.

**STATEMENT OF HON. BILL NELSON,
U.S. SENATOR FROM FLORIDA**

Senator NELSON. Thank you, Mr. Chairman, Senator Peters, and thank you both for leading this important Subcommittee. I'm here in my capacity as a cheerleader for the Coast Guard because it's the nightly news every night, as you two have already pointed out, what we hear on the nightly local news, that the Coast Guard has done another heroic act.

And let me tell you what they did yesterday. Officials seized \$300 million worth of heroin and cocaine, from Mexico and Central America. And they brought this into Port Everglades. It is 10 tons of cocaine, and more than 50 pounds of heroin, and the Coast Guard cutters seized these vessels in the waters off of Mexico and Central America.

I've been with the Commandant in a Coast Guard go-fast, and you can't believe how fast they go following the bad guy in a go-fast. I've been in the helicopter as they're showing me how the Coastie is perched in the side of the open door of the helicopter, and with his high-powered rifle, he is shooting out the engine of

the go-fast who's trying to get away. Of course, they can't get away, and they stop them dead in the water and then seize all of the illegal drugs. And you can imagine that this is just one of the many seizures of drugs.

By the way, the Navy, in Alaska, as you know Senator Sullivan, has pretty well ceded the water of Alaska for the Coast Guard to protect, in addition to it doing all of its civilian role of protection of the fishing fleet. Well, that's the case down in the Caribbean, too, although when we have military vessels down there, they're in coordinating, but they don't have the law enforcement capability that the Coast Guard has, so they call the Coast Guard to go in and seize the bad guy and get the drugs. And, of course, here's a big one that happened just yesterday.

And I would just finish by saying, Admiral, I'm so proud of you and all the Coasties. And now here's another one, you've been doing all the repair work and the rescues after the hurricanes in Puerto Rico, and all of the critical response work that the Coast Guard has done in and around Florida, but especially down in the Virgin Islands and Puerto Rico. They saved over 11,000 lives and 1,500 pets while responding to these hurricanes. Helicopters deployed to the one hurricane and flew over 1,500 hours, more than double the annual program flight hours for one aircraft. They stepped it up when we needed them most.

The Helicopter Interdiction Tactical Squadron, which celebrated its 500th go-fast interdiction this year, the crews prevented over \$3 billion worth of drugs from entering the U.S. So you can see the Coast Guard is doing its duty every day, and it's not just in these waters represented here—Alaska, the Great Lakes, and the Caribbean, and Florida—but it's all over the world that the Coast Guard is doing the job.

I know what you need is resources, and we're going to try to provide it for you, Admiral.

Mr. Chairman, with your permission, we have a little thing called a tax bill that are being marked up in the Finance Committee. It's now become a health care bill. With your permission, I'm going to go back to that markup.

Senator SULLIVAN. Without objection.

[Laughter.]

Senator SULLIVAN. Well, Admiral, welcome. And the floor is yours for a 5-minute opening statement. And we will, of course, include a longer written statement in the record if you so desire.

STATEMENT OF ADMIRAL PAUL F. ZUKUNFT, COMMANDANT, U.S. COAST GUARD

Admiral ZUKUNFT. OK. Good morning, Mr. Chairman, Ranking Members, and distinguished Members of the Committee. I appreciate the opportunity to testify today. I thank you for supporting your United States Coast Guard, and I ask that my written statement be entered into the record.

Senator SULLIVAN. Without objection.

Admiral ZUKUNFT. The Coast Guard offers a unique and enduring value to the Nation. We are first and foremost, as you mentioned, Chairman, an armed service, with broad law enforcement

authorities that span the globe and a service that is called upon time and again during natural and manmade disasters.

We are a flat organization with a bias for action that enables us to surge the entire Coast Guard when our nation is threatened with disaster. This agility was applied during Hurricanes Harvey, Irma, and Maria, and culminated in the rescue of over 11,000 people and, yes, 1,500 pets while restoring our ports and waterways and correcting over 1,200 damaged aids to navigation and directing the removal of over 3,600 damaged or sunken vessels from the marine environment. This was truly an all-hands-on-deck campaign that drew Coast Guard personnel and assets from across the Nation, but it came with several costs.

The first cost was readiness, and the Coast Guard used resources well above planned rates, canceled depot-level maintenance on cutters and aircraft, and terminated training investments, and our most important resource, our people.

The second cost is opportunity costs. Cutters and aircraft were taken away from search and rescue, counter-drug, and security operations in order to save lives, restore affected waterways, and deliver critical disaster relief supplies and equipment to impacted areas. Nowhere was this more profound than in the eastern Pacific. And the transnational criminal organizations were benefactors of our diminished presence at a time when over 60,000 Americans perish each year from drug overdoses.

And the third cost is a real cost. And based on Harvey, Irma, and Maria alone, we need nearly a billion dollars to rebuild damaged infrastructure and restore eroded readiness. Of the three categories, this is my greatest concern. It is compounded by outstanding bills from previous events.

In particular, the Coast Guard incurred over \$90 million in damages from Hurricane Matthew, yet supplemental relief was diminished to \$15 million. And we have units operating out of make-shift piers that have not been hardened to withstand any kind of significant weather.

So given the many competing demands in our country today and the propensity to fix only what is broken, I am concerned the Coast Guard will continue to be known solely for our success, and not what we need to be made whole.

As a military service, only 4 percent of my budget is funded through what is called defense discretionary appropriations. The other 96 percent are non-defense, and I must compete with every other Federal discretionary account to fund a broad array of missions that span the globe and have not diminished over time. Ironically, 40 percent of the Coast Guard's major cutter fleet acquired, maintained, and operated with non-defense discretionary dollars are serving today under the operational command of a Department of Defense geographic combatant commander around the globe.

For the past 5 years, we have been funded below the Budget Control Act floor as the other armed services lament the prospect of even being funded at the BCA base. The Coast Guard, an armed service, is contending with identical readiness challenges, yet is funded below the BCA floor, in the basement, if you will.

So going forward, we require 5 percent annualized growth in our operations and maintenance account and a floor of \$2 billion min-

imum to our acquisition account. This would allow me to dig out of the Budget Control Act basement, sustain operations, grow our workforce. We're also building out our modernized fleet and reduce our \$1.6 billion shore infrastructure backlog.

I am truly honored to lead the world's best Coast Guard, but without a stable and predictable increase in our annual funding, I will have to continue to defer such critical initiatives.

Thank you, Mr. Chairman. And I welcome your questions.

[The prepared statement of Admiral Zukunft follows:]

**PREPARED STATEMENT OF ADMIRAL PAUL F. ZUKUNFT, COMMANDANT,
U.S. COAST GUARD**

Introduction

Good morning Mr. Chairman and distinguished members of the Committee. I appreciate the opportunity to testify today and thank you for your enduring support of the United States Coast Guard.

As the world's premier, multi-mission, maritime service, the Coast Guard offers a unique and enduring value to the Nation. The only branch of the U.S. Armed Forces within the Department of Homeland Security (DHS), a Federal law enforcement agency, a regulatory body, a first responder, and a member of the U.S. Intelligence Community—the Coast Guard is uniquely positioned to help secure the maritime border, combat transnational criminal organizations (TCO), and safeguard commerce on America's waterways.

The Coast Guard's combination of broad authorities and complementary capabilities squarely align with the President's national security and economic prosperity priorities and offer an agile toolset to address the Nation's most pressing challenges. Appropriately positioned in DHS, the Coast Guard is a military service and a branch of the Armed Forces of the United States at all times.¹ We are also an important part of the modern Joint Force² and currently have forces assigned to each of the five Geographic Combatant Commanders as well as Cyber Command.

As demonstrated in the 2017 record hurricane activity, the Coast Guard is the Nation's "maritime first responder" and plays a leading role in executing the National Response Framework (NRF) for disaster situations. Our bias for action and ability to rapidly surge resources in response to emerging threats or contingencies distinguishes the Coast Guard and are critical to success across the spectrum of missions we prosecute.

Agile Force

The Coast Guard's 88,000 active duty, reserve, civil service and auxiliary members offer a unique mix of authorities and extensive experience operating with both military and interagency response organizations. Beyond our statutory search and rescue requirements, which traditionally result in an average of 3,600 lives saved each year, the Coast Guard supports the Federal Emergency Management Agency (FEMA) and states during nationally declared disasters by:

- (1) Saving lives in distress, and ensuring the survivability of our own forces and assets for immediate post-disaster response operations;
- (2) Securing and reconstituting ports, waterways, and critical maritime infrastructure;
- (3) Conducting environmental response operations (oil, chemical and hazardous material); and
- (4) Supporting other agencies and the whole-of-government response effort.

Coast Guard personnel are well trained and experienced in response operations, which make them a sound choice to serve in visible positions in the NRF structure. This ability to operate concurrently in both military Joint Task Force and civilian NRF frameworks enhances unity of effort and dramatically improves effectiveness.

As an armed force, the Coast Guard can be a supported or supporting commander, and our forces are frequently integrated with Department of Defense (DoD) services

¹ 14 U.S.C. § 1; 10 U.S.C. § 101

²In addition to the Coast Guard's status as an Armed Force (10 U.S.C. § 101), see also Memorandum of Agreement Between the Department of Defense and the Department of Homeland Security on the Use of Coast Guard Capabilities and Resources in Support of the National Military Strategy, 02 May 2008, as amended 18 May 2010.

in Joint Task Force organizations. We regularly provide forces in support of DoD exercises, Combatant Commander contingency plans, and theater security cooperation activities, all of which enable Coast Guard and DoD forces to integrate seamlessly during response operations.

Saving lives in distress is our first priority, and Coast Guard crews are typically the first Federal responders on-scene. As a storm approaches, Coast Guard personnel make risk-based decisions to reposition assets and people to safe locations just outside of the storm's path, ultimately facilitating rapid response as soon as it is safe to do so. Brave men and women on the front lines make it happen, invoking a deeply ingrained bias for action to repeatedly go into harm's way and serve others.

In addition to conducting SAR operations, the Coast Guard surges forces and assets into the impacted regions to restore the \$4.6 trillion maritime transportation system, respond to pollution, provide security and additional law enforcement capability, and protect offshore petrochemical platforms.

Critical Success Factors

The Coast Guard employs a decentralized command and control structure and distributed decision-making to provide operational commanders with the authority to move forces quickly to respond to large contingencies.

Our two Area Commanders, and their nine subordinate District Commanders, shift and reallocate forces from one region to another based on risk and the anticipated demand for operational capabilities. Well-reasoned and regularly exercised Continuity of Operations Plans preserve operational effectiveness while offering safe refuge for displaced operational commanders.

Coast Guard cutters, aircraft, and boats are built to respond to a variety of missions without the need for any reconfiguration or the addition of special equipment. During the recent hurricanes, cutters conducting counter-drug patrols in the Transit Zone quickly diverted to disaster areas to provide command and control, deliver rotary wing air capability from the sea, provide forward staging facilities, and deliver critical relief commodities—particularly in the U.S. Virgin Islands and Commonwealth of Puerto Rico.

Coast Guard aircraft that normally perform law enforcement surveillance to thwart transnational maritime criminal activities were dynamically repositioned and re-tasked to deliver disaster relief supplies, additional responders, and equipment to affected areas.

Additionally, Coast Guard forces were and are on station at key locations around the nation, most of them on short-notice recall, so they can respond quickly to emergent events. When a major catastrophe occurs, or is anticipated, we can reposition forces quickly to that area to optimize the response.

Over a five week period, Hurricanes HARVEY, IRMA, MARIA, and NATE impacted over 2,540 miles of shoreline³, and Coast Guard women and men in helicopters, boats, cutters, vehicles and on foot rescued over 11,300 people and over 1,500 pets. Mere hours before Hurricane HARVEY made landfall, Coast Guard helicopter crews rescued mariners in peril⁴ off the coast of Corpus Christi, Texas before repositioning to Alice, Texas.

The Coast Guard resolved over 1,269 aids to navigation discrepancies, handled 290 pollution cases, located and assessed more than 3,623 grounded vessels, with more than 1,585 removed to date. Within hours after each storm's passage, Coast Guard Damage and Recovery Assessment Teams were on-scene determining the status of ports and waterways, leveraging electronic aids to navigation when feasible to facilitate the rapid reopening of the maritime transportation system and energy sectors vital to recovery, and assessing impacts to Coast Guard facilities and capabilities.

Enduring Challenges

Operational successes introduced real costs. Damage to Coast Guard facilities, IT, aids to navigation, and the cost of deferred maintenance are significant. Similar to any prolonged natural disaster or security event, responding to consecutive major hurricanes severely strained capacity and required us to assume additional risk in other geographic regions and mission areas. Across the recent disaster response operations, more than 3,000 Coast Guard women and men, and 200 assets or platforms deployed from places as far away as Alaska, Hawaii and Maine.

³Using CRS method of Shoreline Measurement: Texas: 367 mi, Louisiana: 397 mi, Florida: 1,350 mi, Puerto Rico: 311 mi, USVI: 117 mi

⁴Two MH-65's from Sector/Air Station Corpus Christi saved 12 lives off a vessel taking on water in 45 knot sustained/60 knot gusting winds.

As a result, the rest of the Coast Guard assumed additional risk, and units were significantly challenged to sustain maintenance and training standards while diminishing future readiness. The Medium Endurance Cutter MOHAWK, already aged and well beyond its designed service life, deferred major maintenance in order to get underway and avoid Irma. Cutter FORWARD diverted from a counter-drug patrol to provide supplies and critical command and control services after all three major hurricanes.

Given the heavy demand for aviation services following each storm, training at Aviation Training Center Mobile was suspended, creating a backlog in the pilot training pipeline at a time when we are facing a critical aviator shortage. Maintaining a full-time SAR response posture at our air stations requires at least three aircraft, yet many of our units that contributed assets to hurricane operations were forced to get by with just one. Forces available for counter-drug, fisheries enforcement, and migrant interdiction operations in the Eastern Pacific Ocean, Caribbean Sea, and Florida Straits were significantly reduced as well. In total, risk-based choices to maximize hurricane response operations stretched our existing resources to their limits.

The size of the Service also limits our capacity to respond to prolonged and sequential events. While the Coast Guard is well-positioned for immediate and effective first response, our “bench strength” makes it impossible to sustain these operations for an extended period of time. In addition, many of our heroic first responders suffered life-changing personal loss as well. Approximately 700 Coast Guard families’ homes were damaged to the point where they will need to be relocated.

Conclusion

The Coast Guard’s unique blend of authorities, capabilities, capacities, and partnerships position us well for success during maritime SAR events and natural disasters. Flexible, multi-mission forces and agile command and control systems provide the solid foundation from which we base these critical response operations.

When the Coast Guard has the opportunity to recapitalize our facilities, we need to make them more storm-resilient and survivable. In fact, several of our shore facilities that were rebuilt following Hurricane IKE suffered minimal damage along the paths of HARVEY and IRMA, a testament to modern building codes and standards.

Modern assets bring exceptional capability, but our greatest strength will always be our people. Coast Guard operations require a capable, proficient, and resilient workforce that draws upon the broad range of skills, talents, and experiences found in the American population. Together, modern platforms and a strong, resilient workforce will maximize the Coast Guard’s capacity to meet future challenges.

History has proven that a responsive, capable, and agile Coast Guard is an indispensable instrument of national security. With the continued support of the Administration and Congress, the Coast Guard will continue to live up to our motto. We will be *Semper Paratus*—Always Ready. Thank you for the opportunity to testify before you today and for all you do for the men and women of the Coast Guard. I look forward to your questions.

Senator SULLIVAN. Thank you, Admiral. And thank you and the men and women of the Coast Guard for your exceptional service to our country. I agree 100 percent, it is the world’s best Coast Guard by far. There is no doubt about that.

Let me just ask a quick question off the top. As I mentioned in my opening statement, we have passed, in a very strong bipartisan manner out of this Committee several months ago, the Coast Guard Authorization Act. How important is it for us to take action here in the Senate and get that passed so we can get it signed by the President?

Admiral ZUKUNFT. Absolutely critical. And, again, I support the work of this Committee to make that a reality. And so you have my ardent support to press on. Thank you.

Senator SULLIVAN. Good. We will continue to press that. You know, I mentioned, and we have pictures here from King Cove and Cold Bay. You and I were out there this summer. Thank you again for visiting our great state. It was actually ironically a beautiful

crystal clear day, which, as you know, normally that's not the case out there, some of the most severe weather literally in the world.

And as you noted when we discussed this previously, the real costs, beyond finances, which are quite significant for the rescue missions that you conduct out there, are the costs associated with the risks to the men and women in the Coast Guard who fly in that weather to save lives. Can you talk about that a little bit more, given your experience, and would a road between King Cove and Cold Bay, as I mentioned in my opening statement, help you and your service better respond to these emergency rescue missions that you're—again, the men and women you lead, undertake these—as a matter of fact, when you and I were out there, they were conducting a rescue mission off a fishing vessel—just how much that would help in terms of costs, but also risks to the lives of the men and women, the brave men and women, who you lead?

Admiral ZUKUNFT. Chairman, I sincerely appreciate your leadership on this very critical issue that is not widely known in the 48 contiguous states. This is not a benign operating environment. As you well know, and as the residents of King Cove only know too well, it has been over 5 years since I have had to make a phone call to the family members of an aircrew whose loved one was killed in the conduct of doing Coast Guard operations.

We lost one of these very same helicopters during the rescue of Selendang Ayu. Our aircrew all survived, but the rescuers—the folks we rescued did not. We owe it first and foremost to the residents of King Cove.

And, secondarily, this is a high-risk evolution. It is not benign. You and I saw this 11-mile stretch. This is very attainable at a very moderate cost, but you can't put a dollar sign on a life. To a community that this is not a highly trafficked area to begin with, so I cannot foot stomp loud enough the criticality of building out this 11-mile stretch of road and provide the lifeline that this community needs to higher level health care.

Senator SULLIVAN. I think that's a great point, you can't point a dollar sign on a life, whether it's a life of an Alaskan resident in King Cove, and we're going to hear about that more in the second panel, or a life of a brave young man or woman serving in the Coast Guard. So I take it you fully support finalizing this road, making it happen once and for all, and saving lives, and saving money.

Admiral ZUKUNFT. I do.

Senator SULLIVAN. Thank you. One other issue I wanted to mention, and it's something that you and I, Senator Peters, a number of us have been talking about is with regard to icebreakers. And it's good to see my colleague Senator Wicker here. But one disappointment—a number of us serve on the Armed Services Committee as well—and one disappointment in the NDAA conference report is that it authorizes the procurement of one new icebreaker, but then caps the availability of DoD funds for icebreaker acquisition.

Senator Wicker and I are going to be soon having a joint hearing relatively soon of this Committee, the Subcommittee, and the Armed Services Seapower Subcommittee, which Senator Wicker chairs, on this broader issue of icebreakers and how important they

are to the national security of our nation, but how there has been, to be perfectly honest, a bureaucratic—I don't know how you want to describe it—fight between the Coast Guard, the Navy, the different committees in the Congress on how to actually procure, pay for, these critical assets.

I had the opportunity to go out on the two current heavy icebreakers, homeported in Seattle. And the men and women do a great job there, but those ships were commissioned in the early 1970s, and to be honest, I don't think the men and women who wear the uniform of the United States should be deploying on such old and decrepit icebreakers. The Russians have 40, they're building 13 more, several of which are nuclear-powered. We have 2 heavies, one is broken. I think it's a disgrace.

Can you talk more to the national security need of icebreakers and recommendations to this body of what we need to do to jump-start the procurement and building of these icebreakers?

Admiral ZUKUNFT. Absolutely, Chairman. And let me just provide the strategic context for this. Russia has claimed the Northern Sea Route as their internal waters. They've laid a claim for a good portion of the Arctic Ocean through the procedures under the Law of the Sea Convention. And this is a part of the world where we know that there are rich resources—oil, gas, minerals—on the sea floor.

And don't take your eye off of China either. China is delivering a second icebreaker. China is very active in Antarctica. The treaty in Antarctica, as it expires, I would not be surprised if China looks to extract resources from Antarctica.

And now you've got a land-grab going on in some of these locations. And if you are virtually there, you're absolutely absent. And so having presence to exert our national security interest is critical, and you need to do it from the surface of the ocean. You cannot do it under the sea, which is why we need to make these investments.

As sea ice retreats, we're seeing more and more human activity. We're seeing northern migration of fish at a point in time where fish stocks are under strain.

And then there's a military component. Russia will deliver two icebreaking corvettes on or about 2020 that will have cruise missiles on them, and we have no surface capability to even monitor that activity or to counter it if that were to be necessary.

So we're talking about \$1 billion. And I'm confident we can build an icebreaker. We have a great working relationship with Navy shipbuilding. We have an integrative program office. We've awarded five shipyards to go out and do industry studies, and they are well along their way to submit bids on a proposal this next year so we can get the first heavy icebreaker in the water by 2023. We need to look at block buys beyond that first one.

There will be costs with a lead ship because we have not built a heavy icebreaker in 40 years. The technology investments a shipyard will have to make up front, but they will want some certainty that we're going to build more than one icebreaker.

We look at carrier strike groups as strategic assets. We need to look at icebreakers in the very same realm, that these are strategic assets, and, quite honestly, we're about out of them, and we have

abdicated this strategic game of Chess to other potential adversaries in the high latitudes.

Senator SULLIVAN. Great. Thank you for that very powerful testimony.

Senator Peters.

Senator PETERS. Thank you, Mr. Chairman.

And thank you again, Admiral, for your service and for all the men and women of the Coast Guard who do an outstanding job each and every day.

I want to expand on this discussion on icebreakers. I share Chairman Sullivan's concern about heavy icebreakers in the polar region, and Senator Wicker as well. I serve on the Armed Services Committee with both of these gentlemen as well, and we're going to do everything we can to make sure you have the resources that you need in the Arctic region. There's no question that's of strategic importance to our country.

But we also have icebreaking needs in the Great Lakes as well that you and I have talked about, and you stated back in March in your testimony then that the 140-foot icebreaking tugs have been extended for a few years, but there's a finite life on those. The Great Lakes in some recent years have experienced unprecedented ice cover, and, as you're well aware, that is about economic security for our country to make sure that we're moving material to the plants and the heavy materials necessary for manufacturing to occur here in North America, in addition to your statutory requirement to keep those lanes open as well during ice cover.

Could you expand on your comments regarding icebreakers to include the Great Lakes and how important it is that we recapitalize that fleet as well, which is also extremely old and needs some immediate attention?

Admiral ZUKUNFT. Yes, sir, Senator. We're making strides in extending the service life on those 140-foot icebreaking tugs that are doing great work up in the Great Lakes. We had a bit of a reprieve these last two ice seasons, so we're not putting additional wear and tear. So we're coming back on step, but that only buys us about 10 years. We're going to have to recapitalize that 140-foot fleet and look at parent craft designs.

I was out in Helsinki a week ago to see what Finland is building; very capable, using azipods instead of propellers, and looking at what the state-of-the-art is in terms of icebreaking. So as we look at those ships timing out, there is better capability. And those ships do one thing and they do one thing only, they break ice. And the same thing in Finland, they do one thing, and they break ice. There are some great parent craft designs. And so as we build out our 20-year capital investment plan, we need to look at those 140-foot icebreaking tugs having much more capability than the ships that we have in our inventory right now.

The good news is for a very modest cost, you know, this can deliver up to the same capability of our Great Lake icebreaker, the Mackinaw. So that's what we're looking in the outyears as we have bought ourselves some time with our service life extension program.

Senator PETERS. Although it has bought us some time, what is the critical timeline? When do we need to make these decisions?

Admiral ZUKUNFT. We're probably talking 2030 and beyond. We're—

Senator PETERS. When they come into service; 2030?

Admiral ZUKUNFT. When we'll have to—again, that will be condition based on—you know, it will vary one ice season to the next, but conservatively speaking, 2030 we need to start looking at design work and looking at a modernization program.

Senator PETERS. Also, Admiral, back in March, we discussed the concerns about oil in fresh water, and given the fact that the Coast Guard has primary responsibility to oversee cleanup, and the concern that I have and many folks in my state have regarding an oil spill particularly in the Straits of Mackinac and the devastating impact that would have on the lakes and also the fact that we don't have a whole lot of research into how we clean up fresh water. We have a great body of work in terms of salt water, we have a lot of proven techniques to clean it up in salt water, and salt water has the advantage of having microorganisms that actually break down oil that do not exist in fresh water. So it creates a tremendous challenge for cleanup.

Since we talked in March, could you give me an update on the research being done at the Coast Guard to deal with freshwater spills? And what do we need? What additional resources do you need? Because in March, you mentioned you were not comfortable that we could clean up a major spill in the Great Lakes now given the current state of resources. What do you need and how concerned are you?

Admiral ZUKUNFT. I can't put a dollar figure on it, but we do need to make further investments in our research and development. We did receive a significant plus up this last year, but that was to address unmanned aerial systems, or remotely piloted systems, if you will. We are paying very close attention to two anomalies when it comes to oil spill recovery: oil in an iced environment and then tar sand that has the specific gravity of water, and it sinks, and then how do you recover that?

We're using a facility in Leonardo, New Jersey. It's a several hundred-yard-long tank that you can actually spill water—oil in. You can use different water. You can use fresh, salt. You can freeze it. So we've been using that facility to do proof-of-concept work.

We recognize that there are research labs and subject matter experts in the Great Lakes, and so if we're going to do research and development as we look at our area contingency plans, in an oil spill, all things are local. And so we need to make sure that we have full inclusiveness with subject matter experts who are very familiar with this. You've got water intakes, drinking water for communities and the like. What is—you know, do you use a dispersant or not? And what are the harmful effects of doing that?

So there's still a lot of science that needs to be done. And meanwhile, we have pipelines crossing the lakes. And, you know, I will go on the record to say that the Coast Guard is not semper paratus for a major pipeline oil spill in the Greater Lakes. More science needs to be done in that regard, and I know you understand that quite well.

Senator PETERS. Thank you.

Senator SULLIVAN. Great. Thank you.

Senator Wicker.

**STATEMENT OF HON. ROGER F. WICKER,
U.S. SENATOR FROM MISSISSIPPI**

Senator WICKER. All right. Now, Mr. Chairman, I understand you'd like for me first to mention how delighted we are that Mr. Smithson, of Mississippi, is going to be with us for the second panel, and so I'll take a moment to do that at your suggestion.

Senator SULLIVAN. And we will not—we will not take that from your precious 5 minutes of questioning the Commandant.

Senator WICKER. Thank you. I do appreciate it.

Well, in the second panel, we are delighted to have Mr. Lee Smithson. He possesses a wealth of experience and expertise in hurricane preparedness, disaster response, and community resilience efforts. He has served more than 3 decades of public service in the U.S. Army, the Mississippi National Guard, and particularly as Mississippi's National Guard Director of Military Support.

During his time in the National Guard, Mr. Smithson supported operations for Hurricanes Isidore, Lili, Katrina, Gustav, Ike, and Isaac. So he knows what he's talking about when it comes to hurricane response, in addition to our recovery efforts for the Deepwater Horizon oil spill.

He is currently Executive Director of the Mississippi Emergency Management Agency. As Director of MEMA, Mr. Smithson coordinates all activities within our local communities to save lives, protect property, and reduce suffering for those citizens impacted by disasters.

So we're delighted that he's here and that he'll be part of the expertise for our second panel. And I appreciate you indulging me on that because, as the Chair knows, we are back and forth between two hearings at the present time.

Now, let me just follow up, Admiral, on icebreakers. I'm learning there are icebreakers and then there are icebreakers. Now, there's sort of a notion going around that some of our allies can build a pretty good icebreaker for \$200 million, and why aren't we doing that? I think you were explaining to me earlier in a private conversation that the kind of icebreaker that we've authorized in the NDAA is far more complicated than that and gives us a lot more capabilities.

So if you would tell us what this almost billion dollar icebreaker is capable of doing, and how many of those we need, and how many of these less capable vessels we need?

Admiral ZUKUNFT. Thank you, Senator. So I was, again, in Finland, and they're one of the offerors, if you will, for icebreakers. I'm of the mind that our U.S. shipyards can build this, and we can build this with U.S. steel and with U.S. prime movers as well. So, yes, I would consider this as an investment in our military industrial complex in our shipyards. And we have five U.S. shipyards that have now weighed in to compete to build the first heavy icebreaker. But they will look at other commercial designs. Rather than—

Senator WICKER. So that's a heavy icebreaker?

Admiral ZUKUNFT. Right.

Senator WICKER. What capabilities does it give us?

Admiral ZUKUNFT. It gives you the ability to break ice up to 21 feet thick. And you might say, "Well, does that ever happen?" Last year, the *Polar Star* broke through over 80 miles of ice 14 feet thick. A medium icebreaker would never even make 2 or 3 miles of headway in those icing conditions.

So we're still seeing heavy icing. And this was to be able to sustain our mission in Antarctica. In the U.S., if there's an area where the United States leads, it is in the mission in Antarctica. We have a significant vote, but we're seeing China in particular stepping up its presence in Antarctica with less than transparent initiatives going forward of why so much China moving to Antarctica.

Senator WICKER. What could these less expensive Finnish icebreakers not do for us that this heavy icebreaker will be able to do?

Admiral ZUKUNFT. So when we look at our icebreakers, they do more—

Senator WICKER. They help on the Great Lakes?

Admiral ZUKUNFT. They wouldn't fit through the Soo Locks.

Senator WICKER. OK.

Admiral ZUKUNFT. Yes, they're—

Senator WICKER. So we need lighter tugs on the Great Lakes.

Admiral ZUKUNFT. So you're limited by the Soo Locks and the width of the ship.

Senator WICKER. We've got at least three kinds we're talking about now.

Admiral ZUKUNFT. The main one we're talking right now is the heavy icebreaker. We have a medium—

Senator WICKER. I'm talking about all three, sir.

Admiral ZUKUNFT. OK. Let me take it from the top.

Senator WICKER. Good.

Admiral ZUKUNFT. Yes, the most critical one is our heavy icebreaker, the *Polar Star*. She's going to leave in a few weeks for Antarctica. If she is beset in ice, the United States has no way to recover that ship. There's nothing in our inventory that can break it loose. We would probably have to ask Russia, "Can you break us out of the ice, please?" I don't want to be put in that position. I don't think our Nation wants to find ourselves in that vulnerable situation. We have no self-rescue capability. Our other icebreakers, we have self-rescue capability. But operating in heavy ice, we have one. We are a one-trick pony, and that is it.

An icebreaker does more than break ice. It gathers information. It can do law enforcement if necessary and exert sovereign presence.

The icebreakers in the Baltic do one thing only, and that's to open up a shipping channel to resupply the ports in the Baltic. A medium icebreaker, less capable, it can break ice up to 8 feet thick. It supports a scientific mission. A lot of the work the *Healy* did this year, it was a classified program, but working for the Office of Naval Research. So these are multi-mission platforms that can operate in an ice environment.

Senator WICKER. OK. Well, let's say you and the experts in your field decide we need X number of heavy icebreakers, and we need Y number of smaller, less expensive icebreakers. We can certainly build those at our American shipyards, can we not?

Admiral ZUKUNFT. We can.

Senator WICKER. OK. But we don't have plans to do so at this point.

Admiral ZUKUNFT. We do. So there's \$150 million in the 2017 appropriation. We have five shipyards doing industry studies. We'll put a request for proposal—

Senator WICKER. What type of icebreaker?

Admiral ZUKUNFT. A heavy icebreaker.

Senator WICKER. No, I'm asking about plans for the smaller icebreakers?

Admiral ZUKUNFT. We won't look at the smaller ones. I'm talking the Great Lake icebreakers, we're over a decade out.

Senator WICKER. In the Arctic, our plans are to have one kind of icebreaker and one only, is that what you're saying? A heavy icebreaker. And we have plans to make one.

Admiral ZUKUNFT. We have a high-latitude study. It was commissioned over 5 years ago that said we need six icebreakers—three heavy, three medium—and that's—

Senator WICKER. OK. We could build those three mediums in the United States, couldn't we?

Admiral ZUKUNFT. Absolutely.

Senator WICKER. But we don't have plans to do so, do we?

Admiral ZUKUNFT. We do.

Senator WICKER. OK. And what are those plans?

Admiral ZUKUNFT. Well, we need to build our first heavy first. You know, I am scraping money to get—

Senator WICKER. But what are those plans, though, even if they're long-range?

Admiral ZUKUNFT. Build the first heavy icebreaker in the water by 2023. Do a block buy to buy two more. There's a National Academy of Sciences—

Senator WICKER. And then and only then we would look at buying the medium icebreakers. So we really don't have plans to buy three smaller, less expensive icebreakers, do we?

Admiral ZUKUNFT. Let's make sure we're talking heavy, medium, and then we have great—we have three different icebreakers—

Senator WICKER. OK. Well, let's not talk about Great Lakes right now.

Admiral ZUKUNFT. OK. So—

Senator WICKER. I think I'm asking, Mr. Chairman, about whether we have any plans to build beyond the three heavy icebreakers that you've talked about. Do we have any plans to use our American shipyards to build medium icebreakers?

Admiral ZUKUNFT. We do.

Senator WICKER. Or is that just a notion down—

Admiral ZUKUNFT. No.

Senator WICKER. OK. What are those specific plans? I ask again.

Admiral ZUKUNFT. Three heavy and three medium icebreakers. And we've been in a 10—a decade-long battle to get \$150 million that doesn't even build one icebreaker. So I can't tell you when I'm going to get the funding to build out this fleet. But we need a fleet of six icebreakers, and I need an appropriation to do that. If I have a floor of \$2 billion in my acquisition budget, I can move on with this, but I don't have the money.

Senator WICKER. OK. Well, we want to be teammates with you on this. And I think we're just—Mr. Chairman, I think we're just scratching the surface this morning. We'll get into this more in detail at the specific hearing.

Senator SULLIVAN. Yes, sir.

Senator WICKER. But I appreciate the Chair and the Ranking Member bringing this to the attention of the public and the Coast Guard.

Senator SULLIVAN. Well, I think this exchange underscores the need for a joint hearing between this Committee and the Seapower Subcommittee, that you chair, Senator Wicker, on the Armed Services Committee, and we look forward to doing that sooner rather than later because this is an important issue.

Senator Schatz.

**STATEMENT OF HON. BRIAN SCHATZ,
U.S. SENATOR FROM HAWAII**

Senator SCHATZ. Thank you, Mr. Chairman.

Admiral, thank you for being here. Thank you for everything you do, especially in the Pacific. I will not ask about icebreakers, as you might imagine.

[Laughter.]

Senator SCHATZ. I understand there are sort of two aspects of being resource-constrained. One is what we've talked about, the need for real appropriations, not just for your national security cutters, but for icebreaking and other things. But the other is that even if you got all the money that was needed, you still have to make resource allocation issues—decisions.

And I want to ask you about one specific resource allocation that troubles me, and it's very simple. It's that we've got our heavy endurance cutters in the State of Hawaii, and a lot of them actually move east, not west, even though we have IUU, we have territorial issues, and other challenges throughout the Pacific all the way to the western Pacific. And we are now using a lot of Coast Guard resources in 2014 for drug interdiction.

And the basic question I have for you is, if you kind of look at this from the standpoint of stopping drug supply, I think you're getting about 20 percent of the drugs coming over the water. So that's not bad, but that's not enough. Also, most of the drugs that come into the United States are actually not coming over the water.

So it's not that what you're doing is not important, it's just that we're deciding to move Coast Guard resources into this drug fight, and it's at the expense of something else. You know, you have a number of statutory missions, but fighting this drug fight, it seems to me, you know—I guess the question for you is, who makes the decision on resource allocation? When was it made?

Because I worry, frankly, that there's institutional inertia, there's a desire to fight that fight, but if we're only getting 20 percent of the stuff that comes over water, and that's 20 percent of less than 50 percent of the total drugs coming into the United States, we're still fighting a 1980s drug war, and in the meantime, everybody across all service branches, is worried about presence in

the Pacific. You say virtual presence is actual absence, as Harry Harris says.

So how do you sort of square this? And what's your thought process? And is there any consideration sort of reevaluating whether this is even the smart thing to do?

Admiral ZUKUNFT. Yes, let me approach that on two different points. Those decisions rest with me. So in 2014, we had unprecedented unaccompanied minors arrive at our border. And the Department of Homeland Security was looking for beds and, where do we put these young kids? I looked at, why are they leaving? The reason they were leaving is those drugs, they don't come directly to the—they land in the tri-border region of El Salvador-Guatemala-Honduras.

I've met with the Presidents of all three countries. They're awash in cocaine right now that's destined for the United States. Violent crime has taken off. And so families are putting their kids in the hands of a human smuggler to get out of Dodge, to get to the United States, because of this drug problem. In 2014, we knew where 85 percent of these drug shipments were across the entire ocean, but I only had enough resources to go after 8 percent. So it became a resource imbalance.

We're using that same level of intelligence to look at our 2.2 million square miles of remote EEZs to look at, Is there illegal fishing? We partnered with China, with Russia, Japan, Canada, the United States lead an effort, and for 12 years we've been doing extended patrols in the western Pacific, central Pacific, to target IUU fishing. One of our buoy tenders we should probably paint white that is stationed in Hawaii, they are going out and doing these patrols. It has been 6 years, with all the intelligence, with the overflies, but we are not seeing the risk of IUU activity.

If the risk warranted the resources, we would reallocate resources. But, again, as we look at intelligence driving operations, we also have to look at, where can we afford to go at risk? And that is one area where we have gone at some degree of risk, but we have not seen the activity to warrant further resources.

I will just add we also work with Admiral Harris, and they do provide naval platforms with Coast Guard law enforcement detachments. We call it the Oceania Maritime Security Initiative, and we're doing quarterly patrols off of Navy platforms instead of Coast Guard ships because there are no heavy Navy ships in the eastern Pacific today.

Senator SCHATZ. Right. Well, listen, I think you make the case persuasively, but I'll just offer this: it is not at all clear to me that we're winning the drug war, you know, 1980s style. And we have more and more needs. And I think the Chair and the Ranker of the Subcommittee, as well as the Seapower Subcommittee, really have to make maybe some tough decisions about what we're doing with all these resources. You know, I think we're on deck for at least another couple of national security cutters, and we could throw another—I mean, we could throw lots of person-hours at this, and we could throw another—a few cutters from Hawaii at this. I personally would rather see those forward in the Pacific, I'd rather see them do what we think of the Coast Guard to be best at.

And I'll just insert for the record a question for you about the status of the C-130Js coming to Hawaii.

Thank you.

Senator SULLIVAN. Senator Inhofe.

**STATEMENT OF HON. JIM INHOFE,
U.S. SENATOR FROM OKLAHOMA**

Senator INHOFE. Thank you, Mr. Chairman. It's good to be back and visiting with you. I remember when we met in March. I meant to tell you, and I forgot to do it, so I'll mention it now, that I had occasion just a short while ago to fly an airplane around the world emulating the flight of Wiley Post, and one of the best times I had was in your shop in Alaska. And in terms of the missions, the search and rescue, the drug addiction—all of that stuff, I really encourage members of this Committee and Members of the House and Senate, you don't really know what you guys are doing till you go there and see it. So we're going to encourage that to share those experiences.

Well, I know that Wicker has been concerned about icebreakers, and let me be the voice of concern about another vehicle that we talked about when you were here in March. Now, one of the best kept secrets in America is that we in Oklahoma are navigable. We have an inland waterway that goes all the way to the Port of Catoosa.

And we're concerned about the tenders, the river tenders, and the condition of these things. The vessels, we talked about this in March, maintain the navigation age of the buoys and the marking of the water channels. And the channels must be marked for river barges to safely move, again, the fertilizer, all this stuff that we move around.

So at that time—and I know you're working with us because we've been with the Coast Guard talking about it. Give us a status right now in terms of the acquisition strategy of river tenders.

Admiral ZUKUNFT. Yes, sir, Senator. We're standing up an acquisition office right now. We have a million dollars set aside right now to start looking at design work. These are not high-tech designs. We're working with the Army Corps of Engineers to look at parent craft, very affordable platforms. But the average age of our fleet of inland tenders is 56 years old.

Senator INHOFE. Yes.

Admiral ZUKUNFT. These tenders maintain a waterway highway that moves \$4.6 trillion of commodities each and every year. You take that out of inventory, you know, you have now just deprived our true economic potential. And in many of these ports, you know, these are export commodities that are helping our trade imbalance for a very modest investment. So we are moving out to start recapitalizing this fleet. This will be very appropriation-dependent, but we have made the argument, and we are ready to move out to recapitalize these old ships.

Senator INHOFE. Because they're not all that expensive there, and then the decision still has to be made. Has it been made in terms of new versus renovated?

Admiral ZUKUNFT. These are beyond renovation.

Senator INHOFE. Are they?

Admiral ZUKUNFT. We've done mitigation work on asbestos, lead abatement. And what really disturbs me is these ships were designed in an era where we did not have mixed genders in the United States Coast Guard.

Senator INHOFE. Yes.

Admiral ZUKUNFT. So most of this fleet cannot accommodate women.

Senator INHOFE. OK. Admiral, I also serve on the Senate Armed Services Committee. And I think it was the NDAA 2014, as I recall, that I got some language into the bill to transfer from DoD to the Coast Guard 14 of the C-27J, that's the Spartan aircraft, the smaller one than the C-130. And I thank you for your work to facilitate this transfer, which saves a lot of money. I think we approximated around \$500 million was saved as opposed to the alternative.

You've made it real clear that these aircraft are instrumental for the Coast Guard to perform its mission, providing maritime surveillance among the maritime borders and enforcing our laws. And I look forward to see these aircraft fully operational. But I understand that you are having issues with parts in getting the aircraft missionized, I guess you'd say. What kind of problems are you having?

Admiral ZUKUNFT. Just the lack of spare parts. And as we mature this program, we'll be able to ramp up the spare parts. Our immediate problem right now is with the simulator. We end up having to send our pilots to Italy to get simulator training. So as a result, most of their training is actually in an airplane.

Senator INHOFE. Now, we're the simulation capital of the world in Tulsa, Oklahoma. Are you aware of that?

Admiral ZUKUNFT. We are, and, in fact, that's where we're looking at—

Senator INHOFE. OK.

Admiral ZUKUNFT.—to source a Coast Guard-owned simulator.

Senator INHOFE. Hmm. I'd like to have you come and visit sometime.

Admiral ZUKUNFT. Yes, sir.

Senator INHOFE. Thanks for the great work.

Thank you, Mr. Chairman.

Senator SULLIVAN. Senator Cantwell.

STATEMENT OF HON. MARIA CANTWELL, U.S. SENATOR FROM WASHINGTON

Senator CANTWELL. Admiral, it's great to see you. Thank you for being here.

The 2016 Association for Rescue at Sea Gold Medal recipient was someone from Long Beach. They had used one of the 52-foot motor lifeboats for that rescue mission. We only have four 52-foot motor lifeboats in the entire Coast Guard. Two are in Washington. So what's the replacement plan here?

Admiral ZUKUNFT. We've been using our 47-foot motor lifeboats, which don't have quite the same capability of these old 52 legacy motor lifeboats that have served—

Senator CANTWELL. Like what? Like what don't they have?

Admiral ZUKUNFT. They don't have the towing capability, and they're not quite as seaworthy as the 52-footers. So I've been on several of those lifeboats, and great credit to those crews. We've been able to maintain these boats that are probably over 50 years old now, but they continue to have a fairly lengthy service life. But it's the 47 motor lifeboat that has been their replacement that we have sourced.

But as you well know, your—the Pacific Northwest, the Graveyard of the Pacific, is probably where we see the most extreme weather conditions. But for the near term, we are still able to maintain and operate those vessels.

Senator CANTWELL. What can we do to maintain that fleet given, as you just said, the 47s don't have that towing capacity, and this is a very prime fishing fleet location for the Pacific Northwest? What can we do? Are you committed to making sure we keep these 52-foot vessels?

Admiral ZUKUNFT. Committed that we continue to maintain and operate, but if we reach a point where they're no longer sustainable, parts obsolescence, we need to re-engine, there's a whole range of options, but we will need something more capable than a 47-foot motor lifeboat for some of the extreme conditions that we have up in the State of Washington.

Senator CANTWELL. I agree. That's what I wanted to hear you say. So the 47s aren't getting the whole job done, and when we look at both the conditions and the flow of traffic and who we're talking about, we want to make sure our fishermen are safe. So thank you so much, Admiral.

Thank you, Mr. Chairman.

Senator SULLIVAN. Senator Blumenthal.

**STATEMENT OF HON. RICHARD BLUMENTHAL,
U.S. SENATOR FROM CONNECTICUT**

Senator BLUMENTHAL. Thanks, Mr. Chairman.

Thank you, Admiral, for your very impressive and dedicated work, and all of the men and women who work in the Coast Guard under you and serve our Nation with such immense excellence and devotion to duty.

You and I have talked about the Coast Guard Museum. The Coast Guard is the only service that has no such museum. It has an awe-inspiring story that should be told. And the proposal, indeed, the plan, to put that museum in New London is one that will be a great destination for Connecticut and the Nation. It will be an extraordinary tribute to the Coast Guard with that story that will move generations and will inspire them to join the Coast Guard.

You and I have talked about the funding, and I am gratified that our private conversations have indicated your very strong commitment to the building of the Coast Guard Museum. That's correct I hope.

Admiral ZUKUNFT. Absolutely, Senator.

Senator BLUMENTHAL. And on our watch, so to speak, that is, the Committee's, I hope that we can lead the effort to frame language that makes it clear that none of the Federal funding that may be invested, it's an investment, in the museum would come from otherwise necessary operational or capital funding, and very, very

clear that that kind of commitment is necessary for the Coast Guard's well-being, because that has to be our priority, and its effective service to our Nation.

Admiral ZUKUNFT. That's correct.

Senator BLUMENTHAL. I want to ask you, if I may, about the issue of sexual assault. And one reason I ask it is that I will leave here within minutes and go to an announcement of the introduction of the bill that would reform the efforts to discipline sexual assault and deter and prevent it in all of our military services. And I know there have been some instances at the Coast Guard Academy and perhaps elsewhere in the Coast Guard. Can you give us your assessment of how the Coast Guard is doing? And I know that the Coast Guard in no way condones or tolerates sexual assault within its ranks.

Admiral ZUKUNFT. Senator, we're making progress. So from the RAND survey that was done back in 2014 to the latest surveys to present, the prevalence is down nearly 40 percent. We are seeing more and more victims submitting unrestricted reports that conveys confidence that there will be standards of accountability, that they will not be revictimized, but it still disturbs me that we still have sexual assault, this behavior, occurring in a service that lives by the creed, "Honor, Respect, and Devotion to Duty."

Senator BLUMENTHAL. And I know that at the Coast Guard Academy you've taken steps to provide counselors and victims' advocates and so forth, and I think that kind of service would be helpful to better reporting as well as better discipline.

Admiral ZUKUNFT. Yes, sir, Senator. And part of this is, you know, to be an all-inclusive service, you know, women have filled every capacity in the Coast Guard for over 40 years running now. We have nearly 40 percent women that comprise the Corps of Cadets at the Coast Guard Academy. These will be our future leaders.

At the same time, we want to grow a more diverse workforce. And so any intimation of racial bias is equally concerning to me as well as we look at growing a more diverse cadre of senior leaders in the future of the Coast Guard as well. And we want to lead the way at the Coast Guard Academy, but as you are well aware, we've had several setbacks there.

Senator BLUMENTHAL. I want to shift in the small remaining time I have to Puerto Rico. And you and I have talked about the situation on a number of occasions. And I know the Coast Guard has performed extraordinary service in delivering food, water, and medicine to parts of the island that have been isolated, as well as in the Virgin Islands, also struck very heavily by Maria and the hurricanes that preceded Maria during this hurricane season. And I understand from you the situation is improving, but the Coast Guard is committed to stay there. You have, I believe you told me—I'm going from memory—about 2,000 men and women on the various bases that are there doing interdiction of drugs and other missions, but have provided invaluable service to the Americans who live in Puerto Rico. And I wonder if you could just give us your assessment of how Puerto Rico is doing?

Admiral ZUKUNFT. Yes. Unfortunately, Puerto Rico probably was not resilient before Hurricane Maria struck, and I've never, having been to multiple natural disasters, seen a hurricane take out an en-

tire commonwealth. It approached the southeast corner of the Commonwealth of Puerto Rico, it exited the northwest, and it literally devastated the entire Commonwealth of Puerto Rico, immediately taking out the power grid, communications. Very rugged interior, bridges washed out that are now isolated, which is why we're using helicopters to provide medical, water, food, and commodities to those isolated committees, but—communities.

But at the end of the day, this is our home, too. Our Coast Guard men, women, and families that come up to nearly 2,000 people, this is their home. We've been active in these communities with elected leaders. And, similarly, the Coast Guard is not going to leave there as well. As we've been doing restoration work, we've seen an increase of illegal migration activity trying to come across the Mona Pass, and we've had several significant drug seizures just to the south of Puerto Rico, perhaps mindful that maybe the Coast Guard is distracted and they might be able to sneak in a shipment of drugs or illegal migrants. So we're still trying to balance all of that, but right now we're keeping our head above water.

Senator BLUMENTHAL. Thank you very much, Commandant. My time is expired. I look forward to continuing our conversation about these issues and others. Thank you.

And thank you to—again, thank you to the men and women of the Coast Guard for their extraordinary service and sacrifice for our Nation.

Admiral ZUKUNFT. And let me just go on record, Senator. Thank you, and I also want to thank Senator Murphy, for your ardent support of our national museum in New London, Connecticut.

Senator BLUMENTHAL. Thank you.

Thanks, Mr. Chairman.

Senator SULLIVAN. Thank you, Senator Blumenthal.

Admiral, I wanted to follow up on the line of questioning that Senator Schatz had started with regard to—it's actually a broader topic—the deployment of and home-basing of new assets. We're nearing the end of the Coast Guard's recapitalization process on the national security cutter. And having been there with you and former Homeland Security Secretary Kelly at the commissioning of the MONRO, got a good sense of just how capable those are, the fast response cutters that you're looking to deploy.

I know that there has been a lot of focus on this. I just ask that you involve Congress a little bit more on the deployment of these assets. There are things that we're hearing in Alaska, and I don't want to go into specifics, but, you know, maybe three new FRCs in one place to help on maintenance, but it might not help with regard to the scope and scale, and the same with the national security cutters, particularly if there are a couple more online.

So can I get your commitment that you would work with this Committee in particular on, you know, the plan, the ops, the kind of strategic thinking that is going into the home-basing and deployment of these assets? As you know, whether it's IUU fishing, as Senator Schatz mentioned, or, you know, extremely increased activity in the Arctic and the migration of fish there, I think we have an important role to play.

Admiral ZUKUNFT. You have my commitment on that, Senator. I've spent a lot of time patrolling those waters. The fast response

cutter, much more capable than the 110-foot patrol boat it replaces, but it is the tyranny of distance as well. And our concern driving some of these decisions are the outyear expenses.

Senator SULLIVAN. Yes.

Admiral ZUKUNFT. And so we're dealing with negative growth in our operating expense account, which is why I'm looking for a 5 percent increase. So we're not making budget-driven decisions, we're making operational decisions to provide the optimal force lay-down for the State of Alaska.

Senator SULLIVAN. No, and, look, I'm certainly focused on Alaska, but other places, Hawaii, and other parts; Senator Cantwell is here, Washington State. But I think that's where we can play a really important role because if some of your decisionmaking that is going on internally within the Coast Guard is operational or maintenance, or a combination of both, and you need to have certainty on accounts, we can help with that in terms of overall making the strategic decisions more viable for the long term, but it's important for all of us to work together to understand your thinking and to know what you need to maximize kind of the reach.

Admiral ZUKUNFT. Yes, sir, Chairman. And we will provide full transparency. I will not sign any final document until it has been briefed to you personally.

Senator SULLIVAN. Excellent.

Senator Peters, do you have another follow up—

Senator PETERS. Just a follow up before we get to Senator Markey.

Admiral, you mentioned and I wanted to just get back to the Great Lakes and the oil cleanup and your statement of how concerned you are about a major oil spill in the Great Lakes and our ability to clean that up, to understand the dynamics of cleanup in fresh water in particular, where there's a dearth of research as to how to do that.

As you're well aware, the 2017 Coast Guard authorization, which we'll hopefully be moving quickly, does include the creation of a center of expertise, something you and I have spoken about, work with the Coast Guard, but also realizing resource constraints, although there are innovative ways that we can involve our universities, some private contractors, others that have an interest in it.

But if you could talk briefly as to why a center of excellence is important to better understand freshwater cleanup and the dynamics of cleaning up in fresh water, and how it would be important to locate that center near a place that could potentially suffer from a catastrophic oil spill, and having prepositioned equipment there with people who are trained to use that equipment, as well as how to train in ice cover? You mentioned that in your previous comments.

And I know there has been some testing at your research center, which does outstanding work, but some of the skimming techniques and others were not particularly effective in ice. And given ice is a problem not just in Michigan, but in Alaska and all across pipelines all across Northern America, if you could speak briefly of why a center of expertise to evaluate freshwater cleanup would be a great aid to our abilities to keep the environment clean and some-

thing as important as the Great Lakes, which provides drinking water for 40 million people.

Admiral ZUKUNFT. Yes, sir, Senator. So let me just go back briefly in time. And the reason I said, you know, we would not be semper paratus is probably recall a pipeline spill in Kalamazoo. It was really in EPA's area of responsibility. We helped in that response as well, a land-based, and it's difficult in a very expensive oil spill because of the unique aspects of that oil as well. Now you put it in a lake, and now you put ice over a lake, and we do not have the technology to bear. So, yes, we need to move out on this.

The infrastructure piece, that obviously comes with a bill, so I want to make sure that we don't let that stand in the way of progress. We do have a great R&D center. Part of that is funded by the Oil Spill Liability Trust Fund. And I think we do need to make this a high priority as we look at more pipelines crossing navigable waterways, and those waters have multiple uses besides just for navigation.

I'd be happy to work with your staff, with your constituents as well, to make sure that we have a strategic way forward of what are we doing to address this? The Finns have some unique capability in removing oil from ice. You know, what is the state-of-the-world technology in addressing some of these very same challenges? And then we can address the infrastructure component of that as we go forward as well. But we can't let, you know, brick and mortar stand in the way of good science because right now some of that is lacking.

Senator SULLIVAN. Senator Markey.

**STATEMENT OF HON. EDWARD MARKEY,
U.S. SENATOR FROM MASSACHUSETTS**

Senator MARKEY. Thank you, Mr. Chairman. Thank you and Senator Peters for having this very important hearing.

Commandant, thank you for being here. Good to see you again. And I just want to say for the record that the fishermen of the State of Massachusetts would like to thank the Commander of District 1, Admiral Steven Poulin, for his great work and everyone in his division for the work and safety that they provide on a daily basis.

On December 20, 2004, the *Northern Edge*, a New Bedford-based scallop vessel, sank, and six fishermen were lost at sea. The Coast Guard conducted a 43-hour search, but only one fisherman unfortunately survived. This tragic loss was the worst accident since the tragedy depicted in the famous movie *The Perfect Storm* where the *Andrea Gail* of Gloucester sank in 1991.

The sinking of the *Northern Edge* prompted the Massachusetts Bay Fishing Partnership Support Services to create a safety and survival training program to train fishermen on man overboard procedures, emergency communications, flooding and pump operation, and other skills to be able to act quickly in emergency situations so that these tragedies do not reoccur. These trainings are heavily valued by fishermen and have spread from coast to coast. The safety and survival trainings are lifesaving and also save the Coast Guard millions in resources. However, these programs do not have stable funding. They have been appropriated funds, but only

on a year-by-year basis, and fishermen need to have the assurance that these programs will be funded every year.

The 2-day search for the Northern Edge cost over of \$1.5 million. While we all agree that the Coast Guard search and rescue missions are essential, we should work to stop these tragic events before they happen, and that's what these training programs are designed to do.

Commandant, can you speak to the importance of having safety programs in place and how having consistent training supported by constant funding would help the Coast Guard's budget?

Admiral ZUKUNFT. Senator, you're a strong advocate of prevention and so we don't have to respond. And so anything that takes us out of the business of having to respond and preventing, providing these mariners with the wherewithal to operate, and again, up in—up off the Grand Banks in the wintertime, it's a hazardous operating environment. So it's absolutely critical. It used to be called the "Deadliest Catch" in Alaska, but I would say, you know, we've seen more fatalities of late off the Pacific Northwest, but no different: cold water, extreme weather. And this training, if it saves one life—I said earlier in this hearing you can't put a dollar value on a life. And I think consistent funding, if it saves lives, is money well spent.

Senator MARKEY. So just moving on, in response to our hearing last March, you stated that only Class 2 Coast Guard vessels are equipped with naloxone, Narcan, and that Coast Guard commanders are assessing the opioid threat in the local area to identify any high-risk areas, populations, and risk of exposure. Have you identified any high-risk areas? And what are you doing to encourage other classes of Coast Guard vessels to be equipped with Narcan?

Admiral ZUKUNFT. Thank you for that question, Senator. We have since moved on, and we are putting this out to all field units in the Coast Guard. Yes, we have an epidemic on our hands right now, so this is Coast Guard-wide, not one tier of ships. It could be on a fishing fleet or recreational boater. There is no community that exempt—is exempt to this epidemic.

Senator MARKEY. So since March, you have created a program that covers all of those classes?

Admiral ZUKUNFT. Yes, sir.

Senator MARKEY. Yes. Excellent. And, of course, the Coast Guard can't perform their lifesaving work if they can't navigate our Nation's rivers and channels and harbors. For some communities in Massachusetts: Essex, Plymouth, Gloucester, Newburyport, the waterways are filling up with so much sand that Coast Guard vessels cannot safely pass. Many of these waterways are federally owned, and it's the U.S. Army Corps of Engineers' responsibility to dredge these waterways to ensure the swift and safe passage of ships. Has the backlog of Corps dredging projects harmed the Coast Guard's ability to perform its critical functions?

Admiral ZUKUNFT. The Army Corps was a key partner when we reopened numerous ports following this year's hurricane season. And in the interim, we would reset aids to navigation where there was survey work. We knew there was shallow water, but it still allowed ships, boats, to safely pass as we remarked waters, as they

addressed some of those shoaling activities. I can't address what the backlog is in the Army Corps of Engineers, but what I can say is they have been a reliable partner as we look to reconstitute ports.

Senator MARKEY. But from your perspective, it would be better if there were dredging pots of funding in order to ensure that sand was cleared out so that you could do your job even better?

Admiral ZUKUNFT. Certainly, if there is shoaling, absolutely critical for us to be able to carry out our missions.

Senator MARKEY. Thank you. Thank you for your good work and all the people who work for you. Thank you, sir.

Senator SULLIVAN. Thank you, Senator Markey.

And, Admiral, thanks again for your great service. Please pass on from this Committee and the rest of the Senate the appreciation that we all have for the great job that the men and women of the Coast Guard are doing for our country.

Admiral ZUKUNFT. Thank you. Thank you, Chairman, Ranking Member.

Senator Markey, thank you as well.

Senator SULLIVAN. Great. I would now like to invite the second panel forward. We have a distinguished panel of citizens who have come from all across our country. The first is a constituent of mine, Ms. Etta Kuzakin, who is the President of the Agdaagux Tribe of King Cove. She is a leader in Alaska. She has a compelling story, I believe brought a family member with her. And literally came from thousands of miles for this hearing.

So, Etta, thank you for being here.

We have Mr. Lee Smithson, the Executive Director of the Mississippi Emergency Management Agency. And I know that Senator Wicker already spoke of his strong background.

And Dr. Guy Meadows, from the Michigan Technological University. And Senator Peters is going to say a few words about Dr. Meadows before we begin testimony from each of our witnesses.

Senator PETERS. Thank you, Mr. Chairman. I'm pleased to introduce Dr. Guy Meadows, who is the Director of the Great Lakes Research Center and a research professor for mechanical engineering and engineering mechanics at Michigan Tech.

Dr. Meadows has a long history of working in and around the Great Lakes with research interests in geophysical fluid dynamics and with an emphasis on environmental forecasting and experimental hydrodynamics.

In September, Dr. Meadows was selected by the Michigan Pipeline Safety Advisory Board to lead a panel of academic experts from around Michigan to develop a risk analysis for the dual pipeline that crosses underneath the Straits of Mackinac.

Thank you for being here today, Dr. Meadows. And we all look forward to your testimony. Thank you again.

Senator SULLIVAN. So each of our witnesses will have 5 minutes for their opening statement. If you wish to submit a longer statement for the record, we will, of course, accept that. We will begin with Ms. Kuzakin.

**STATEMENT OF ETTA KUZAKIN, PRESIDENT, AGDAGUUX
TRIBE OF KING COVE, LIFELONG RESIDENT**

Ms. KUZAKIN. Good morning, Chairman Sullivan, Ranking Member Peters, and members of the Subcommittee. My name is Etta Kuzakin. I'm an Aleut and President of the Agdaagux Tribal Council of King Cove, Alaska. I was born and raised and continue to live in King Cove, an isolated community surrounded by spectacular beauty. It is the land of my ancestors. The Aleut people have inhabited the area for more than 4,000 years. King Cove is a tight-knit community and a wonderful place to raise a family. My husband and I have three beautiful children ranging from 4 to 20 years old.

Today I am speaking to you not only as the President of the Agdaagux Tribe, but as a mother who nearly lost her youngest child, and possibly my own life, were it not for the courageous men and women of the Coast Guard who came to the rescue, my rescue, more than four and a half years ago. Sorry.

Because our community has no hospital or doctor, we must travel 600 miles to Anchorage for most medical procedures. Our local clinic is staffed with wonderful dedicated employees, but there is only so much the health aides can do with the limited resources. The clinic is unable to handle trauma, heart, and respiratory complications, and childbirth. I am unable to give birth naturally and must have a cesarean section, another complicated beyond the capability of our small clinics.

In March 2013, I went into early labor. Despite my careful plans to travel to Anchorage well ahead of my due date, my baby had plans of her own. Gale-force winds were howling that day, and I knew as I waited in the clinic that no flights were going to make it into King Cove. My fears were later confirmed, I was in no condition to attempt to cross the choppy water by boat. My only hope was that the Coast Guard would send a helicopter from Kodiak for me. Without them, I wouldn't have been able to get out, and neither my daughter nor I would be here to tell the story.

Thankfully, after waiting several hours, they came. The winds were so strong that the Coast Guard pilots had to maneuver the helicopter carefully so the doors wouldn't blow in. They were able to land safely in Cold Bay so I could get transported to a medevac plane and flown to Anchorage.

I know it's not the job of the Coast Guard to medevac pregnant women, but I thank God every day for their courageous, selfless devotion to the people of Alaska and their willingness to put themselves in harm way to ensure our safety. It's because of the men and women of the Coast Guard stationed in Kodiak that my beautiful daughter, Sunnie Rae, is alive. Today she's an energetic 4-year-old, and I cannot imagine life without her. Every time my daughter smiles, I am reminded of how easily things could have turned out differently.

Not every story has a happy ending in King Cove. From 1980 to 2003, 18 people have died because of plane crashes during the severe weather or the inability to get timely medical care. Since former Interior Secretary Sally Jewell denied our road on December 2013, there have since been 68 medevacs from King Cove. Seventeen of those patients were seriously ill or injured and were

medevaced by the Coast Guard. I am grateful that all of them, including the Coast Guard personnel, made it out of King Cove safely.

Our notorious harsh and unpredictable weather on the Alaska Peninsula means that some Coast Guard medevacs are not only dangerous for the patients, but also for the Coast Guard. At least 30 percent of the time, flights are delayed or canceled because of gale-force winds, snow squalls, or dense fog. Yet, time and time again the Coast Guard has come to our rescue when no one else would.

We are hopeful that in the near future, we'll have a single-lane gravel road connecting our isolated community to the nearby all-weather airport, providing a safe and reliable transportation alternative. We have been fighting to have this small road link through the Izembek National Refuge for more than 35 years for health, safety, and quality of life reasons. For us, having the peace of mind and knowing that our loved ones will be safe when traveling to and from King Cove means everything to us.

Until then, I would like to once again express my profound gratitude to the men and the women of the U.S. Coast Guard who put their lives on the line day in and day out.

Thank you.

[The prepared statement of Ms. Kuzakin follows:]

PREPARED STATEMENT OF ETTA KUZAKIN, PRESIDENT OF AGDAGUUX TRIBE OF KING COVE, LIFELONG RESIDENT

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Today, she is a joyful, energetic, wonderful four-year-old, and I cannot imagine my life without my precious little girl. Every time my daughter smiles, I am reminded

of how easily things could have turned out differently. Not every story has ended as happily as mine. From 1980 to 2003, 18 people have died because of plane crashes during severe weather or an inability to get timely medical care.

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Until then, I'd like to once again express my profound gratitude to the men and women of the Coast Guard who put their lives on the line day in and day out.

Thank you.

2014 KING COVE MEDEVACS

(Updated 1/8/15. Confirmed with the King Cove Clinic.)

Coast Guard Medevacs:

1. *Feb. 7, 2014:* Peter Pan Seafoods (PPSF) employee, male, in his 60s. Gastrointestinal (GI) bleed.
2. *Feb. 14, 2014:* 63-year-old Irene Newman was medevaced because of heart problems.
3. *March 11, 2014:* Wyatt Wilson, Walter's infant son, struggled to breathe. Was later diagnosed with RSV. He and his father were medevaced separately via the Coast Guard.
4. *March 11, 2014:* Fisherman Walter Wilson, Jr., 33, dislocated both hips and fractured his pelvis after a 600-lb. cod pot fell on him.
5. *March 31, 2014:* 58-year old fisherman aboard the M/V Golden Alaska, a Seattle-based processor, came into clinic with a severely injured eye.
6. *Oct. 16, 2014:* An 84-year old male from King Cove was transported by ambulance to the King Cove Clinic at 10:30 p.m. He was very ill and was treated for sepsis. About three hours later, he was loaded onto a U.S. Coast Guard helicopter (at approximately 1:30 a.m.) and was taken to Cold Bay. (Guardian can only land in King Cove during daylight hours, according to FAA regulations.) Guardian then flew the patient from Cold Bay to Anchorage for medical care. Fortunately, the weather was clear.

Total Coast Guard medevacs = 6

Other Medevacs:

1. *Jan. 3, 2014:* Local resident. Male, GI bleed. In his 50s. Physician's Assistant Katie Eby monitored him throughout the night. He was medevaced the next day, via Guardian.
2. *March 16, 2014:* PPSF employee, male, in his late 40s, head trauma. Guardian medevac.
3. *March 21, 2014:* 19 year old, male. Infection. His leg was cut working on a boat. Infection started setting in later. Guardian medevac.
4. *April 11, 2014:* Alaska man suffering from apparent heart attack was medevaced aboard a Coastal freight boat from King Cove to Cold Bay. No other planes or boats were traveling because of high winds and seas.
5. *April 15, 2014:* Elderly King Cove resident suffering from possible internal bleeding. Was medevaced via a local charter airline service to Cold Bay and then to an Anchorage hospital. Weather was decent for flying.
6. *April 18, 2014:* King Cove female resident in her 50s with severe breathing difficulties due to an anaphylactic type reaction to an allergen. Unable to get

any other airline service to come in because winds were very high. Due to patient's condition, boat travel was out of the question. Coast Guard didn't come. Had to wait until morning for Guardian to medevac patient out of King Cove.

7. *June 19, 2014:* A male in his mid-20s (works for Peter Pan Seafoods, but not a King Cove resident) was in acute respiratory distress when he arrived at the King Cove Clinic. The patient has a history of asthma and was seen for respiratory problems over the past few months. All medication and treatment options had been exhausted. He was medevaced by Guardian to Providence Alaska Medical Center in Anchorage at 7:30 p.m. The weather was clear.
8. *July 7, 2014:* A 49 year-old male (not a resident of King Cove) suffering from internal bleeding was treated at the King Cove Clinic. He was medevaced out on Guardian on a clear day.
9. *Aug. 23, 2014:* A King Cove man in his late 40s suffered from a severe abdominal infection. Guardian arrived in Cold Bay but was unable to fly into King Cove due to deteriorating weather conditions (fog and low visibility). High wind and waves prevented travel by boat. The patient was stabilized and waited for a medevac for about 14 hours. The medevac pilot was able to fly into King Cove after the weather improved and daylight arrived.
10. *Sept. 9, 2014:* An 84 year-old King Cove woman with chest pains arrived at the clinic because of concerns about a possible heart attack. Patient was monitored overnight at the King Cove Clinic until Guardian could safely land at the King Cove airstrip during daylight hours. The patient was stable while waiting about nine hours for the medevac team to arrive. (The weather was clear.)

Total non-Coast Guard medevacs: 10

Total King Cove medevacs = 16

2015 KING COVE MEDEVACS

(Updated 12/22/15. Confirmed with Eastern Aleutian Tribes and the Coast Guard)

Coast Guard Medevacs:

1. *February 22, 2015:* A female in her 80s was seen at the King Cove Community Health Center for an infection at about 6:30 p.m. It was determined by the emergency department in Anchorage that the patient needed to be medevaced out of King Cove as soon as possible. The Coast Guard arrived about 3 hours later (9:30 p.m.) and transported the patient from King Cove to Cold Bay where the patient was then transferred to Guardian to come into Anchorage. No weather delays. The Coast Guard plane was used from King Cove to Cold Bay due to the fact that the patient needed to be transported to Anchorage immediately and planes do not fly in and out of King Cove when it is dark.
2. *July 20, 2015:* a female in her 20s (resident of Nevada) was treated at the King Cove Clinic at 9 a.m. for an immediate life-threatening condition, according to Eastern Aleutian Tribes. EAT did not specify the condition. However, according to the Coast Guard, she was treated for a severely obstructed airway. Clinicians consulted with Providence Hospital and ANMC. It was recommended that the patient be brought into ANMC for evaluation. EAT said it was unsafe for Guardian to land in King Cove due to weather. The Coast Guard was called at 2 p.m. A helicopter from a cutter in the Bering Sea was dispatched and arrived at about 4:40 p.m. The Coast Guard was unable to land at the King Cove airstrip because of fog and low visibility, so the helicopter landed in the old high school parking lot instead. The patient was transported to Cold Bay and transferred to Guardian Flight. Guardian then transported the patient to Anchorage.
3. *July 20, 2015:* a King Cove male resident in his 40s was treated at the King Cove Clinic at 9:45 a.m. According to Eastern Aleutian Tribe, he was "very ill." EAT did not specify the condition. The Coast Guard said it was breathing difficulties. EAT said a Providence emergency room doctor recommended that the patient be medevaced to Anchorage. Due to weather, it was not safe for Guardian to land in King Cove. The Coast Guard was called. After transporting another patient to Cold Bay earlier that afternoon, the Coast Guard refueled and returned to King Cove, landing in the old high school parking lot due to low visibility and fog at the airstrip. The Coast Guard arrived at about

5:30 p.m. and transported the patient to the Cold Bay Airport. Guardian then transported the patient to an Anchorage Hospital.

4. *July 27, 2015:* A King Cove male resident in his 70s arrived at the King Cove Clinic at 4:45 p.m. on July 26, 2015 after feeling extremely ill. After clinicians consulted with ANMC's ER doctor, they decided to medevac him out of King Cove. Guardian Flight was called, but was on weather hold (fog and limited visibility). The patient was stabilized overnight. The following morning (July 27, 2015), the elderly man's condition began to deteriorate. Because of his previous medical conditions, the Coast Guard said there was cause for concern. In the interest of time, the Coast Guard launched a MH 60 Jayhawk helicopter. It arrived in King Cove at noon to medevac the patient to the Cold Bay Airport. From there, the patient was transferred to a Coast Guard C-130 and transported to an Anchorage hospital. The patient waited 19½ hours to be medevaced from the time he arrived at the clinic to the time he was medevaced.
5. *Oct. 16, 2015:* A male resident of King Cove in his 50s was treated at the King Cove clinic for internal bleeding. After clinicians consulted with an ER doctor in Anchorage, it was determined that the patient needed to be medevaced due to the severity of his condition. Guardian was unable to fly into King Cove because it was dark, so the Coast Guard was called. The Coast Guard transported the patient after 10 p.m. to Cold Bay. The patient was then transferred to a Guardian plane and brought into Anchorage for treatment.
6. *Oct. 24, 2015:* A male in his late 50s from Deer Park, Washington was treated at the King Cove Clinic for a possible life-threatening medical condition (ketoacidosis). Clinicians consulted with an E.R. physician in Anchorage and it was determined that he needed to be medevaced out. Due to poor visibility, Guardian was unable to fly into King Cove so the Coast Guard was called at 12:15 p.m. The Coast Guard arrived at 1:30 p.m. The Coast Guard's MH-65 Jayhawk helicopter transported the patient to Cold Bay. Once there, the patient was transferred to a Guardian Flight plane and transported to an Anchorage hospital for treatment.
7. *Nov. 5, 2015:* A King Cove female in her 50s was treated at the King Cove Clinic early in the morning. Clinicians consulted with an E.R. physician in Anchorage and it was determined that she needed to be medevaced out due to a severe medical condition that required a higher level of care. Due to low visibility and high winds, Guardian Flight was not able to fly into King Cove. The Coast Guard was called at 1:45 a.m. Coast Guard personnel arrived at the King Cove airport at 9:45 a.m. in a MH-60 Jayhawk. The patient was transferred to the Coast Guard's C-130 and transported to an Anchorage hospital.
8. *Nov. 12, 2015:* A male in his 20s (city of origin not documented) was treated at the King Cove Clinic at 1 a.m. for trauma. After clinicians consulted with ER doctors in Anchorage, it was recommended that the patient be medevaced to Anchorage. Guardian was unable to come in because of excessively high winds. The patient's vitals were becoming more irregular over time. The Coast Guard was called and arrived in King Cove at 2:45 p.m. to medevac the patient to Anchorage.

Total Coast Guard medevacs = 8

Other Medevacs:

1. *Jan. 15, 2015:* A male in his 20s working in the community (not a resident) was transported to the clinic by ambulance for a head trauma injury at about 1:15pm. The weather was up and down at the time (wind, snow/rain squalls). Because the clinic lacks access to CT scan equipment needed to evaluate the extent of the injury, it was determined by the emergency department in Anchorage that the patient needed to be medevaced out of King Cove. Life-Med was called, but would not send a plane into King Cove because of the weather. The Coast Guard was considered, however, the weather broke long enough for Guardian (based in Unalaska) to come in before nightfall. Guardian arrived at about 5:00p.m. to transport the patient.
2. *Feb. 3, 2015:* A female King Cove resident in her 40s was seen in the clinic for abdominal pain. The providers were concerned and contacted the emergency department in Anchorage who determined that she needed to be medevaced out of King Cove. Weather was not an issue. There were no significant delays. (airline not specified)
3. *Feb. 4, 2015:* A female in her 50s (residency not specified) was seen in the clinic for an altered mental status. Provider(s) were concerned and contacted

the emergency department in Anchorage who determined that the patient needed to be medevaced out of King Cove. Guardian picked her up. No challenges were noted. No weather delays were noted.

4. *February 14, 2015:* A female in her 50s was seen at the King Cove Community Health Center for a displaced wrist fracture at about 2:30 a.m. After unsuccessful attempts to reduce the fracture, the providers consulted with the emergency department and orthopedics in Anchorage. They requested that the patient be medevaced. The King Cove runway was closed due to mud from excessive rain, and it was too dark for planes to fly in, so the patient was put on a fishing boat that transported her to Cold Bay, arriving at about noon the following day to meet the Guardian plane which then transported her to Anchorage. There were no weather issues or problems with the boat getting to the Cold Bay dock.
5. *Feb. 25, 2015:* A male in his 50s (California resident) was seen at the King Cove Community Health Center on Feb. 24, 2015 at approximately 7:30 p.m. for a cardiac emergency. The Anchorage emergency department highly recommended that the patient be medevaced out of King Cove. Guardian Flight was contacted but unable to land that evening due to darkness. The Coast Guard was contacted but unable to transport the patient to Cold Bay. The next morning, Guardian was able to land directly at the King Cove airfield and transported the patient to Anchorage at around 9:30 a.m. on Feb. 25, 2015.
6. *Feb. 25, 2015:* A King Cove male resident in his 50s was seen at the King Cove Community Health Clinic at approximately 4:00 a.m. on Feb. 25, 2015 for gastrointestinal bleeding. The Anchorage emergency department determined that the patient needed to be medevaced to Anchorage for further medical evaluation and monitoring. Guardian was contacted and scheduled to pick up this patient and the other patient (#5 on this list) once daylight arrived. The patients left at approximately 9:30 a.m.
7. *May 21, 2015:* A King Cove female resident in her 80s was treated at the King Cove clinic for internal organ issues at about 3 p.m. on May 20, 2015. Because of fog and poor visibility, she could not be medevaced out until the following day. She was monitored overnight and medevaced to Anchorage on May 21, 2015 at 10:30 a.m. via Guardian Flight during calm weather conditions.
8. *May 29, 2015:* A King Cove resident (gender and age unknown at this time) was treated at the King Cove Clinic for unusual pain at about 4:20 p.m. on May 29, 2015. After clinicians consulted with the Alaska Native Medical Center emergency department, it was determined the patient should be medevaced out. Guardian Flight's pilot determined that the extreme low cloud ceiling would prevent him from safely landing in King Cove. The patient remained at the King Cove Clinic for about 2 hours and 40 minutes before being transported on a local airline to Cold Bay. From Cold Bay, the patient was transported to the local clinic at about 8:40 p.m. Guardian Flight arrived shortly afterward and transported the patient to an Anchorage hospital.
9. *July 14, 2015:* A male in his 60s from California was treated at the King Cove Clinic at 8:15 a.m. After routine lab work was conducted, clinicians consulted with an emergency room doctor who determined the patient was suffering from a possible malfunctioning internal organ. Guardian was called to medevac the patient. The weather was calm and was not an issue.
10. *July 22, 2015:* a male in his 50s arrived at the clinic at 12:40 a.m. and was treated for an abnormal EKG. After clinicians consulted with an Anchorage emergency room doctor, it was determined the patient needed to be medevaced out of King Cove and to an Anchorage hospital. Unclear from Eastern Aleutian Tribes how patient was medevaced out.
11. *July 28, 2015:* An elderly King Cove male in his 90s was treated at the King Cove Clinic for breathing difficulties. He arrived at 8:30 p.m. An ER doctor with ANMC was called and determined the man needed to be medevaced to Anchorage. The King Cove Clinic called Guardian Flight that evening for the medevac, but Guardian was on weather hold. So the clinic called the Coast Guard. The Coast Guard's flight surgeon determined that the nature of the patient's medical situation was such that he could be stabilized and they could wait 12 hours until it was safer to fly in. By that time, the weather improved and Guardian was able to fly in to King Cove at about 8:40 a.m. on July 28th to medevac the patient.

12. Aug. 30, 2015: A female under the age of 18 arrived at the King Cove Clinic at 8:30 p.m. and was treated for seizures. After clinicians consulted with an Anchorage emergency room doctor, it was determined the patient needed to be medevaced. Guardian Flight transported the patient to an Anchorage hospital.
13. Oct. 13, 2015: A female resident of King Cove in her 20s arrived at the King Cove Clinic at 12:20 p.m. According to Eastern Aleutian Tribes, she was treated for a worsening medical condition. After the clinic consulted with an ER doctor in Anchorage, it was determined that the patient should be medevaced. Guardian arrived at 4 p.m. The weather conditions did not cause any delays.
14. Dec. 5, 2015: A female King Cove resident in her 20s was treated at the King Cove Clinic at 10 a.m. for anaphylaxis. Guardian was called and came from Unalaska. Health clinicians were able to stabilize the patient until Guardian arrived at 3:30 p.m. to transport the patient to a hospital in Anchorage. The weather conditions did not cause any delays.

Total non-Coast Guard medevacs: 14

2015 total# King Cove medevacs = 22

8 Coast Guard

14 non-Coast Guard

2016 KING COVE MEDEVACS

Coast Guard Medevacs:

1. March 6, 2016: A King Cove female in her 20s arrived in the King Cove Clinic at 7:55pm with severe internal pain. The clinic consulted with the hospital's emergency room physician who decided to request an immediate medevac. A Coast Guard helicopter arrived at 11:00 p.m. and took the patient over to Cold Bay where they were met by Life Med, who transported the patient to an Anchorage hospital.
2. March 20, 2016: A King Cove female in her 50s was found unconscious. The King Cove Clinic consulted with the hospital's emergency room physician who decided to request a medevac. Due to high winds, Guardian was unable to fly into King Cove. The Coast Guard flew in from Cold Bay with a MH-60 Jayhawk helicopter, arriving in King Cove at 6:30 p.m. At 7:56 p.m., the Coast Guard helicopter departed King Cove and flew to Cold Bay where the patient was transferred to Guardian Flight. The patient was then taken to an Anchorage hospital.
3. June 16, 2016: A King Cove female in her 70s was treated at the King Cove health clinic at 12:47 for heart issues. The clinic consulted with an Anchorage hospital's emergency room physician who decided to request a medevac. Due to high winds, Guardian Flight was unable to fly into King Cove. The Coast Guard flew in from Cold Bay with a MH-65 Dolphin helicopter, arriving in King Cove at 5:30 p.m. The patient was transported to Cold Bay where she was stabilized until a Guardian Flight plane arrived. At 8:02 p.m., the patient was transferred to Guardian and transported to an Anchorage hospital.

Total Coast Guard medevacs = 3

Other Medevacs:

1. Feb. 4, 2016: A King Cove female in her 60s arrived at the clinic in the afternoon of Feb. 4th after experiencing a fracture from a fall. Because of the fracture, it was recommended that she be medevaced out. Guardian Flight was called, but was delayed due to unavailability of flights. (Their planes were being used in other communities.) When a Guardian airplane became available, it was delayed due to fog, rain and low visibility. The Coast Guard was called, but because the patient was stable, it was determined that it was unnecessary at that point. The patient waited at the clinic for 4½ hours. After the weather improved, Guardian made it into King Cove at 7:10 p.m. and transported the patient to an Anchorage hospital.
2. March 26, 2016: A non-resident male in his 60s arrived in the King Cove clinic at 5:25pm with internal pain. The King Cove Clinic consulted with the hospital's emergency room physician who decided to immediately request a medevac. Guardian made it to King Cove at 8:15 p.m. and transported the patient to an Anchorage hospital.

3. *April 11, 2016:* An Anchorage female in her 40s was treated at the King Cove Clinic at 1:40 p.m. following a seizure. After a consultation, an emergency room doctor in Anchorage advised clinicians to immediately medevac the patient. Guardian Flight flew into King Cove and medevaced the patient at 5:30 p.m. The patient was taken to Alaska Regional Hospital in Anchorage for treatment.
4. *April 23, 2016:* A King Cove female in her 80s arrived at the King Cove Clinic at 12:45 p.m. following an open fracture of the arm. Following a consultation, an emergency room doctor in Anchorage advised clinicians to immediately medevac the patient. Guardian flew in and medevaced the patient at 6 p.m. She was transported to the Alaska Native Medical Center for treatment.
5. *June 28, 2016:* A King Cove female in her 70s arrived at the clinic at 1 p.m. seeking treatment for chest pains. Following a consultation, an emergency room doctor in Anchorage advised clinicians to medevac the patient. There was a delay due to a change of shift at Guardian and an additional delay due to weather. Guardian medevaced the patient at 9:45 p.m. The patient was transported to the Alaska Native Medical Center for treatment.
6. *July 13, 2016:* A woman in her 70s from Anchorage went to the King Cove clinic at 3:29 p.m. because of breathing difficulties. After health clinicians consulted with an emergency room doctor in Anchorage, they were advised to immediately medevac the patient. There was a delay of at least one hour because of a shift delay with the air ambulance carrier. Guardian arrived in King Cove to transport the patient at 7:45 p.m.
7. *Aug. 13, 2016:* A female King Cove resident in her 70s arrived at the King Cove clinic at 11 p.m. on Aug. 13, 2016 to be treated for a hip fracture. After health clinicians consulted with an emergency room doctor, they were advised to medevac the patient. Because of the weather, Guardian was delayed 40-plus hours so the patient was stabilized until then. The Coast Guard was called, however, because the patient was stable, the agency did not respond, but told the clinic it would reevaluate if the patient's condition worsened. The patient was medevaced by Guardian at 4:30 p.m. on August 15, 2016.
8. *Aug. 15, 2016:* A male in his 50s from Anchorage went to the King Cove clinic at 2:09 p.m. because of abdominal pain. Health clinicians consulted with an emergency room doctor in Anchorage who advised medevacing the patient. Guardian medevaced the patient at 5:30 p.m. from King Cove and transported the patient to Anchorage.
9. *Aug. 22, 2016:* A King Cove woman in her 50s went to the King Cove clinic at 9:30 a.m. due to abdominal pain. Clinicians consulted with an Anchorage emergency room doctor who recommended she be medevaced to an Anchorage hospital. The Coast Guard was called, but the clinic was told the agency did not have resources available to come to King Cove. Guardian was unable to come in due to fog and low visibility. About 90 minutes later, a local charter service was able to come into King Cove and transport the patient to Cold Bay. The patient was stabilized at the Cold Bay clinic for two hours before being medevaced by Guardian at 1:30 p.m. and then transported to an Anchorage hospital.
10. *Aug. 24, 2016:* A King Cove woman in her 50s went to the King Cove clinic at 3:15 p.m. due to chest pain. Clinicians consulted with an Anchorage emergency room doctor who recommended she be medevaced to an Anchorage hospital. At the time, fog and low visibility prevented Guardian from landing in King Cove. At about 5:15 p.m. a local airline was able to transport the patient to Cold Bay. The patient was transferred to a Guardian plane and transported to Anchorage.
11. *Sept. 16, 2016:* A King Cove woman in her 20s arrived at the King Cove clinic at 12:30 p.m. She was treated for an obstetrics gynecology complication. Clinicians consulted with an Anchorage emergency room doctor who recommended that she be medevaced to an Anchorage hospital. She was stabilized until an air ambulance was available. LifeMed arrived in King Cove at 9 p.m. and transported the patient to Anchorage.
12. *Nov. 15, 2016:* A King Cove male in his 50s arrived at the clinic at 1:40 a.m. with multiple injuries, including a fracture. The patient was medevaced to Anchorage's Alaska Native Medical Center via Guardian Flight. There were no weather challenges.
13. *Dec. 7, 2016:* A male in his 40s from California arrived at the clinic at 10 a.m. and was treated for pneumonia as well as other complications. A local airline

transported him to Cold Bay. He was then transferred to a Guardian Flight plane and medevaced to an Anchorage hospital for treatment.

14. *Dec. 10, 2016:* A King Cove male in his 80s was treated at the clinic at 12:40 p.m. for abdominal pain. The patient required a CT scan, so he was medevaced to an Anchorage hospital via Guardian Flight.

Total non-Coast Guard medevacs = 14

2016 total# King Cove medevacs = 17

3 Coast Guard

14 non-Coast Guard

2015 total # King Cove medevacs = 22

8 Coast Guard

14 non-Coast Guard

2014 total# of King Cove medevacs = 16

6 Coast Guard

10 non-Coast Guard

2017 KING COVE MEDEVACS

Coast Guard Medevacs:

Total Coast Guard medevacs: 0

Other Medevacs:

1. *Feb. 4, 2017:* A young man in his 20s (info on residence unavailable) was treated at the King Cove Clinic for an infection in his airway. The local airline, Grant Aviation, was unable to land in King Cove because the runway was too soft (muddy). Therefore, the physician's assistant accompanied the patient on a fishing tender with the patient, due to concerns about the patient's airway. The plan was to send the patient on PenAir as an urgent patient. However, when they arrived in Cold Bay and went to the clinic, health providers were concerned about the airway and contacted emergency room doctors in Anchorage. Emergency room doctors agreed that due to concerns with the patient's airway, the patient should not be sent on a commercial plane. Instead, a medevac airplane was authorized to come to Cold Bay to pick up the patient and transport him to an Anchorage hospital.
2. *March 12, 2017:* an Alaska male in his 30s was treated at the King Cove Clinic for large lacerations. An Anchorage emergency room doctor recommended that the patient be medevaced. The weather was calm and there were no weather delays. The patient was medevaced by LifeMed from King Cove to an Anchorage hospital.
3. *March 23, 2017:* A female King Cove resident (age unknown) was treated at the King Cove Clinic. The reason for treatment is not available (from Eastern Aleutian Tribes). An Anchorage emergency room doctor recommended that the patient be medevaced. The patient was medevaced from King Cove to Anchorage via LifeMed.
4. *April 12, 2017:* a female King Cove resident in her 50s to 60s was treated at the King Cove Clinic for head trauma. The visiting physician consulted with an Anchorage hospital emergency room physician, and it was recommended that the patient be medevaced. No other details are available from Eastern Aleutian Tribes.
5. *April 26, 2017:* A King Cove male in his 30s to 40s was treated at the King Cove Clinic for head trauma and loss of consciousness. The visiting physician consulted with an Anchorage hospital emergency room physician, and it was recommended that the patient be medevaced. No other details are available from Eastern Aleutian Tribes.
6. *April 26, 2017:* A King Cove girl was treated at the King Cove Clinic at 10 p.m. for suspected appendicitis. The visiting physician consulted with an Anchorage hospital emergency room physician, and it was recommended that the patient be medevaced out due to worsening symptoms. Because it was getting dark outside, a local airline transported the patient, accompanied by a health

care provider, to Cold Bay. A medevac airline company medevaced the patient from Cold Bay to Anchorage.

7. *May 4, 2017:* A King Cove female in her 30s to 40s was treated at the King Cove Clinic at midnight for a leg injury that occurred after falling. The visiting physician consulted with an Anchorage hospital emergency room physician, and it was recommended that the patient be medevaced. No other details are available from Eastern Aleutian Tribes.
8. *July 3, 2017:* A King Cove patient (gender unknown) in their 60s arrived at the clinic at 3:30 p.m. Eastern Aleutian Tribes reported that the patient had an internal concern that needed immediate surgery. After consulting with an emergency room doctor at ANMC, it was determined that the patient should be medevaced to Anchorage. The patient was transported on a local airline and was then transferred to a Guardian plane and transported to Anchorage.
9. *July 24, 2017:* A King Cove woman in her 60s arrived at the community's clinic at 11:45 a.m. and was treated for a possible drug overdose. Because her condition was deteriorating, clinicians made arrangements for her to be medevaced. Guardian Flight departed with the patient from King Cove at 6 p.m. and transported her to an Anchorage hospital.
10. *July 25, 2017:* A King Cove male in his 60s was treated at the King Cove Clinic for respiratory problems. After consulting with an Anchorage hospital emergency room physician, clinicians decided to medevac him to Anchorage via Guardian Flight.
11. *Sept. 11, 2017:* A King Cove male in his 40s was treated at the King Cove Clinic for an infection. After consulting with an Anchorage hospital emergency room physician, clinicians decided to medevac him to Anchorage. He was transported on a local airline to Cold Bay and then transferred to a Guardian Flight plane, which then transported the patient to Anchorage.
12. *Sept. 15, 2017:* A male (non-resident) in his 60s was treated at the King Cove Clinic for stroke. After consulting with an Anchorage hospital emergency room physician, clinicians decided to medevac him to Anchorage. He was transported on a local airline to Cold Bay and then transferred to a Guardian Flight plane, which then transported the patient to Anchorage.
13. *Oct. 22, 2017:* A King Cove male infant was treated at the King Cove Clinic for respiratory problems. After consulting with an Anchorage hospital emergency room physician, clinicians decided to medevac the baby to Anchorage via Guardian Flight.

Total non-Coast Guard medevacs = 9

2017 total# King Cove medevacs—13

0 Coast Guard

13 non-Coast Guard

2016 total# King Cove medevacs = 17

3 Coast Guard

14 non-Coast Guard

2015 total# King Cove medevacs = 22

8 Coast Guard

14 non-Coast Guard

2014 total# of King Cove medevacs = 16

6 Coast Guard

10 non-Coast Guard

Since former Interior Secretary Sally Jewell denied the road in Dec. 2013:

68 total medevacs

17 Coast Guard

51 non-Coast Guard

Senator SULLIVAN. Thank you, Etta, for that very powerful testimony and for your willingness to come all the way from Alaska to testify here today. It's very important, and I think your story,

which is indicative of so many other stories, and what the Coast Guard does, needs to be known in this body, needs to be known, that an 11-mile gravel road is denied time and time again, most callously by Sally Jewell the latest time, where they put the lives of birds above the lives of people, whether it's you and your daughter or the brave men and women in the Coast Guard, and it's got to stop. It's outrageous. Nobody in the lower 48, nobody, would put up with this. But somehow for 30 years we've had to deal with it, and it's ridiculous. And you saw the Commandant agrees 100 percent with you and me. So thank you.

Dr. Meadows.

**STATEMENT OF DR. GUY A. MEADOWS, DIRECTOR,
GREAT LAKES RESEARCH CENTER,
MICHIGAN TECHNOLOGICAL UNIVERSITY**

Dr. MEADOWS. Mr. Chairman and members of the Subcommittee, I am Dr. Guy Meadows, and I am Director of the Great Lakes Research Center at Michigan Technological University in Houghton, Michigan.

Our nation's northern coastlines present unique and demanding challenges in marine operations, and therefore to the U.S. Coast Guard. Much of the navigable water of Alaska and the Northeast Atlantic States and the Great Lakes can be classified as "icebound seas" for some part of the year.

For the Upper Great Lakes, access through the Federal locks at Sault Ste. Marie closes annually from January to March, when ice shuts down the commercial shipping of the Great Lakes. During the remainder of the icebound season, it is the responsibility of the, and I quote, "U.S. Coast Guard to assist in keeping open to navigation by means of ice-breaking operations . . . channels and harbors in accordance with the reasonable demands of commerce." That's from Executive Order 7521 of 1936.

The *Guardians of the Great Lakes*, the 6,000 men and women of the Ninth District of the Coast Guard, are responsible for the five Great Lakes, the Saint Lawrence Seaway, and parts of the surrounding states, including 6,700 miles of shoreline and 1,500 miles of the international border with Canada.

The Inland Seas of the Great Lakes are massive natural resources for the United States and Canada. Consider the Great Lakes as inland seas. Strung end-to-end, the Great Lakes would cover most of the U.S. East Coast and continental shelf from Maine to mid-Florida.

The Great Lakes forms the largest group of freshwater lakes on Earth by total area, and second largest by total volume, containing 21 percent of the world's surface freshwater supply by volume. The United States are 84 percent of the surface water supply in North America. And more than 35 million people rely on the Great Lakes for their drinking water, jobs, and their way of life. This number includes 8 percent of the U.S. population and 32 percent of the Canadian population. Much of the world's fresh water is threatened by contamination and desertification. The Great Lakes also face toxic and nutrient pollution, invasive species introduction, and habitat and fisheries degradation.

Last month, October 24 through 26, during the Lake Superior storm, the waves along the southern shore reached a height of 28.8 feet, the largest waves ever recorded in the Great Lakes. The federally operated wave and meteorological buoys along the center of the Great Lakes and Michigan Tech's coastal monitoring buoys near shore are registering increases in both the number of storms and their severity. This wave phenomena is not unique to the Great Lakes, but presents—but is present along most of the Nation's coastline. And throughout these storms, it is the U.S. Coast Guard that responds.

Oil has spilled in the seas of all four of our coastlines: the Atlantic, the Pacific, Gulf of Mexico, and to a much lesser extent, in the Great Lakes. Perhaps fortunately, due to the lack of exposure and incidents, the science of oil and oil cleanup in fresh water lags far behind that of our ocean counterparts. This fact, coupled with the complexities of icebound coasts, provide challenges in disaster preparedness along our Alaskan and Great Lakes coastlines. As ice begins to appear along our icebound coasts, research and supply ships, tugs, and barges all become frozen in the harbors and channels. This is true also for the environmental monitoring buoys that, at the present level of technology, cannot survive a major ice season at sea.

When these disasters occur, natural or manmade, it is the Coast Guard that is first to be called and first on the scene while being "scientifically blind" to actual environmental conditions of wind, waves, and currents.

The U.S. Coast Guard, in partnership with the Nation's research universities and Federal partners, is capable of developing advanced technologies to reduce the risk and to decrease response times. Surface environmental monitoring buoys can be replaced by underwater sensing platforms that are capable of remaining and providing valuable information through icebound seasons. Unmanned surface and subsurface vehicles can provide valuable on-site information. Full unmanned and autonomous surface vessels are currently being used in conjunction with geophysical survey ships in the Gulf of Mexico and offshore of the Alaska coastline. These new technologies hold great promise for advancing the Coast Guard's mission and providing safety for its personnel.

If we expect when needed the Coast Guard will save lives, enforce the law, operate ports and waterways, we should first invest in the science and technology necessary for the Coast Guard to successfully execute their missions.

Thank you.

[The prepared statement of Dr. Meadows follows:]

PREPARED STATEMENT OF DR. GUY A. MEADOWS, DIRECTOR, GREAT LAKES RESEARCH CENTER, MICHIGAN TECHNOLOGICAL UNIVERSITY

Mr. Chairman and Members of the Subcommittee—I am Dr. Guy Meadows and I am the Director of the Great Lakes Research Center at Michigan Technology University in Houghton, Michigan.

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ing the remainder of the ice bound season it is the responsibility of the "U.S. Coast Guard to assist in keeping open to navigation by means of ice breaking operations . . . channels and harbors in accordance with the reasonable demands of commerce." (Executive Order 7521, 1936). The *Guardians of the Great Lakes*, the 6,000 men and women of the Ninth District of the Coast Guard are responsible for the five Great Lakes, the Saint Lawrence Seaway and parts of the surrounding states including 6,700 miles of shoreline and 1,500 miles of the international border with Canada.

The Inland Seas of the Great Lakes are a massive natural resource for the United States and Canada. Consider the Great Lakes as inland seas. Strung end-to-end, the Great Lakes would cover most of the U.S. East Coast and Continental Shelf from Maine to mid-Florida.

- The Great Lakes form the largest group of *freshwater lakes* on Earth by total area, and second largest by total volume containing 21 percent of the world's *surface fresh water* by volume;
- The Great Lakes are 84 percent of the surface water supply in North America;
- More than 35 million people rely on the Great Lakes for their drinking water, jobs, and their way of life. That number includes 8 percent of the U.S. population and 32 percent of the Canadian population; and
- Much of the world's freshwater is threatened by contamination and desertification. The Great Lakes also face toxic and nutrient pollution, invasive species introductions, and habitat and fisheries degradation.

Last month, October 24–26, during the Lake Superior storm, the waves along the southern shore reached a height of 28.8 feet—the largest waves ever recorded in the Great Lakes. The federally operated wave and meteorological measuring buoys along the center of the Great Lakes and Michigan Tech's coast monitoring buoys near shore, are registering increases in both the number of major storms and their severity. This wave phenomenon is not unique to the Great Lakes, but present along most of our Nation's coastlines. And throughout these storms, it is the U.S. Coast Guard that responds.

Oil has spilled in the seas of all four of our coastlines; the Atlantic, Pacific, Gulf of Mexico and to a much lesser extent, in the Great Lakes. Perhaps fortunately, due to lack of exposure and incident, the science of oil and oil cleanup in freshwater lags far behind that of our ocean counterparts. This fact, coupled with the complexities of ice bound coasts provide challenges in disaster preparedness along our Alaskan and Great Lakes shorelines. As the ice begins to appear along our ice bound coasts, research, supply ships, tugs and barges all become frozen at shore in harbors and channels. This is true also for our environmental monitoring buoys, that, at the present level of technology, cannot survive a major ice season at sea.

When these disasters occur, natural or manmade, it is the Coast Guard that is first to be called and first on the scene, while being "scientifically blind" to actual environmental conditions of winds, waves and currents.

The U.S. Coast Guard, in partnership with the Nation's research universities and other Federal partners, is capable of deploying advanced technologies to reduce their risk and to decrease response times. Surface environmental monitoring buoys can be replaced by underwater sensor platforms that are capable of remaining and providing valuable information through ice bound seasons. Unmanned surface and sub-surface vehicles can provide valuable, "on site" information. Full unmanned and autonomous surface vessels are currently being used in conjunction with geophysical survey ships in the Gulf of Mexico and offshore of the Alaska coastline. These new technologies hold great promise for advancing the Coast Guard mission and providing safety for its personnel.

If we expect that when needed the Coast Guard will save lives, enforce the law, and operate ports and waterways, we should first invest in the science and technology necessary for the Coast Guard to successfully execute their missions.

Thank you.

Senator SULLIVAN. Thank you, Dr. Meadows.
Mr. Smithson.

**STATEMENT OF LEE W. SMITHSON, DIRECTOR,
MISSISSIPPI EMERGENCY MANAGEMENT AGENCY**

Mr. SMITHSON. Thank you, Chairman Sullivan and Ranking Member Peters, for allowing me the opportunity to provide you a statement for the record on our nation's Coast Guard.

As Senator Wicker said, I'm Lee Smithson, the Director of the Mississippi Emergency Management Agency. I was appointed to this emergency management position after retiring from the Mississippi National Guard, where I served as a Colonel and the Director of Military Support. In both of these roles, I have worked with the U.S. Coast Guard on numerous events along the Mississippi Gulf Coast and the Mississippi River. The longest and most notable was from April until late summer 2010 during the *BP-Deepwater Horizon* explosion and subsequent oil spill that devastated the Gulf of Mexico.

I was sent by then Governor Haley Barbour to the Mississippi Gulf Coast to assist with the establishment of a Unified Command Post for *Deepwater Horizon*. From the beginning, Mississippi's relationship with the U.S. Coast Guard, the mandated lead Federal agency, had significant challenges.

Mississippi responders were well versed in emergency response operations and the need for an integrated local, state, and Federal partnership. This was because of our experiences during Hurricane Katrina in 2005. Katrina taught us that the only way to ensure the needs of citizens are served is by close collaboration and a unified approach to all actions.

While the Coast Guard was instrumental in Katrina response, especially in New Orleans, they were not the lead Federal agency. *Deepwater Horizon* was different, and the Coast Guard was designated as the Federal on-scene coordinator. The lessons we learned during Katrina were the same lessons that the Coast Guard learned during *Deepwater Horizon*, but it took until the middle of June for the Coast Guard to fully obtain a firm grasp on the need for a unified approach.

Now, gentlemen, in the years since the oil spill, it is very apparent that the Coast Guard has worked diligently in establishing a positive rapport with its local, state, and other Federal partners. In fact, gentlemen, it is my opinion that no other Federal agency has done more to learn the nuances of a unified approach to disaster response and consequence management than the United States Coast Guard. My agency frequently meets with the Coast Guard, and we have conducted numerous joint training exercises, ranging from search and rescue operations to a weapon of mass destruction response exercise.

In recent years, the Federal Emergency Management Agency has championed the "Whole of Community" concept. This concept brings together residents, emergency management officials, organizations, and community leaders, along with government officials to collectively assess the needs of each community. It is also vital in determining the best ways to organize and strengthen assets, capabilities, capacities, and interests. In Mississippi, we lead the way in our "Whole of Community" approach with the adage that no one gets left behind. We work hard every day to foster partnerships

with our local, state, and Federal agencies and organizations to facilitate effective response to and recovery from disasters.

When Hurricane Nate struck my state last month, the preparedness and mitigation efforts undertaken since Hurricane Katrina produced no injuries and minimal damage to our coastal communities. Our comprehensive emergency planning with entities like the Coast Guard exemplified our ability to prepare not only the public and their property, but local governments, more than 48 hours prior to landfall. There were only two rescues that needed to be made during Hurricane Nate, but the coordination with the U.S. Coast Guard and our operations along with U.S. Coast Guard Sector Mobile and U.S. Coast Guard Sector Lower Mississippi River had us prepared to do many, many more rescues.

In addition, the Federal investments in mitigation made since 2005 in Mississippi showed a tremendous return on investment as we saw very little damage to our homes, property, or infrastructure. Gentlemen, I guarantee you, had we not received the Federal dollars in mitigation funding post-Katrina, we would have seen tens of millions of dollars in damage caused by Nate.

While I'm not here today to discuss budgets, I would like to leave you with this thought: If the Coast Guard had additional resources, my counterparts and I across the Nation would be able to have more direct access to Coast Guard personnel, especially if they were stationed inside our State Emergency Operation Centers, and this is on a daily basis, not just when we have a disaster looming.

In the 16 years since the September 11 terrorist attacks on our nation, all too often our leaders have forgotten how important it is to maintain a constant state of readiness. Readiness translates to resources. Our Coast Guard must have highly qualified, motivated, and dedicated service members. Their equipment must be modern and fully functional. As our Nation's only multi-role, military force, we must have a Coast Guard that can perform each of its missions in a superlative manner.

I am proud of my agency's relationship with the U.S. Coast Guard, and I'm committed to maintaining this rapport.

Thank you, gentlemen.

[The prepared statement of Mr. Smithson follows:]

**PREPARED STATEMENT OF LEE W. SMITHSON, DIRECTOR,
MISSISSIPPI EMERGENCY MANAGEMENT AGENCY**

Introduction

Thank you, Chairman Sullivan, Ranking Member Peters, and distinguished members of the Committee, for allowing me the opportunity to provide you with a statement for the record on our Nation's Coast Guard. I am Lee Smithson, the Director of the Mississippi Emergency Management Agency. I was appointed to this emergency management position after retiring from the Mississippi National Guard where I served as a Colonel and the Director of Military Support. In both roles, I have worked with the U.S. Coast Guard on numerous events along the Mississippi Gulf Coast and Mississippi River. The longest and most notable was in April 2010 during the *BP-Deepwater Horizon* explosion and subsequent oil spill that devastated the Gulf of Mexico.

I was sent, by then Mississippi Governor Haley Barbour, to the Mississippi Gulf Coast to assist with the establishment of a Unified Command Post for *Deepwater Horizon*. From the beginning, Mississippi's relationship with the Coast Guard, the mandated lead response agency to the spill, had significant challenges.

Mississippi responders were well-versed in emergency response operations and the need for an integrated local, state and Federal partnership because of our expe-

riences during Hurricane Katrina in 2005. Katrina taught us that the only way to ensure the needs of citizens are served is by close collaboration and a unified approach to all actions. While the Coast Guard was instrumental in the Katrina response, especially in New Orleans, they were not the lead Federal agency. *Deepwater Horizon* was different and the Coast Guard was designated as the Federal On-Scene Coordinator. The lessons we learned during Katrina were the same lessons the Coast Guard had to learn during *Deepwater Horizon*. It took until middle of June for the Coast Guard to obtain a firm grasp on the need for a unified approach.

In the years since the Oil Spill, it is very apparent that the Coast Guard has worked diligently in establishing a positive rapport with its local, state and Federal partners. In fact, it is my opinion that no other Federal agency has done more to learn the nuances of a unified approach to disaster response and consequence management than the U.S. Coast Guard. My agency frequently meets with the Coast Guard and we have conducted numerous joint training exercises ranging from search and rescue to a weapon of mass destruction response.

In recent years, the Federal Emergency Management Agency has championed the "Whole of Community" concept. This concept brings together residents, emergency management officials, organizations and community leaders, along with government officials to collectively assess the needs of each community communities. It also vital in determining the best ways to organize and strengthen assets, capacities, and interests. In Mississippi, we lead the way in our whole community approach with the adage that no one gets left out. We work hard every day to foster partnerships with all our local, state and Federal agencies and organizations to facilitate effective response and recover to disasters.

When Hurricane Nate struck my state last month, the preparedness and mitigation efforts undertaken since Hurricane Katrina produced no injuries and minimal damage to our coastal communities. Our comprehensive emergency planning, with entities like the U.S. Coast Guard, exemplified our ability to prepare not only the public and their property, but local governments as well more than 48 hours before landfall. There were only two rescues that needed to be made during Hurricane Nate, but the coordination with the U.S. Coast Guard in our operations center along with the USCG Sector Mobile and USCG Sector Lower Mississippi River had us prepared to do many more. In addition, the Federal investments to mitigation made since 2005 in Mississippi, showed a tremendous return on investment as we saw very little serious damage to homes, public property or infrastructure. I guarantee you, had we not received the Federal support in mitigation funding post Katrina, we would have seen tens of millions of dollars in damage caused by Nate, a category one hurricane.

While I'm not here today to discuss budgets, I would like to leave you with this thought: If the Coast Guard had additional resources, I and my counterparts across the Nation would be able to have more direct contact with Coast Guard personnel if they were stationed inside our emergency operations centers on a daily basis, not just during large scale emergencies. In the sixteen years since the September 11 terrorist attacks on our nation, all too often our leaders have forgotten how important it is to maintain a constant state of readiness. Readiness translates to resources. Our Coast Guard must have highly qualified, motivated and dedicated service members. Their equipment must be modern and fully functional. As our Nation's only multi-role military force, we must have a coast guard that can perform each of its missions in a superlative manner. I'm proud of my agency's relationship with the U.S. Coast Guard and I am committed to maintaining that rapport.

Thank you for allowing me to be here today.

Senator SULLIVAN. All right. Well, I want to thank all three of the witnesses here for your compelling testimony.

Ms. Kuzakin, I want to begin with you. You know, the Commandant mentioned, and I think your testimony underscored the whole idea of "You can't put a dollar figure on a life," whether it's the life of your daughter or the life of a Coast Guardsman who's doing the rescues.

But you also talked about this issue of peace of mind. And can you focus on that a little bit more? I think that to be perfectly honestly, and, again, I know I keep emphasizing it, but if you live in a city in the lower 48, you don't have to worry about, you know, getting to the hospital on time for the most part to deliver your

baby. But in King Cove, that's a worry. The peace of mind element I think is really important for this committee to hear about that. Can you expound upon that a little bit, please?

Ms. KUZAKIN. Peace of mind, for an example, right now in King Cove, we're having a great windstorm. When we have windstorms, when we get up in the morning, the first thing we think about is the safety of everybody in town because we know that if somebody gets hurt, they're not getting out.

Senator SULLIVAN. So you have a—so there's a big windstorm, and we get a lot of windstorms in King Cove.

Ms. KUZAKIN. Right now it's gusting to 75. I talked to my husband last night, and it was—and that's a normal day. And it is where we choose to live, but—

Senator SULLIVAN. It's a beautiful place.

Ms. KUZAKIN. But when we get up in the morning and the wind is blowing like that, we don't have any peace of mind. If we see the ambulance out, it is—it's heartbreaking to our entire community because we are very tight-knit and we know that that person isn't getting out unless we can get them out on a boat blowing 70, and I don't know if anybody has ever seen seas like that, but it's horrendous and it's scary. Or if the Coast Guard can make it in. And there's no peace of mind when it comes to that.

And I raise my—you know, I have three beautiful children, and I—you know, if they break an arm—for people here, it's just as easy as going to the hospital and getting that taken care of. It's not that easy at home. When they break an arm and it's severe, that means that we've got to find a way to get out.

Senator SULLIVAN. And can you explain again, because I think in Alaska we understand this issue intuitively, but there's an alternative that can provide a lot more peace of mind, and it's the road, correct?

Ms. KUZAKIN. Yes. It's—right now we have—the only stretch that we are needing to finish is 11 miles.

Senator SULLIVAN. Yes. And by the way, you know, previous testimony of the people who oppose this say, "Oh, it's this area that there are no roads, there's no—" you know, I was out there this summer, I flew over it, there's a whole network of roads that already exist within the refuge, right?

Ms. KUZAKIN. Right. And those roads were made by the Army way back when, and they're all over in there.

Senator SULLIVAN. Well, the notion that there are no roads in the refuge is completely false.

Ms. KUZAKIN. That is completely incorrect.

Senator SULLIVAN. Yes. And that gets spun by a lot of people who don't want you guys to have—or us to have the road.

Ms. KUZAKIN. No, that is completely incorrect. The Izembek is full of roads, and we're just asking to connect a small portion so that we can have help and safety to get our people out if needed.

Senator SULLIVAN. A gravel road?

Ms. KUZAKIN. Yes. A gravel—a one-lane, non-commercial gravel road.

Senator SULLIVAN. That can bring literally hundreds of American citizens peace of mind that most Americans wake up, and when they see 70-mile-an-hour winds, don't have—their first thought

doesn't—being, "Oh, my goodness, I hope my son doesn't break his arm today."

Ms. KUZAKIN. Yes, sir.

Senator SULLIVAN. Yes. I think it's just outrageous that we've spent 30 years trying to deal with this. I'm so glad you're here, and I really, really appreciate your compelling testimony.

Mr. Smithson, I want to ask you about—you raise a really good point about kind of interoperability and integration with what you're doing and what the Coast Guard does. Can you talk about where—you've already mentioned in your testimony where you think that that's working well, but where are areas that we can improve and that the Coast Guard can improve? And how can Congress, if at all, help in that kind of interoperability, seamless operations that you seem to have led and done such a good job at in your community?

Mr. SMITHSON. Well, Senator Sullivan, it all begins with relationships, and I think that that is absolutely key. You know, the first time that I dealt with at that time Captain Poulin, who was the captain of the Coast Guard Sector Mobile, was after the oil started flowing from the *Deepwater Horizon*.

So one of the biggest issues that we can improve on with regards to interagency operations is to establish those relationships, conduct the joint training exercises, and do those more and more frequently as budgets will allow, so—and, again, to get rid of the stovepipes. We've done a very, very good job of doing training exercises with the Coast Guard. And then we'll do an exercise with the National Guard. Then we'll do an exercise with the Department of Homeland Security.

But it's absolutely imperative that we pool those resources and conduct joint training assignment—or, I'm sorry, joint exercises across the entire spectrum. We've got to tear those stovepipes down, and that saves on resources as well.

Senator SULLIVAN. So you're very focused on training realistically so when there's a real-world contingency, you're not learning this for the first time, and you're able to kind of get a sense of what those stovepipes are, break them down during training exercises so you don't have to deal with them in real-world contingencies, correct?

Mr. SMITHSON. Yes, sir. At the end of the day, it all—it all revolves around preparedness.

Senator SULLIVAN. Great. That's an excellent example. Thank you.

Senator Peters.

Senator PETERS. Thank you, Mr. Chairman.

And, again, thank you to the three witnesses, really outstanding testimony from all three of you. And it's certainly clear, from each of the statements that you've made, how important the Coast Guard is to our country, to the citizens of this nation, whether it's rescuing folks in very tough weather in Alaska or in 28-foot seas in Lake Superior or disasters on an oil rig, the Coast Guard always responds.

When I think about lifesaving missions in particular, by definition, that's really bad weather when they go out there. It's when no one else wants to go out, and, in fact, when folks are out there,

they've gotten into serious trouble; and, yet, the men and the women of the Coast Guard saddle up basically and go out and take on some pretty, pretty difficult jobs.

But in addition to that, I want to ask you questions related to this, Dr. Meadows. In addition to the lifesaving operations of the Coast Guard, protecting our environment and protecting our resources is a critical part of the Coast Guard mission as well. And we are particularly—both you and I share our concern with the Great Lakes, given the fact that it does provide drinking water for nearly 40 million people, not to mention recreational resources and all of the other great benefits of the Great Lakes, but we have to make sure that we're protecting it for future generations going forward.

And I am particularly concerned about an oil spill there. We heard from the Commandant as to the state of preparedness when it comes to handling freshwater spills, which is not where it should be. We need to do a whole lot more, both from a technological standpoint as well as from basic research as to how oil mixes with freshwater and the challenges associated with that.

But before I get to some broader questions, I want to drill down a little bit to an issue related to Line 5, which I mentioned in my opening comments, which is the oil pipeline between the Upper and Lower Peninsula.

In June, the State of Michigan was owed an analysis on the risk posed by Line 5, but due to conflicts of interest, the original risk analysis had to be discarded, as you're well aware. The Michigan Pipeline Advisory Board has recommended you to lead this new review team that will conduct a thorough analysis of the risk that Line 5 poses to the Great Lakes and to the entire Great Lakes region.

So my question to you is, What will go into this risk analysis? And what do we need to do to fully understand the threat that this pipeline poses to the Great Lakes?

Dr. MEADOWS. Thank you, Senator Peters. As you indicated, the state has asked me to organize state universities to respond to the scope of work that was failed in the first attempt. I'm very happy and proud to report that we have formed our teams. That has been ongoing now for the last couple of months. There are nine Michigan universities and two universities external to the State of Michigan that have contributed highly qualified experts in this area.

We have divided ourselves—I'm a seagoing oceanographer, so I spend a lot of time on ships—just as the way a research ship is organized. There will be a chief scientist in each of the nine areas. There will be a lead person from Michigan Tech in each of those areas to coordinate amongst the areas. It's a total of 41 researchers that will address the issues specified by the state in the scope of work. And the ultimate objective then is to assess the worst-case scenario, to use advanced computing capabilities that we have at Michigan Tech to determine the fate and transport of that worst-case spill and then to assess all impacts of that financially as well as on the people of the Great Lakes.

I'm proud also to report that the Ann Arbor NOAA Laboratory, the Great Lakes Environmental Research Laboratory, is contributing two people from their hydrodynamic team to assist with that

numerical computations, and the university has set aside, Michigan Tech University has set aside, a significant portion of their supercomputer cluster so that we can do those calculations at great resolution and with great fidelity.

Senator PETERS. Well, Dr. Meadows, as you know, I mentioned this to the Commandant. In the Coast Guard authorization bill, we have language to create a national center of expertise that will focus on improving freshwater oil response, which the concept is to bring academic resources, to bring the resources of the Coast Guard, resources from private industry as well, together for a center that will look beyond just Line 5, as important as that is, but look at the broader issue of how we deal with freshwater response and all sorts of bodies of fresh water, particularly with this web of pipelines that we have all across the country.

Could you speak to the importance of having a national center of expertise and what you think could come out of that?

Dr. MEADOWS. In my view, that is extremely critical. As I indicated, we are far behind our ocean coasts in this critical area. There are some unique capabilities that exist throughout the Great Lakes, and working with the Coast Guard would be an honor and a privilege to bring this to the Great Lakes.

And one of the things about the Great Lakes, they respond exactly the way the oceans do, but we like to say that there is one important difference, and it's that 30-some million people that drink the water. So in many ways, our ability to predict the fate and transport of all types of pollutants in the Great Lakes is advanced more so than on our ocean coasts, and some of the reason is they're enclosed seas, they're bounded, so the boundary conditions are a little bit better, but the other reason is there has been tremendous work in the Great Lakes to be able to accurately predict where nasty things go so Cleveland, Chicago, Detroit can close down their municipal water intakes. So it is a very important thing for the Great Lakes. And the oil piece has been sorely missed.

Senator PETERS. Great. Thank you.

Senator SULLIVAN. Great. I just have two more follow-up questions.

Dr. Meadows, there has been a lot of talk about icebreakers. I think you see Senator Peters and I were highly motivated to get the Coast Guard authorization bill voted on, on the Senator floor and moved. So this hearing I think provides additional motivation for us.

A lot of discussion you saw earlier on icebreakers and some discussion in Senator Peters' testimony about recovering oil from fresh water versus salt water in terms of spills. Can you also talk about how ice complicates the cleanup process or may complicate it either in fresh or salt water?

Dr. MEADOWS. As the Commandant indicated, the presence of ice makes it almost an impossible situation. And we share with our Alaskan colleagues very, very strong winds, particularly in this time of year. Again, 77 miles an hour is tremendous, and we experienced similar things a few weeks ago. So the difficulty of an ice-bound coastline with large chunks of ice being tossed around by enormous waves in these very strong winds makes it almost impossible.

Senator SULLIVAN. Let me ask one other follow-up question for Ms. Kuzakin.

I know you followed very closely, and I mentioned it, and it's notorious in Alaska, the "Christmas Eve lump of coal" that we received from Secretary—former Secretary Jewell. And in that, she mentioned that there were alternative methods, alternative avenues, instead of constructing a road to providing the residents of King Cove safety and peace of mind. Are there? Do you believe there are?

Ms. KUZAKIN. No.

Senator SULLIVAN. I think it's very unconvincing that there are, from your testimony. What do you believe on that?

Ms. KUZAKIN. The answer is no. And we have looked at them all. Again, this—we've been doing this for 35 years, so this isn't something new. We have looked at everything. We have looked—I mean, any suggestion that was made that made some sense, we tried. We have tried everything. And now we're at the only thing that's left, which is the road, which is what we asked for in the beginning.

Senator SULLIVAN. So her notion in 2013 that there was an alternative is not accurate?

Ms. KUZAKIN. It is not.

Senator SULLIVAN. And one that they've talked about a lot, "Well, just get in a boat and hop on over from King Cove to Cold Bay." What's it like to get in a boat when the wind is gusting at 70 miles an hour? Like what would it be like to get in a boat to do that boat ride today?

Ms. KUZAKIN. It's horrific. For people—you just don't understand when you're—when the boat is going straight up and all you see is the sky because that's how high the boat is flipping up. And when it smacks down, and you've got to think if you're sick or injured or you have your children onboard, to be—and then that's not even the fun part. The fun part is getting up the 30-foot ladder in Cold Bay that is made of metal, and when it's icy and windy and you're holding on, it's absolutely terrifying.

Senator SULLIVAN. So when you were rescued by the Coast Guard, heroically by the members of the Coast Guard, during your pregnancy and delivery, would a boat have been an alternative, like Secretary Jewell implied in her decision? Was that an alternative for you that day?

Ms. KUZAKIN. No, it was not. There would have been—there would have been no boat big enough to, first of all, have all the doctors on the boat, or anybody that—you know, the mid-levels with me to get up to Cold Bay, and then to try to get me up the ladder would be—I just wouldn't have been able to do it. I was in labor. There was no way a boat could have—could have brought me over there. No.

Senator SULLIVAN. Well, listen, I want to thank all the witnesses again for your testimony, for flying here to Washington to present on really, as Senator Peters mentioned, just—these are important anecdotes, more broadly speaking, of the daily heroism that we see in our Coast Guard. And I think you've all witnessed it, we've all witnessed it, but to hear it directly from people who have experienced it, understand it, it's very important and powerful for this Committee, and hopefully it's going to bring about an emphasis not

only to fix things like the road, but also to make sure we're fully funding and moving forward with our Coast Guard authorization bill that, again, passed this Committee with strong bipartisan support. So thank you for doing that.

The hearing record will remain open for 2 weeks. During this time, Senators may submit additional questions for the record. Upon receipt, the witnesses are respectfully requested to submit their written answers to the Committee as soon as possible.

And, again, I want to thank our witnesses for appearing today. All three of you did an outstanding job.

This hearing is adjourned.

[Whereupon, at 11:59 a.m., the hearing was adjourned.]

A P P E N D I X

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DAN SULLIVAN TO ADMIRAL PAUL F. ZUKUNFT

Question 1. The Coast Guard is nearing the end of the recapitalization process for National Security Cutters. These vessels have been hugely successful from a capability and mission success standpoint. Have final homeporting decisions been made, and is Kodiak going to receive a replacement for its current High Endurance Cutter MUNRO?

Answer. The Coast Guard has made final homeporting decisions for all planned National Security Cutters (NSCs) (Hulls 1 through 9) as well as the first four Offshore Patrol Cutters (OPCs). Kodiak, AK is scheduled to receive two Offshore Patrol Cutters (OPCs), (Hulls 3 and 4) in FY 2023 and FY 2024 to replace the USCGC DOUGLAS MUNRO and the USCGC ALEX HALEY.

Question 2. The Integrated Ocean Observing System (IOOS) Program, housed in NOAA, is an interagency program that leverages ocean observing assets across multiple Federal agencies, state and local agencies and the private sector. We understand the Coast Guard relies on assets and data products provided by the IOOS Program, including wave buoys, high frequency radars measuring surface currents used in search and rescue and oil spill response preparations, and in Alaska, AIS transmitters that disseminate weather and safety information to mariners. As maritime activity in the Arctic increases, does the Coast Guard see these capabilities as aiding in managing the risk of maritime accidents and the agency's effective response to marine casualties? Does the Coast Guard see other ways the tools provided by IOOS can be an asset in fulfilling the Service's missions in the Arctic?

Answer. As maritime activity in the Arctic region increases, IOOS and other NOAA capabilities will likely aid the Service's ability to manage risk and to effectively respond to marine casualties.

IOOS information specific to the Alaskan region, <https://ioos.noaa.gov/regions/aoos/>, may assist the Coast Guard in gaining background information about the Arctic Ocean; oceanographic data, e.g., surface current data tracked by high frequency radar; meteorological data; and sea ice concentration.

Question 3. Does the Coast Guard have a sundown date for supporting CENTCOM FIFTH Fleet operations in the Arabian Gulf? And if not, are there plans to replace those aging Island Class Patrol Boats with FRCs?

Answer. In 2003, the Coast Guard assigned six Coast Guard 110-foot Island Class Patrol Boats and a shore support detachment in Bahrain and Kuwait to support vital CENTCOM mission requirements. An analysis of the Island Class Patrol Boat hulls completed in 2017 estimates that they will reach their End of Service Life in Fiscal Year 2022, due to material condition and lack of any available remaining weight and stability margins to update weapons and communication systems needed in the current threat environment.

Replacing the six Island Class Patrol Boats with Coast Guard 154-foot Sentinel Class Fast Response Cutters would deliver a superior asset with additional capability that meets CENTCOM's requirements. However, the Coast Guard's current 58-ship Fast Response Cutter program of record only includes hulls required to support domestic Coast Guard missions.

CENTCOM leadership continues to express the need to sustain the mission conducted by Coast Guard cutters, and is aware the Coast Guard is not currently resourced for FRCs above the current program of record.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. DEB FISCHER TO ADMIRAL PAUL F. ZUKUNFT

Question. Over the past many weeks, my staff has worked closely with the Coast Guard and the National Response Center regarding reporting requirements for agri-

cultural operations under the Comprehensive Environmental Response, Compensation, and Liability Act—more commonly referred to as CERCLA. Earlier this year, the U.S. District Court for the DC Circuit ruled that animal operations would need to submit reports to the NRC under CERCLA. I am very appreciative of the NRC's willingness to meet with agriculture stakeholders while also working with the EPA to explore solutions that provide livestock and poultry producers' relief from these unnecessary reporting requirements. On November 2, 2017, the NRC communicated to my office that "At the current NRC resource levels, an influx of calls will cause tremendous wait times for all callers. This may result in extreme delays in incident notifications, or even failure altogether in receiving reports and disseminating time critical incident information."

Does the Coast Guard agree with this statement from the National Response Center to Senator Fischer's office? And can the Coast Guard please outline the impacts an additional 100,000 reports will have on the purpose of the National Response Center to process real emergencies?

Answer. Yes, the Coast Guard agrees with the statement from the National Response Center to Senator Fischer's office.

Receiving 100,000 additional agricultural reports under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) would impact the National Response Center (NRC) operations. The NRC is the single point of contact in the United States and its territories for fielding reports of all oil/hazmat, railroad, and maritime security incidents. The increased volume of reports associated with the new CERCLA reporting requirement would negatively affect the NRC's ability to serve the National Response Team's 15 member agencies and associated stakeholder agencies, and could divert existing resources away from immediate time critical release reporting as the NRC processes these non-time critical release reports. Such action has the potential to limit the effectiveness of the National Response System.

**RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. ROGER F. WICKER TO
ADMIRAL PAUL F. ZUKUNFT**

Question. The 2016 National Defense Authorization Act (NDAA) required all branches of the Armed Forces to implement a Blended Retirement System by January 1, 2018. A component of this system is "Continuation Pay," an incentive bonus to improve personnel retention. While the other Services have the benefit of funding Continuation Pay through a trust fund, the Coast Guard has no similar funding mechanism. As you know, I worked with Members of this Committee and the Armed Services Committee with the hope of achieving a one-time, permanent fix to the Coast Guard's funding predicament. We were successful in getting a short-term resolution in the 2018 NDAA; however, I know there are longer-term impacts. Could you explain, in operational terms, what the impacts are in the near-term and long-term if Congress doesn't legislate a permanent solution?

Answer. The Coast Guard is extremely thankful for the assistance that you and your staff provided with respect to implementation of the Blended Retirement System (BRS). Your commitment to providing the Coast Guard a legislative remedy to resource this new retirement system garnered widespread Congressional support and served as the impetus to bring numerous committees, staffs, and Members together on the issue.

Unfortunately, the short-term remedy delivered in the 2018 NDAA did not provide the Coast Guard relief to the challenges of implementing BRS Continuation Pay (CP) as it did not specifically authorize CP payment from the Service's Retired Pay mandatory appropriation. While we are very thankful for the legislative language that you drafted for the NDAA with respect to CP—a version that did authorize CP specifically from the Coast Guard's Retired Pay appropriation—the final NDAA language did not include such an authorization.

That being said, it was, without a doubt, your legislative efforts that served as the essential building block for the short-term remedy that was delivered in the FY18 Continuing Resolution (CR)—specific authorization to fund BRS CP from the Coast Guard's Retired Pay mandatory appropriation. Unfortunately, that authorization only lasts for the duration of the CR, so the Coast Guard still requires a permanent fix to the BRS funding predicament.

Absent such legislative reform, the Service will be forced to compete its CP retirement entitlement against operational funding levels—competition that will degrade our steady-state force profile and reduce our operational capabilities. In order to fund CP the Service may face one of the following trade-offs: a 2 percent reduction

in operational fuel funding, a 9 percent reduction in military accession and training programs, or a 0.1 percent reduction of the military force.

On 1 January 2018, the Coast Guard began implementing the new retirement system that may serve over 30,000 of our members. Thanks to your attention to this issue and the legislative remedy in the CR we have begun that implementation without flaw. To continue that success, we request your continued support to providing a permanent fix.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BILL NELSON TO
ADMIRAL PAUL F. ZUKUNFT

Question 1. Budget: The Coast Guard, one of the five armed services, continues to support combatant commanders and national defense missions, but the vast majority of your budget is categorized as non-defense discretionary spending. What must happen to properly categorize the Coast Guard's funding and align the Coast Guard's funding level with the Service's needs?

Answer. Since 2001, Congress has annually appropriated \$340 million to the Coast Guard's Operating Expenses (OE) appropriation for non-emergency, defense-related activities (*i.e.*, Function 050). In 2001, \$340 million accounted for approximately 9 percent of the Coast Guard's budget.

Despite our Service's enduring and increasing support to DOD Combatant Commanders and defense operations, the Coast Guard continues to receive only \$340 million today, which now accounts for 4 percent of the Coast Guard's budget.

According to the Coast Guard's Mission Cost Model, the Coast Guard expended \$842 million (not including personnel costs) in FY 2016 operating expenses (OE) on defense-related activities. This figure includes Coast Guard support to drug interdiction detection and monitoring in the transit zone. When the cost of personnel is included, this figure increases to \$1,828 million in FY 2016 operating expenses (OE).

Appropriations other than OE, including Acquisition, Construction, and Improvements (AC&I), Reserve Training (RT), and Research, Development, Test, and Evaluation (RDT&E) do not directly contribute to defense-related activities, but support these missions indirectly by contributing mission-ready assets and personnel. The estimate for these appropriations' indirect support to defense-related activities was \$845 million in FY 2016.

In total, the Coast Guard's annual support (including both direct and indirect) to defense-related activities is more than \$2.7 billion (including personnel costs), while our function 050 funding appropriation continues to be \$340 million.

Question 2. Maritime Industry Innovation: Natural and human-caused disruptions to ports and waterways can have cascading negative effects on national and economic security. How does the Coast Guard plan to keep pace with the maritime industry's push for innovation and the incorporation of emerging technologies without impeding the free flow of commerce?

Answer. The Coast Guard meets these challenges through the establishment of National Centers of Expertise, implementation of robust marine inspector qualification and training programs, improved management and oversight of key marine safety processes, and continued strong engagement with key industry segments.

In addition, the Coast Guard is developing a strategy to address a growing number of factors that threaten the uninterrupted flow of maritime commerce, such as the increasing complexity and accelerated pace of innovation by the maritime industry. The strategy will provide a framework that outlines the Coast Guard's vision over the next decade for sustaining America's maritime economic security.

Question 3. Infrastructure Damage: In the 2000s, the Coast Guard facility in Great Inagua, Bahamas suffered significant damage as a result of a hurricane. Subsequently, this facility was rebuilt to be more resilient to extreme weather. In this year's hurricane season, this facility only suffered minimal damage. In October, Rear Admirals Kelly and Bouboulis testified that the Coast Guard has over one billion dollars in shore infrastructure backlog comprised of nearly one hundred projects. Would this backlog figure (one billion dollars) rebuild and repair the Coast Guard's infrastructure to make it more resilient to extreme weather in the future?

Answer. The Coast Guard constructs shore infrastructure by incorporating the appropriate building "risk category" as part of the design process required by the American Society of Civil Engineers-Minimum Design Loads for Buildings and Other Structures (ASCE 7-series). Additionally, Coast Guard shore infrastructure is constructed in accordance with International building codes and local building codes when there are more stringent codes due to localized vulnerabilities to natural disasters.

Question 4. Hurricane Response: In response to the hurricanes, Coast Guard helicopters flew almost sixteen hundred hours, more than twice the number they would ordinarily fly. Coast Guard planes flew over fourteen hundred hours, almost double the number of hours any one plane would normally fly in a year. Similarly, Coast Guard inland river vessels have operated over six hundred hours beyond what they otherwise would have. How do these additional hours on Coast Guard aircraft and vessels impact the Service's operational capabilities going forward?

Answer. While the Coast Guard was able to respond to all of these disasters, this response has a cost. Operational missions, patrols, and training were canceled, additional unplanned hours and fatigue were incurred, and increased maintenance and repair was required. These operations have eroded our future readiness.

In response to this summer's hurricanes, the Coast Guard reprioritized its missions and minimized coverage in some areas of responsibility in order to surge operations and provide the appropriate response to affected regions of the Nation. To meet the hurricane response needs, the Coast Guard relocated aircraft from outside the impacted areas, resulting in reduced coverage in regions of the country not affected by the hurricanes. The surge operations and accelerated rate of hours flown during these extended operations stressed the aviation maintenance model, resulting in a higher than normal usage of sparing. This high operational tempo created a ripple effect throughout the aviation maintenance enterprise, potentially leading to a decrease in the operational availability of Coast Guard air assets in the near future, should spare parts levels not be returned to normal levels.

All classes of Coast Guard cutters, from our newest National Security Cutters and Fast Response Cutters, to our 50 year old inland river tenders responded to the 2017 hurricane season. These cutters and their crews evacuated citizens, delivered humanitarian supplies, conducted port and waterway surveys to reconstitute ports, maintained port and waterway infrastructure controls, and served as command and control in damaged areas. In particular, the post hurricane response of River Tenders and Construction Tenders highlight the need to recapitalize the capabilities essential for quick restoration of ports and waterways vital to maritime commerce. In order to quickly reopen ports and waterways following the hurricanes, the Coast Guard surged its Aids to Navigation cutters to the impacted areas, enabling the Marine Transportation System to resume economic activity and the safe navigation of mariners. Due to the hurricanes, unplanned maintenance and repairs required to restore and maintain vessels impacts our current year operating and repair budget and requires necessary and critical maintenance to be deferred.

Question 5. National Security Cutter: In December, the Coast Guard will christen its eighth national security cutter, the CGC MIDGETT. These ships are designed to be highly capable, multi-purpose successors to the Coast Guard's aging fleet of high endurance cutters, which are now over fifty years old. How would the Coast Guard characterize the performance of the NSCs so far and the Nation's return on investment as these vessels have begun performing their duties, particularly regarding drug enforcement, our national security concerns in the Western Hemisphere, and during hurricane response?

Answer. The NSC's advanced capabilities over WHECs and WMECs make the Coast Guard more able to accomplish its statutory missions related to drug enforcement and national security.

During Fiscal Year 2017, the NSC's return on investment included the seizure of more than 71 metric tons of cocaine and the detention of 228 suspected smugglers. Of those individuals detained, 197 were referred to the U.S. justice system for prosecution. Separately, NSCs directly contributed to more than 33 percent of all Coast Guard related cocaine removals and 33 percent of all smugglers referred to the United States for prosecution.

The NSC's capabilities are significantly better than the WHECs and WMECs that have previously accomplished Coast Guard statutory missions related to drug enforcement and national security.

For example, NSCs have more aircraft and cutter boat capability than a WHEC or a WMEC. The NSC has hangar space for two aircraft (versus one for the WHEC), and it embarks three cutter boats (versus two on the WHEC). The NSC also has increased surveillance and surface prosecution capabilities, contributing to extended reconnaissance range without compromising detection, improved interdiction capability, and enhanced ability to deploy boarding teams from the cutter. The increased stability and larger flight deck on the NSC allow for successful launching and recovery of aircraft during worse weather conditions than on the WHECs and WMECs.

The NSC's expanded capabilities also include a more sophisticated combat information system and a multi-mode radar, capable of tracking multiple surface and air targets simultaneously while minimizing sea clutter interference. These capabilities significantly improve the NSC's Maritime Domain Awareness (MDA). The NSC is

also the only Coast Guard cutter to maintain and operate an onboard Sensitive Compartmentalized Information Facility (SCIF) which allows the Coast Guard to exploit critical and timely information on-scene and exchange secure data with the national intelligence network, increasing the NSC's ability to interdict drug and human smuggling networks and investigate potential terrorist threats. These additional capabilities, as well as the weapons and decoy systems, improve interoperability with DoD and allied partners, and make the NSCs a vital part of Combatant Command planning and contingency operations efforts.

The NSC's expanded capabilities also allow the Coast Guard to get to an operational area faster (due to its more efficient propulsion plant) and to remain on station longer (up to 60 days versus 45 days with the WHEC). The NSCs expanded capabilities reduce the need for logistics stops to refuel, restock supplies, and offload waste, and they provide the Coast Guard more time to patrol in the high threat areas. Finally, the NSC is the first cutter equipped with a "Collective Protection System" for sustained operations (up to 36 hours) in a contaminated environment. This means that a NSC crew is better protected from an adversary's use of chemical or biological weapons.

During Hurricane Irma, Joint Inter-Agency Task Force South (JIATF-S) was forced to evacuate from Key West, FL. The Coast Guard Cutter JAMES (WMSL-754), a NSC, coordinated all aviation and surface assets in the Eastern Pacific for a week. CGC JAMES facilitated 61 drug interdiction cases while working with 11 partner nations, five interagency entities, 12 surface assets, and over 24 flight missions. This resulted in the interdiction of 10,881 kg of cocaine and 747 kg of marijuana. Later, CGC JAMES was directed to assume Commander Task Unit (CTU) Maria, serving as a floating command center to execute local hurricane relief efforts in Puerto Rico. As CTU Maria, JAMES established tactical control for 11 Coast Guard cutters leading a coordinated multi-agency response between DHS, DOD, and other partner agencies. As CTU Maria, CGC JAMES managed maritime-related disaster recovery efforts to include search and rescue coordination, critical port assessments, and humanitarian relief. The ability to support, and to a degree, replicate the daily operations of major land-based units like JIATF-S and Coast Guard Sector San Juan, while simultaneously conducting normal cutter operations showcases the exceptional command and control capabilities of the National Security Cutter.

Question 6. Coast Guard Aircraft: It seems as though the Coast Guard is continuously changing the type and quantity of aircraft assigned to its air stations and air facilities, leading me to wonder if there is an aircraft need that we (Congress) aren't hearing about. Does the Coast Guard have all the type and quantity of aviation resources that the Service needs to conduct its diverse missions and surge for incidents of national significance? And is the Coast Guard's aviation need higher now than it was five years ago?

Answer. The Coast Guard has seen an increased demand for Airborne Use of Force Counter Drug, Short Notice Maritime Response, deployable Rotary Wing Air Intercept, and Arctic aviation capability needed to protect the homeland, combat terrorism and transnational criminal organizations and provide search and rescue coverage for the Arctic.

The Coast Guard's aviation resources are in very high demand for all of our homeland security missions, but particularly during surge events and incidents of national significance. We continually seek to balance operational risk and achieve the greatest return from our finite resources, and will surge our resources and personnel from around the country to support our Nation in times of need.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. GARY PETERS TO
ADMIRAL PAUL F. ZUKUNFT

Question 1. Great Lakes Icebreaking Tugs: In an answer to my question at the hearing about what is being done to ensure the 140-icebreaking tug fleet is on track for recapitalization, the Commandant, Admiral Zukunft, stated that the Coast Guard wouldn't begin looking at recapitalization until 2030. That is twelve years away. It was previously stated that we only have approximately 5–6 years left for this fleet. This timeline does not line up. If the 140-foot fleet needs to be replaced in less than 10 years that would mean designs and appropriations need to be started as soon as possible. Please elaborate on the plan for ensuring that the Coast Guard will be able to support the Great Lakes icebreaking needs if the 140-foot fleet is not recapitalized until after 2030.

Answer. The Coast Guard WTGB 140' icebreakers are currently undergoing a Service Life Extension Program (SLEP). The SLEP began in 2014 and all cutters will have completed the extension by 2020. After SLEP, each cutter will have ap-

proximately 15 years of increased service life and is expected to provide service until the 2030s.

Question 2. R&D Dilbit Study: During the hearing Admiral Zukunft mentioned that the Coast Guard's R&D Center uses Ohmsett lab in Leonard, New Jersey, to test oil spill recovery equipment. According to Ohmsett's website, the Coast Guard used the lab last winter to conduct a diluted bitumen study to evaluate the performance capabilities and limitations using two different type skimmers while recovering diluted bitumen (dilbit) off of fresh water. Please provide the report from the Coast Guard's study conducted at Ohmsett lab in Leonard, NJ.

Answer. This report has not been finalized and is currently unavailable.

Question 3. R&D Dilbit Study: Skimmers typically remove oil most effectively from the water surface, but as we learned in the Kalamazoo Oil Spill in 2010, dilbit sinks in freshwater posing an additional challenge to clean-up. How did the study address this complication posed by dilbit and are technologies being developed to address clean-up of dilbit in freshwater systems?

Answer. The Ohmsett study focused on skimmer performance in recovering floating diluted bitumen in various weathered states. The diluted bitumen in the Kalamazoo spill sunk because it mixed with sediment. The Coast Guard is planning to perform additional research in 2018 on mitigation technology for that type of sunken diluted bitumen along lake and river bottoms.

Question 4. Great Lakes NCOE for Freshwater Oil Spill Response: The Coast Guard Authorization Act of 2017 includes the creation of a Center of Expertise to evaluate freshwater oil spill response. How would the Coast Guard satisfy the requirements and implement the National Center of Expertise for Fresh Water Oil Spill Response?

Answer. The Coast Guard Research and Development Center collaborates with other agencies and academia to identify the best methods for preventing, tracking, and removing oil from on, in, and under the ice in both salt and fresh water. The Research and Development Center is currently leading extensive research into fresh water oil spill response, including work through the Interagency Coordinating Committee on Oil Pollution Research to evaluate research options in the Great Lakes.

Question 5. Great Lakes NCOE for Freshwater Oil Spill Response: My understanding is that Coast Guard Centers of Expertise have minimal collaborations with other agencies and outside research institutions and primarily serve to bring together resources and expertise within the Coast Guard. Title 14 of the U.S. Code section 58 subsection c provides for "Joint Operation with Educational Institution Authorized" by allowing the Commandant to "enter into an agreement with an appropriate official of an institution of higher education to—(1) provide for joint operation of a center; and (2) provide necessary administrative services for a center, including administration and allocation of funds." How would the Coast Guard implement and develop collaborations with research institutions and other agencies in developing a Center of Expertise for freshwater oil spill response?

Answer. The Coast Guard continues to research the best methods for oil spill prevention, detection, and clean-up in both salt and fresh water under a wide range of conditions. The Coast Guard partners with DHS S&T on a number of projects directed at detecting and mapping oil on, in, and under ice. Additionally, the Coast Guard coordinates interagency and academia efforts in this area through the Interagency Coordinating Committee on Oil Pollution Research.

Question 6. MH-60 Benefits: Air Station Traverse City recently transitioned from MH-65s (Dolphins) to MH-60s (Jayhawks), marking the first time since the early 1990s that a MH-60 was stationed in the Great Lakes region. I understand that this transition allows for a longer-range, ice-capable aircraft for search and rescue operations on the Great Lakes and the aircraft has an increased payload in order to assist in other missions. Has the Coast Guard considered transitioning the entire rotary wing fleet to MH-60s since they may be the better asset for the majority of Coast Guard missions?

Answer. The Coast Guard conducts rotary wing operations across a diverse environmental and mission spectrum. Cold weather and longer range offshore operations are well suited for MH-60 aircraft while near-shore coastal and shipboard operations can be conducted with MH-65 aircraft. Transitioning to a homogenous fleet of MH-60 aircraft would offer gains in maintenance, spare parts inventories and standardization for aircrews, but would carry up front acquisition and higher overall lifecycle costs. Since the early 1990s, the Coast Guard has operated a mixed fleet of H-65/H-60 helicopters and have been able to fully integrate nationwide operations to save thousands of lives during daily operations as well as natural disasters such as Hurricane Katrina and Harvey. Increased transit zone operations and special missions such as Rotary Wing Air Intercept (RWAI) has required the Coast

Guard to make adjustments in force laydown such as the conversion of Air Station Traverse City from MH-65s to MH-60s.

Question 7. Electronic Health Records: I understand that currently the Coast Guard's 41,700 active duty members still use paper health records, while the Department of Defense is already implementing electronic health records. Why does DoD have this benefit available to its members, but Coast Guard does not?

Answer. The Coast Guard is currently pursuing an electronic health record for its active duty members through the required acquisition process.

Question 8. Electronic Health Records: What are the inefficiencies associated with not having electronic records?

Answer. The inefficiencies associated with not having electronic health records include: increased time to manage paper records, difficulty searching within paper records for information, increased time of patient encounters, increased time to schedule appointments; and difficulty understanding population health trends.

Question 9. Electronic Health Records: What is the Coast Guard doing to move forward with electronic health records?

Answer. The Coast Guard is following established processes in its pursuit of an electronic health record. Currently, we are in the Analyze & Select Phase of the Coast Guard Non-Major Acquisition Process.

Question 10. Personnel Well-Being: In support of all three hurricanes, the Coast Guard mobilized over 2,900 personnel, including over 2,000 active duty, almost 800 reservists, and 150 civilians. I understand Coast Guard aircraft flew almost double the total programmed annual hours, and the Inland River Tender Fleet operated well over their programmed hours as well. What is the Coast Guard doing to ensure that its members are getting the proper rest and the training time that they need—especially during a situation like we have had recently with three major hurricanes back-to-back?

Answer. The Coast Guard constructs shore infrastructure by incorporating the appropriate building “risk category” as part of the design process required by the American Society of Civil Engineers-Minimum Design Loads for Buildings and Other Structures (ASCE 7-series). Additionally, Coast Guard shore infrastructure is constructed in accordance with International building codes and local building codes when there are more stringent codes due to localized vulnerabilities to natural disasters.

Question 11. Bench Strength: In your written testimony, you mentioned your bench strength is not what it needs to be in order to sustain operations, like the hurricane response, for an extended period of time. What are you doing to increase that bench strength?

Answer. The Coast Guard continues to hone its manpower requirements and analysis processes to build and maintain a more proficient, diverse, and adaptable workforce—one ready to respond to changing technology, an increasingly complex operating environment, and dynamic partnerships.

First, leveraging the Commandant’s strategic guidance, statutory authorities and mission objectives, the Service is building a Force Planning Construct (FPC) as the foundation for resourcing and allocation decisions at both the strategic and operational levels. The FPC will inform and justify the size and shape of the force needed to execute all Coast Guard missions and strategies.

Preliminary, FPC analysis has focused on steady-state operations across the Coast Guard and indicates that the Service is challenged to meet daily mission demands. In fact, preliminary results support the need for at least 6,100 additional personnel to tackle assigned missions (~5,000 active duty and 1,100 reservists). As we refine the FPC through additional testing and validation and incorporate the needs of major contingency operations and heightened maritime security requirements, our “bench strength” estimate may change.

Second, our Manpower Requirements Determination (MRD) Division builds upon the mission demands identified by the Force Planning Construct and ultimately defines the manpower needed for Coast Guard units to effectively execute their assigned missions. This process transforms mission requirements into manpower requirements using a repeatable, defendable, process built on industrial engineering principles to define both the number of personnel and the necessary mix of skills for the positions required.

Finally, the Coast Guard has focused its human resource efforts towards attracting, training, and retaining the workforce of tomorrow. Through increased recruiting, improved retention policies, and member incentives, the Coast Guard has seen active duty military “bench strength” grow.

Question 12. Reserve Force: The Coast Guard Reserve has been a force multiplier tool in the past and reservists have played a critical role in significant events, like the recent hurricanes, Superstorm Sandy, and *Deepwater Horizon*. As a former Navy reservist, I am a firm believer that the reserve component is critical to any service. How does the Coast Guard's reserve force compare to other reserve forces?

Answer. Unlike DoD reserve forces, the Coast Guard Reserve performs both national defense missions under Title 10 authorities and domestic contingency operations under Title 14 authorities. Approximately one fourth of the Reserve force is assigned to CG Port Security Units—which primarily support our defense readiness mission requirements—and the remaining three fourths of the Reserve force are comprised of individuals more closely aligned with the active component. This augmentation provides the Coast Guard flexibility and increased capacity for domestic contingency and operational surges.

Question 13. Reserve Force: Is the Coast Guard's reserve force where it should be with regards to membership and training to be able to support in the areas needed, specifically for emergency management for events like hurricanes, oil spills, or terrorists' attacks?

Answer. The Coast Guard is currently reviewing all its personnel requirements through an integrated Force Planning construct—a multi-faceted approach that codifies manpower requirements for the entire workforce. This analysis is on-going; however, preliminary results show we have a workforce deficit of at least 1,100 beyond our authorized strength (7,000).

Question 14. Reserve Force: If the Coast Guard's reserve force is not where it should be as far as numbers and training, please describe the plan for meeting this need.

Answer. While we maximize every opportunity that we have, the Coast Guard faces several distinct challenges in growing the Reserve Component. First, all military components compete for a limited pool of qualified candidates and this competition has only increased over time. We make every attempt to entice members departing the active service into the Reserve component. Second, providing competitive financial incentives to members interested in the Reserve force is always difficult in constrained budget environments. Finally, we continue to seek the proper alignment of our recruiting centers, training facilities, and Reserve unit locations to align our force with available populations of candidates.

Question 15. Cyber-Security: Cyber-attacks unfortunately are on the rise, but knowing this should give organizations the ability to prepare. Managing cyber risks will continue to be an ongoing effort requiring time and attention for all Federal agencies. I understand the Coast Guard has implemented a new cyber protection team. Please provide a summary overview of the Coast Guard's Cyber Protection Team—what is its role and how will it reinforce the Coast Guard's readiness posture?

Answer. The mission of the Coast Guard's Cyber Protection Team (CPT) is to survey, defend, secure and protect networks supporting DOD and Coast Guard critical infrastructure. The CPT will be organized, trained, equipped and assessed to joint standards of the DoD Cyber Mission Force. The planned CPT consists of a command element and six squads (totaling 39 members) trained in Defensive Cyber Operations (DCO). The Coast Guard CPT currently consists of one initial squad which is embedded with the DHS National Cybersecurity and Communications Integration Center's (NCCIC) Hunt and Incident Response Team. Once fully manned, the CPT will reinforce the defense posture of the Coast Guard's Cybersecurity Service Provider and may deploy in support of regional Sector Commanders in the event of a Cyber incident to the Marine Transportation System.

Question 16. Cyber-Security: I understand that funds dedicated to improving your cyber security program had to be diverted to hurricane response efforts. Can you elaborate to the extent that this will impact your cyber security program?

Answer. The Coast Guard's Cybersecurity program continued to be funded during hurricane response efforts. However, the Coast Guard was forced to make numerous other tradeoffs in order to fund hurricane response operations. For example:

- Cutter maintenance was either cancelled or curtailed: CGC MOHAWK was pulled from a dockside maintenance, patches were welded over holes and she sailed without her anchors; CGC HAMILTON's Tailored Shipboard Training Availability and CGC OAK's maintenance periods were cancelled.
- To pay for the cost of our response, the Coast Guard was forced to defer multiple contracts. For example, we did not award a \$7 million contract to procure 19 Response Boat Small, with potential future readiness implications.

Question 17. Resiliency: You have identified over \$650 million in needs to restore infrastructure readiness from the impact of Harvey and Irma, and are still assessing and evaluating the units impacted by Maria. I understand that in the aftermath of Hurricane Ike in 2008, Station Sabine, Texas and the OPBAT Great Inagua, Bahamas hangar were rebuilt to withstand a Category 3 hurricane and as a result suffered no damage from Harvey or Irma. What is the Coast Guard doing to ensure that other infrastructure being rebuilt or built new will also be resilient?

Answer. The Coast Guard constructs shore infrastructure by incorporating the appropriate building “risk category” as part of the design process required by the American Society of Civil Engineers-Minimum Design Loads for Buildings and Other Structures (ASCE 7-series). Additionally, Coast Guard shore infrastructure is constructed in accordance with International building codes and local building codes when there are more stringent codes due to localized vulnerabilities to natural disasters.

Question 18. Impacts from Hurricanes on Coast Guard: We heard that there is great need for repairs to Coast Guard infrastructure that was hit by the hurricanes, and also for the backlog of previously deferred maintenance. These back-to-back hurricane responses changed things up quite a bit for the Coast Guard for several months, and still continues to. I imagine this has strained units. What were/are the costs associated with operational missions, patrols, and training courses that were cancelled? (not just quantitative data, but the qualitative data as well).

Answer. The Coast Guard's surge of assets and personnel in response to these hurricanes impacted operations and eroded future readiness. In order to respond, the Coast Guard reduced maritime security operations, including: reduced port security patrols and escorts, reduced counterdrug operations, temporary closure of Operations Bahamas and Turks and Caicos, and a thirty day suspension of Atlantic Area cutter deployments to the Eastern Pacific Ocean Area. The Coast Guard also reduced maritime safety operations, including: temporary closure of Coast Guard Air Facilities Charleston and Waukegan, temporary closure of Coast Guard Stations Two Rivers and Washington Island, postponed maintenance for aids to navigation, canceled or curtailed cutter maintenance, and canceled all flight training at Aviation Training Center Mobile for two weeks.

The Coast Guard typically provides coverage to support Joint Interagency Task Force South missions. During the response to these hurricanes, coverage for these missions was reduced. A dockside availability for CGC MOHAWK was interrupted, and she sailed with patches welded over holes and without her anchors. CGC HAMILTON's Tailored Shipboard Training Availability and CGC OAK's maintenance period were canceled.

Question 19. Readiness: If \$30M is to come from the Depot Maintenance account, but Coast Guard assets require more depot maintenance due to increased operations from the hurricanes, how will this impact the Coast Guard's depot level maintenance?

Answer. The loss of \$30 million in the Depot Maintenance account will place strain on maintenance accounts that are already experiencing funding shortfalls. The loss of funding will directly impact the supply inventory for both aircraft and surface assets. Additionally, the increased funding shortfall will delay equipment overhauls, repair of inventory parts, and large maintenance projects for surface assets such as dry-dock availabilities.

Question 20. Readiness: How does this impact Coast Guard readiness?

Answer. Coast Guard readiness will be impacted by creating high risk that casualties will render assets not mission ready for future operations. A reduction in parts/supply inventory, delaying large maintenance projects, and running equipment longer than planned intervals increases the risk of unplanned maintenance and equipment failures.

Question 21. Readiness: Are there any equipment needs or equipment that needs replacement due to the hurricanes?

Answer. The Coast Guard expended parts, equipment, and assets during the 2017 hurricane season that require replacement and repair. Some examples include: replacement of a capsized 26' Trailerable Aids to Navigation Boat (TANB), replacement of damaged MH-60T tail rotor blades, repair of damaged mobile boat hoists, repairs to damaged 55' Aids to Navigation boat and a Special Purpose Craft-Airboat (SPC-AIR), and replacement of punt boats.

Question 22. Readiness: Are there any equipment needs that would have improved the hurricane response efforts?

Answer. Like the other Armed Forces, the Coast Guard has experienced a significant deterioration in readiness, and our aging assets are in dire need of restoration and recapitalization. While the Coast Guard was able to respond to all of these dis-

asters, this response had a cost and has eroded future readiness. Operational missions, patrols, and training were cancelled, additional unplanned hours and fatigue was incurred and increased maintenance and repair was required.

Question 23. E-ATON: To date, the Coast Guard has deployed 336 synthetic ATON and 51 Virtual ATON across all nine districts. Prior to Hurricane Irma's landfall, the Coast Guard established over 300 electronic Aids to Navigation (eATON) around critical U.S. waterways including Key West, Tampa and up the eastern shore to Charleston, South Carolina. I understand these navigation aids augmented Coast Guard Buoy Tenders and Aids to Navigations Teams post landfall as the teams worked to reconstitute buoys and beacons. Then mariners equipped with an Automatic Identification System (AIS) or electronic charting system were able to capture information from the Coast Guard's Nationwide AIS to acquire the information on the eATONs. This helped get ports back up and running. What percentage of the ATON in the Great Lakes are e-ATON or virtual buoys?

Answer. 69 of 2,481 AtoN, or approximately three percent, in the Great Lakes are e-AtoN.

Question 24. E-ATON: Are there plans for using e-ATON or virtual buoys for the entire Coast Guard ATON mission, and specifically for the Great Lakes where ice can have a significant impact on ATON? What is the plan?

Answer. There are no plans to use E-AtoN for the entire Coast Guard AtoN mission. In the Great Lakes, the Coast Guard is examining and has plans to use E-AtoN where ice poses significant impact to a physical buoy. For example, during the 2017–2018 winter season, the Coast Guard plans to use e-AtoN to augment 30 buoys that historically have been seasonally replaced by less conspicuous winter buoys, and it plans to use E-AtoN to augment 29 buoys that historically have been seasonally withdrawn.

Question 25. E-ATON: If not, why not?

Answer. E-AtoN is intended to augment the physical AtoN constellation, similar to how land-based navigators use GPS in their cell phones to augment the physical constellation of road and highways signs. Additionally, unlike E-AtoN, physical AtoN has no cyber risk.

Question 26. Communications: The Coast Guard responded to thousands of citizens in distress during the recent hurricanes. During Hurricane Harvey, 911 centers had such a large volume of calls, many individuals could not get through. Even when the Coast Guard posted multiple numbers on their social media accounts for the public to use, that did not stop individuals from using social media to report "mayday" notifications to the Coast Guard. I understand that is not the typical procedure for Coast Guard's social media platforms. But seeing the need, you set up an impromptu center in Washington, D.C. with over 65 members assigned to field search and rescue calls from social media. What is being done to ensure that in the future, the public has a better way to contact and communicate with the Coast Guard when phone lines are not available?

Answer. The Coast Guard's ability to adapt and respond to phone calls and social media pleas for assistance was critical to the success of the response to the 2017 hurricanes. During hurricane response operations, the Coast Guard rapidly developed interim policy guidance and a technical solution for operational commands to utilize social media websites from certain Coast Guard computers to support search and rescue operations. The Coast Guard is currently developing a permanent policy, along with tactics, techniques, and procedures, for the use of social media during the prosecution of search and rescue cases. The Coast Guard is currently examining lessons learned from the 2017 hurricane season operational requirements.

Question 27. Autonomous Vessels: Autonomous vessels might not be something that the U.S. is ready for, but it is a technology that is starting to be explored around the world, and even here in the U.S. How will the Coast Guard ensure the safety and security of our waters and ports if, and more likely, when autonomous boats begin to conduct research, collect data, clean up oil, and eventually transport goods and personnel?

Answer. The Coast Guard has broad statutory authorities to inspect commercial vessels, credential mariners, manage navigable waterways, and protect maritime security. This breadth of authority, used in concert with ample regulatory discretion, provides the Coast Guard with the flexibility to mitigate risks associated with emerging technologies integral to autonomous vessel operations. Coast Guard Sector Commanders are uniquely positioned to coordinate with all stakeholders to ensure the continued safety, security, and resiliency of the marine transportation system while supporting the industry's expanding use of autonomous technologies. The Coast Guard is currently working with international and domestic stakeholders to

develop standards that address these technologies, to protect economic prosperity without compromising safety, security, or environmental protection.

**RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
ADMIRAL PAUL F. ZUKUNFT**

Question 1. 52' Motor Lifeboats: The Coast Guard operates 52-foot Special Purpose Heavy Weather boats on the large coastal bars of Washington and Oregon. These boats were purpose built for the Pacific Northwest, and are rapidly approaching the end of their service life. Even at 60 years old, 52's fill an essential role ensuring the safety of Pacific Northwest mariners, as well as the Coast Guard members operating in the heavy surf environment. What specific steps is the Coast Guard taking to ensure we do not lose the unique 52-foot motor lifeboat capability in the Pacific Northwest?

Answer. The Coast Guard is currently focused on executing a Service Life Extension Program (SLEP) for the 47 foot Motor Lifeboat (47 MLB) fleet. The 47 MLBs conduct the vast majority of SAR in surf and heavy weather conditions throughout the nation, and are approaching the end of their projected service lives. The SLEP will replace the engines and other major components, and is expected to extend the MLB's service life by an additional 20 years.

Question 2. 52' Motor Lifeboats: I am concerned that without a viable replacement vessel for the 52's, Coast Guard surf stations will not be able to meet a number of missions, including search and rescue of distal fishing fleets off of Washington and Oregon. For example, could the Coast Guard respond to an albacore vessel in distress 150 miles offshore with a surface asset? If so, does that capability include the ability to bring back the vessel, as well as the mariners in a safe and timely manner? Specifically, could the Coast Guard still effect a tow, on a breaking bar, of a 250 gross ton trawler without the 52-footers?

Answer. The Coast Guard maintains capability to respond to persons in distress offshore via both aviation and surface assets. The primary focus of Search and Rescue (SAR) is saving the lives of mariners in distress, with a secondary focus on saving property. Any decision to tow a vessel back to port would be made in accordance with the Coast Guard Maritime SAR Assistance Policy and would be based on a careful balance of risk versus return. Currently only the 52' Motor Lifeboat is capable of towing vessels displacing 250 tons across a breaking bar.

Question 3. 52' Motor Lifeboats: Maintaining the four 60 year old 52's is becoming a serious engineering and financial challenge. How can the Congress work with the Coast Guard to accelerate the acquisition timeline for replacement vessels for the 52-foot motor lifeboats?

Answer. The Coast Guard is currently focused on executing a Service Life Extension Program (SLEP) for the 47 foot Motor Lifeboat (47 MLB) fleet. The 47 MLBs conduct the vast majority of SAR in surf and heavy weather conditions throughout the nation, and are approaching the end of their projected service lives. The SLEP will replace the engines and other major components, and is expected to extend the MLB's service life by an additional 20 years.

Question 4. 52' Motor Lifeboats: Should the four 52-footers be replaced in-kind, or are there efficiencies to be realized by building additional boats with the 52's capability?

Answer. A fleet mix analysis of the current and potential future assets would need to be conducted to determine how many boats would be required at any given location.

Question 5. 52' Motor Lifeboats: Due to the superior performance of the 52's, should the Coast Guard consider replacing the 47-foot Motor Lifeboats at Stations Grays Harbor, Cape Disappointment, Yaquina Bay, Coos Bay and the National Motor Lifeboat School with a more capable 52-foot replacement?

Answer. The 47 foot MLB meets all operational requirements for these stations. If a determination is made that a replacement boat is required for the 52 foot MLB, the Coast Guard would ensure the asset all of the mission requirements for those units.

Question 6. 52' Motor Lifeboats: Would this reduce the training burden on the stations by eliminating the need to learn two different boats?

Answer. Yes, the training required to attain and maintain proficiency in multiple boat types is greater than for a single boat type.

Question 7. 52' Motor Lifeboats: There are approximately only 200 surfmen in the entire Coast Guard and only an estimated 50 of those members are certified to operate the 52-foot motor lifeboat. The Coast Guard Motor Lifeboat School at Cape Dis-

appointment, Washington does not have a 52-foot motor lifeboat to use as a training platform. What is the Coast Guard doing to ensure enough surfmen are trained and proficient to safely operate and handle the 52-foot motor lifeboat?

Answer. The Coast Guard Motor Lifeboat School provides instruction pertaining to the skills and knowledge needed to operate a heavy weather and/or surf capable boat in those conditions. The Coast Guard Motor Lifeboat School does not qualify or certify students on the 47 MLB. Specific boat type training, qualification, and certification on the Coast Guard's surf-capable boats occur at the individual stations. The Coast Guard is in the process of reviewing its Prospective Surfman Program to ensure that it adequately supports the needs of the service.

Question 8. Combat Related Special Compensation (CRSC): I secured an amendment to the Coast Guard Authorization Act of 2015 (Public Law No: 114-120) to require the Coast Guard to implement the Combat Related Special Compensation benefits in the same manner as the Department of Defense branches. In February 2017, I began discussions with the Coast Guard due to concerns that the Combat Related Special Compensation pay benefit was being improperly calculated. In July of 2017, at my request, the Coast Guard conducted an internal audit of the Combat Related Special Compensation program. The audit found that 69 retired Coast Guard members were being underpaid their Combat Related benefits due to an accounting error. More than 4 months have lapsed since this error was detected and I understand from Coast Guard veterans that this error has not been fully addressed. What is the Coast Guard's timeline correcting this error? Please answer this question in terms of notification of members, audits required versus completed, correcting the benefit for future payments, and delivering back pay to which these members rightfully earned and deserve.

Answer. The Coast Guard has positively identified 61 retirees being impacted by the Combat Related Special Compensation (CRSC) law change. The Coast Guard (CG) is currently auditing these cases and expects to have all cases completed by April 2018. Each retiree will be notified as we complete their case by memo that addresses the underpayment and the amount they are due.

The CG is working on multiple updates to Direct Access one of which is an update to Global Payroll which calculates retiree pay. The memo that each affected retiree receives will inform them that until this system change is tested and implemented (expected by summer 2018) the CG will be manually crediting them the amount they are owed each month. After the system change is in place the payroll system will automatically calculate their retired pay and no further crediting will be needed.

Question 9. Combat Related Special Compensation (CRSC): How will the Coast Guard ensure this error in calculating Combat Related Special Compensation benefit payments will not reoccur?

Answer. The Coast Guard will thoroughly test the system change when it is put in place to validate that CRSC is being properly calculated.

Question 10. Combat Related Special Compensation (CRSC): It is important that Coast Guard members are well versed at the beginning of their careers on Combat Related Special Compensation benefits. I am concerned that the Coast Guard is not doing enough to educate young Coast Guardsmen and women who are just entering the service. How will the Coast Guard improve its outreach and education to members who are beginning their careers?

Answer. The Coast Guard has utilized multiple venues as opportunities to educate members on CRSC.

- On the CG Disability Evaluations Branch and Pay Center websites information and resource links have been imbedded.
- The Disability Evaluations Branch Ombudsman has been instructed to discuss CRSC with every members going through the disability process.
- A dedicated CRSC trifold has been developed and distributed throughout the medical and operational communities that provided awareness by highlighting the clarifying criteria of CGAA 2015, how to apply for CRSC, and providing pertinent resources and points of contact.
- A training module was developed to be included in Transition Assistance Program (TAP) classes that are conducted in coordination with the Department of Veterans Affairs. It discusses eligibility requirements and exceptions, elections when a member is entitled to both CRSC and Concurrent Retirement and Disability Pay (CRDP) and refers members to their branch of service for more information, etc.
- Force Readiness Command provides a monthly training news letter to all units in the Coast Guard. Preparations are underway for an upcoming issue that will

highlight CRSC, when it may apply, and the importance of documenting injuries properly when they occur.

Question 11. Combat Related Special Compensation (CRSC): Has the Coast Guard considered integrating training on Combat Related Special Compensation pay during Coast Guard accession points such as enlisted basic training, Officer Candidate School, or the Coast Guard Academy? Why or why not? What tools, resources, and funding would the Coast Guard need to execute this integration?

Answer. Consideration is being given on how to best implement the addition of a standardized training module on Combat Related Special Compensation into indoctrination programs at all accession points (Enlisted Basic Training, Officer Candidate School, Direct Commission Officer and the Coast Guard Academy). Due to the rigid structure of the boot camp curriculum changes must be carefully considered for impact and efficacy. Officer accession sources may provide more flexibility and a better venue for this information in regards to accession sources.

This information is being included in the CG Command Cadre course materials for unit Commanders and Executive Officers (who are typically the designated unit medical officers). Command awareness of CRSC will promote reporting and proper documentation for injuries that occur during all operational events.

The need for additional resources to complete this task are not known at this time, but is expected to be minimal.

Question 12. Combat Related Special Compensation (CRSC): Has the Coast Guard considered conducting an analysis to best target specific rates and career fields where additional emphasis and training on Combat Related Special Compensation is appropriate? Additionally, have focal point trainings such as flight school, surf school, dive school, or rescue swimmer school been considered as opportunities to conduct refresher training on Combat Related Special Compensation? Why or Why not? What tools, resources, and funding would the Coast Guard need to execute the analysis and integration of Combat Related Special Compensation in the programs mentioned above?

Answer. An addition to A-school curriculum is likely the best venue for our junior enlisted workforce. The historical breakdown of CRSC benefits by specialty indicate a relatively even rate of 1 percent across all ratings and specialties. There is a common leadership module in the curriculum of all A-schools where CRSC could logically be included. The Coast Guard will work on a standardized information module for Combat Related Special Compensation to include in all A-Schools. The need for additional resources to complete this task are not known at this time, but is expected to be minimal.

Question 13. Combat Related Special Compensation (CRSC): Has the Coast Guard considered developing a web-based training for Combat Related Special Compensation? Why or why not? What tools, resources, and funding would the Coast Guard need to develop and implement a web based training program?

Answer. Like most of the Coast Guard's training, the curriculum development and fielding of web based training undergoes a standard analysis, evaluation, development, and approval process. The Coast Guard will add CRSC to the list of proposed web based training courses for evaluation. Additional funding may be required for development and implementation of this proposal.

Question 14. Combat Related Special Compensation (CRSC): What outreach has the Coast Guard conducted to Coast Guard medical providers and clinic administrators regarding Combat Related Special Compensation benefits? If the Coast Guard is conducting outreach to these members and staff, does that include charting, communication strategies with patients, and the importance of charting incidents? If the Coast Guard is not conducting outreach or training to these members and staff, when will the Coast Guard develop a training and outreach program for medical professionals?

Answer. The Coast Guard provides annual training to medical providers and clinic administrators on Combat Related Special Compensation benefits. The training involves the importance of charting the nexus and history of injuries or illnesses to include the missions that could qualify for CRSC.

Question 15. Combat Related Special Compensation (CRSC): The Coast Guard has increased outreach to its retiree population with regard to Combat Related Special Compensation pay, however more can be done. What other steps will the Coast Guard take to ensure Coast Guard members eligible for Combat Related Special Compensation will have the information they need to secure this benefit? How is the Coast Guard partnering with the Department of Veterans Affairs to improve member education, outreach and training on this issue?

Answer. The Coast Guard will continue to publish Combat Related Special Compensation articles in each Retiree Newsletter. The Coast Guard partners with the Department of Veterans Affairs in presenting TAP. During TAP, a training module on Combat Related Special Compensation is presented.

Question 16. Oil Spill Prevention in Puget Sound: During the March 2017 Ocean, Atmosphere, Fisheries, and Coast Guard Subcommittee hearing on the “State of the Coast Guard: Ensuring Military, National Security, and Enforcement Capability and Readiness,” you stated that the Coast Guard had “modest” funding in its Research and Development budget for oil spill response and that it is one of your highest priorities to remove spilled tar sands oil once spilled. What resources and funding does the Coast Guard need to support research and technology development to be better prepared to prevent and more effectively respond to a tar sands oil spill?

Answer. The Coast Guard chairs the Interagency Coordinating Committee on Oil Pollution Research (ICCOPR). ICCOPR coordinates oil spill research and is comprised of multiple partners, including Federal agency, industry, international, state, and academic institutions. Together, these components advance the body of knowledge to increase marine environmental response capabilities and address known research gaps. Additionally, the Coast Guard Research and Development Center (R&DC) is examining innovations in prevention and response capabilities for spills involving oil sands. This project began in 2014 and is expected to continue through July 2019. It is funded through an allocation from the Oil Spill Liability Trust Fund.

Question 17. Oil Spill Prevention in Puget Sound: What can the Coast Guard do now with its current resources and funding to better boost its oil spill response capabilities?

Answer. As the vast majority of spill response is conducted by Oil Spill Response Organizations (OSROs), the Coast Guard’s best mechanism for improving oil spill response capabilities is through policy development and coordination with international and domestic stakeholders. The Coast Guard is committed to ensuring that adequate response capabilities exist to respond to oil spills in the coastal zone. A longstanding model of international spill planning and cooperation, the Canada-United States Joint Marine Contingency Plan (JCP) marks its 43rd anniversary in 2017. The JCP has guided the Canadian Coast Guard (CCG) and United States Coast Guard (USCG) in an ongoing collaborative approach to spill response and preparedness. Additionally, the Coast Guard directs Area Committees, comprised of Federal, state, local, and Tribal organizations. The Area Committees develop and exercise Area Contingency Plans which address the removal of a worst case discharge and mitigate or prevent substantial threats of discharges in U.S. coastal zones.

Question 18. Oil Spill Prevention in Puget Sound: In October, Coast Guard Sector Puget hosted the first Ports and Waterways Safety Assessment workshop in Washington state since 2002. This workshop was comprised of more than 80 maritime and waterway community users, stakeholders and representatives from Canada, the State of Washington, Coast Salish Tribe and indigenous peoples. What is the timeline for the final report to be produced and made available to the public?

Answer. The Coast Guard expects to release the Puget Sound Ports and Waterways Safety Assessment (PAWSA) workshop report in early-2018.

Question 19. Oil Spill Prevention in Puget Sound: What are the core recommendations identified by the Ports and Waterways Safety Assessment workshop?

Answer. The Puget Sound PAWSA workshop did not result in any actionable recommendations other than to reconvene in another forum to continue the discussion on ways to enhance navigation safety in the Salish Sea.

Question 20. Oil Spill Prevention in Puget Sound: What resources and funding does the Coast Guard need move forward and implement the recommendations from the Ports and Waterways Safety Assessment?

Answer. The Coast Guard has not identified a need for additional resources or funding for this assessment.

Question 21. E-Medical Records: As you know I have been a vocal advocate in ensuring Coast Guard members receive equivalent benefits, healthcare, and services as the other military branches. When the Coast Guard terminated its contract with Epic citing significant risks and irregularities our office immediately engaged on the issue, requested to be briefed on the best pathway forward, and offered the Coast Guard legislative assistance. The Coast Guard has administrative tools and authorities at its disposal to move forward with awarding a contract for development of an electronic health record system that is seamless integrated with the Department of Defense’s system. What is the Coast Guard’s plan and status for moving through

an administrative process to award a contract for development of an electronic health record system?

Answer. The Coast Guard is following established processes in its pursuit of an electronic health record. Currently, we are in the Analyze & Select Phase of the Coast Guard Non-Major Acquisition Process.

Question 22. E-Medical Records: As the Coast Guard moves through the administrative process to award a contract for the development of an electronic health record system, what is the Coast Guard's forecasted timeline from award of a contract to full transition to an electronic health record system?

Answer. The Coast Guard's forecasted timeline from contract award to full transition to an electronic health record system is approximately three years.

Question 23. E-Medical Records: I understand that in 2019 U.S. Military Entrance Processing Command (USMEPCOM) will fully transition to a 100 percent electronic health records based system. Does the Coast Guard have a plan to ensure that new service members entering the Coast Guard will have seamless coverage and integration of the medical records?

Answer. Yes. Recruits will be responsible for hand carrying paper copies of their health records to boot camp. These paper health records will be integrated into their Coast Guard paper health records at the training center.

Question 24. E-Medical Records: Does the Coast Guard expect to have an electronic health record system in place by USMEPCOM's transition date?

Answer. No. The Coast Guard is following established processes in its pursuit of an electronic health record. Currently, we are in the Analyze & Select Phase of the Coast Guard Non-Major Acquisition Process.

Question 25. E-Medical Records: What is the Coast Guard's contingency plan in the event the service will not have an electronic health record system in place by the transition date?

Answer. The Coast Guard will continue to use paper records until an electronic health record system is in place.

Question 26. Childcare: Access to childcare in remote locations places an unnecessary burden on Coast Guard families living and serving in these communities. What specific steps can be taken to address access to childcare challenges for members stationed at remote Coast Guard stations, such as Coast Guard Station Neah Bay? Has the Coast Guard conducted a nationwide assessment of childcare needs for members? Why or why not? What would the Coast Guard need from Congress to conduct such an assessment?

Answer. Ensuring the Coast Guard workforce has adequate access to programs to provide family support is a high priority for me.

Since not all locations offer the same childcare options, Coast Guard families are encouraged to explore all available childcare options prior to finalizing a decision.

The last national assessment of childcare was conducted in Fiscal Year 2004.

The President has recently signed the Fiscal Year 2018 Omnibus Appropriations Act which directs the Coast Guard to conduct and report on the results of a survey regarding cost and availability of child care. Approximately \$500K would enable the survey execution to be expedited.

Upon completion of the directed survey, the Coast Guard will be better suited to determine what level of additional funding may be needed to increase access to childcare services.

Question 27. Access to Medical Care: Coast Guard members and families serving in remote locations often face additional burdens when accessing healthcare providers. For example, many families at Station Grays Harbor must drive hours to receive care as far away as Olympia, Washington, which is about an hour and a half away. Families in Neah Bay often travel to Port Angeles (1 hour and 40 minutes), or to Bremerton (3 hours 10 minutes) to receive care. This often includes members and dependents seeking OB/GYN care, which is a particular need in the region. What is the Coast Guard doing to assess healthcare access for members and dependents in remote locations?

Answer. Access to healthcare for all members and dependents is a high priority for the Coast Guard. Healthcare access for members and families assigned to remote location units is discussed during quarterly patient advisory committee meetings. Additionally, the Coast Guard has increased education on TRICARE accessibility via public affairs communication action plans such as blogs, message traffic, flag notes, etc.

Question 28. Access to Medical Care: What can the Coast Guard do to improve healthcare access for members and families stationed at remote locations?

Answer. The Coast Guard works with the Defense Health Agency (DHA) in identifying remote locations where TRICARE Prime Remote is the appropriate designation for members and their families. The Coast Guard also works with the TRICARE Contractor to improve the network where problems are identified.

Question 29. Access to Medical Care: There is an urgent care clinic in Neah Bay that currently doesn't accept TRICARE. Has the Coast Guard engaged with TRICARE to attempt to secure TRICARE coverage for families stationed in Neah Bay at a local facility? Why or why not?

Answer. The Coast Guard is unaware of any access to care issues in Neah Bay at this time. We will investigate further.

Question 30. Access to Medical Care: Access to behavioral health providers is also particularly challenging in remote locations. What is the Coast Guard doing to improve access to behavioral healthcare for members and dependents in remote locations?

Answer. The Coast Guard interacts with the TRICARE contractor to ensure mental health services are available to all beneficiaries. When services are not available, the Coast Guard engages with TRICARE to strengthen that provider network.

Question 31. Access to Medical Care: Has the Coast Guard increased the availability for family members to access telemedicine for behavioral health needs?

Answer. Family members receive care via DoD or TRICARE providers. DOD has a robust telemedicine program for beneficiaries.

Question 32. Access to Medical Care: Has the Coast Guard considered staffing models for Coast Guard clinics where behavioral health professionals could work part time, or rotate between facilities to ensure access to care?

Answer. Mental health professionals, both uniform and contracted, are assigned to Coast Guard units based on expressed need. As need is discovered, mental health professionals are sent to other units on occasion. Coast Guard mental health professionals see only active duty members. Dependents receive their care via DoD or TRICARE providers.

Question 33. Access to Medical Care: I am concerned that Coast Guard Sector Astoria only has a part-time flight surgeon, because the surgeon is split between Astoria and Coos Bay. How long has this staffing model been in effect?

Answer. The Coast Guard unit in Astoria has been receiving full coverage from Coast Guard physicians travelling to that unit. No Coast Guard units in Coos Bay or nearby have been negatively impacted.

Question 34. Access to Medical Care: What is the Coast Guard doing to ensure consistent access to care for members stationed at either facility, instead of interrupted care?

Answer. The Coast Guard is continuing to work directly with DHA and TRICARE to strengthen the provider network in those areas.

Question 35. Natural Disaster Preparedness for Tsunamis: In Grays Harbor, the Coast Guard Station and Coast Guard family housing, is located in the inundation zone for a Cascadia Subduction Zone earthquake-generated tsunami. In the event of a tsunami, there is a vertical evacuation structure located at an elementary school in the area, but it is too far for Coast Guard members and dependents to access in the event of an emergency. Has the Coast Guard considered additional tsunami resilience planning and infrastructure for Station Grays Harbor?

Answer. The Coast Guard acknowledges that tsunami inundation is a recognized vulnerability for Station Grays Harbor and the Coast Guard family housing in Grays Harbor and will incorporate tsunami resiliency planning into any future infrastructure projects located there.

Question 36. What can the Congress do to support vertical evacuation infrastructure access for Coast Guard members and families in the region?

Answer. As Coast Guard infrastructure is planned for recapitalization, resiliency to withstand natural disasters is a planning consideration which is factored into the facility design. Continued Congressional support for Coast Guard shore infrastructure projects will promote resiliency to withstand damage from natural disasters and ensure response operations.

**RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BRIAN SCHATZ TO
ADMIRAL PAUL F. ZUKUNFT**

Question 1. What is the timeline for replacing the C-130 Hercules at Barbers Point with the newer, more capable C-130Js?

Answer. The Coast Guard anticipates replacing the HC-130H aircraft at Air Station Barbers Point with HC-130J's in 2022.

Question 2. Is there a plan to invest in new facilities at Barbers Point so that we can do the daily maintenance on those aircraft and protect them from the salt water environment?

Answer. The Coast Guard is currently assessing the need to construct a new hangar facility at Barbers Point. To assist with corrosion prevention, the Coast Guard recently installed an aircraft rinse rack.

Question 3. And what plans do you have to improve the installation power at Barbers Point, since assured power is critical to all of the air station's operations?

Answer. The Coast Guard received a FY 2016 appropriation that includes funding for a new electrical distribution system to supply Air Station Barbers Point with a dependable electrical power supply. The project will replace the deteriorated Navy-owned distribution system and ensure compliance with national electrical distribution and utility systems.

**RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. GARY PETERS TO
ETTA KUZAKIN**

Question 1. What is the longest amount of time someone has waited for a medevac out of King Cove?

Answer. There have been a number of times when medevacs, either by air or water, could not happen for days. I believe the longest time has been four days. In that situation the person needing to be medevaced died. I have attached our list of deaths that have occurred as a result of our notorious bad weather and access problems in reaching the Cold Bay Airport. In particular, note deaths 6, 7, 8, 10, and 11.

Question 2. How do you think your experience would have been different if the road had been there?

Answer. A road to the Cold Bay Airport from my home in King Cove would have eliminated the incredible STRESS and CONFUSION that I, my husband/family, clinic providers and staff had to endure for the many hours while a safe means of getting me to the Cold Bay Airport for my medevac flight from there to Anchorage. It was an experience that I hope nobody else in my community ever has to go through again, but until we get this road connection we are always going to be susceptible to these situations.

Question 3. Where is the Coast Guard Air Station located that sends its crews to your community for medical evacuations?

Answer. It depends on the time of the year and some luck. During the winter fishing season in the Bering Sea (primarily crab), the USCG station in Kodiak (about 300 miles east of King Cove) has a temporary/seasonal base of operation in Cold Bay (about 25 miles north of King Cove). In my particular situation, the USCG crew and helicopter that day were about 200 miles north of Cold Bay in the Bering Sea. Once it was determined that my only option was going to be a USCG rescue, the helicopter and crew up in the Bering Sea on that day came into King Cove in some very nasty weather. Some of the USCG medevacs have even come from its District 17 headquarters in Juneau, which is 600 miles east of King Cove across the Gulf of Alaska.

Question 4. How long does it take them to arrive?

Answer. From Cold Bay it takes about 15–20 minutes, from Kodiak 3 hours, and Juneau 5–6 hours. The daily weather and visibility also have an impact on these times.

**RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. GARY PETERS TO
DR. GUY MEADOWS**

Question 1. Line 5 Risk Analysis: During the hearing, you mentioned that nine Michigan universities are participating in the team that will conduct the risk analysis for Line 5. What universities are part of the team? Can you outline the timeline for the risk analysis study?

Answer. Michigan Technological University has been working diligently since September 18, 2017, when the Michigan Pipeline Safety Advisory Board (PSAB) unanimously recommended that Michigan Tech lead state universities in a risk analysis of the Line 5 Straits pipelines. At this time, a formal contract between Michigan Tech and the State of Michigan has not yet been executed. Barring any unforeseen changes, the risk analysis team will comprise 41 researchers, 21 from Michigan Tech and 20 from external organizations. Nine universities are contributing experts to the analysis, and seven of those nine are within the state of Michigan. They include Michigan Tech, the University of Michigan, Michigan State University, Wayne State University, Western Michigan University, Grand Valley State University, and Oakland University. The two out-of-state universities are North Dakota State University and Loyola University Chicago. Three researchers on the project are from consulting organizations, and two are independent contractors. Two other contributors, both from the National Oceanic and Atmospheric Administration (NOAA) Great Lakes Environmental Research Laboratory, will donate their time and services. Meadows will serve as project lead, with the team organized into nine sections based on the State's published scope of work: <https://mipetroleumpipelines.com/document/risk-analysis-final-rfp>. Each section will have a section leader, a chief scientist and at least two section authors. In addition to the nine sections, a "broader impacts" team will provide a comprehensive overview of risks that various affected communities perceive in connection with the Straits pipelines. Affected groups include indigenous communities; local, state, Federal and Canadian government officials; environmental and historic preservation groups; and tourism, fishing and recreation industries. The risk analysis team will use Michigan Tech's high-performance computing cluster to run high-resolution hydrodynamic models for Lakes Michigan and Huron to predict the fate and transport of worse-case spills. Researchers will also develop a multi-layer, web-based geographic information system (GIS) portal to accumulate output from each team. This portal will be made available to the State upon completion of the risk analysis to serve as a rapid response resource inventory.

The proposed timeline for the risk analysis is the following:

- Dec. 1—Full pre-proposal for an Independent Risk Analysis was submitted to State of Michigan for review and feedback
- Dec. 11—Meadows presentation to PSAB (Lansing, MI)
- Dec. 15—Feedback expected from PSAB and State Technical Team to be incorporated into final proposal to SOM
- December—State and Michigan Tech enter into contract
- Jan. 2—Project start
- May—Delivery of Draft Risk Analysis
- June—Public presentation of Draft Report
- June/July—Public comment period 30 days
- July/August—Respond to public and State input
- Aug. 30—Delivery of Final Report

Question 2. Pipeline inspections: The recent reports of coating damage at 42 of 48 locations inspected with divers along Line 5 deeply concerns me. Clearly, conducting inspections with remote operating vehicles is not sufficient to ensure the integrity of the pipeline and its protective coatings.

What can be done to improve the technology for pipeline inspection capabilities? Do the conditions at the Straits of Mackinac—at over 100 feet deep with potentially strong currents—affect the effectiveness of current technologies?

And are divers—in-person observations—the only way we can ensure the integrity of the coatings protecting underwater pipelines such as Line 5?

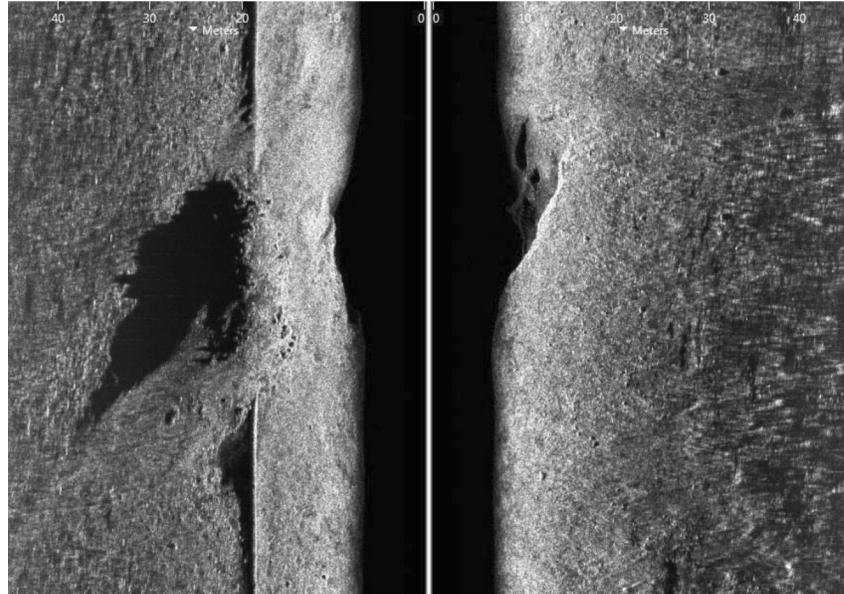
Answer. There are currently two technologies that have been employed to complete external inspections of the Line 5 pipelines beneath the Straits of Mackinac. Remotely Operated Vehicle (ROV) inspections have been conducted by Enbridge and others, and Autonomous Underwater Vehicle (AUV) inspections of the pipeline and the surrounding underwater terrain have been conducted by Michigan Technological

University, under a research contract to develop this technology supported by Enbridge.

ROV inspections allow detailed video camera views (and recordings) of the pipeline to be made as the remotely operated vehicle is navigated along the pipeline. With a skilled operator, almost any view obtainable by a human diver, can be obtained and recorded remotely, including observation of coating integrity. Although time consuming, this is a very productive method by which to obtain detailed video of the condition of the exterior of the pipeline. Several Michigan commercial firms have both the expertise and equipment to perform this type of detailed pipeline inspection in the Straits. Michigan Tech, operates two such ROVs capable of operations to 1,000 feet of water depth, equipped with multiple video cameras, articulated arm, lights, and sonar. See adjacent photo.

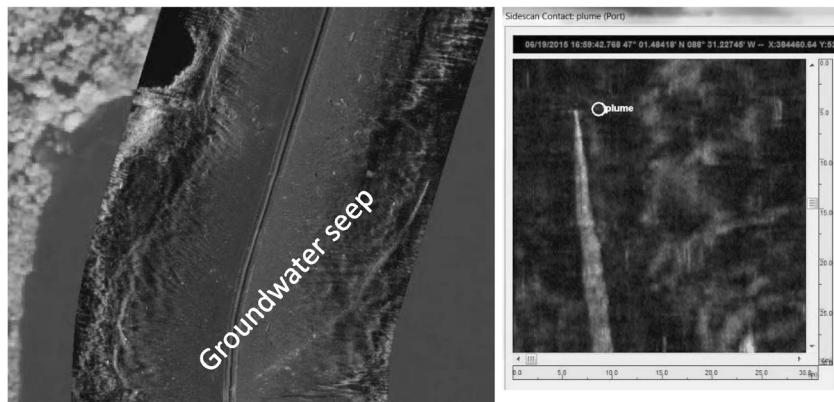


AUV methodologies to inspect the pipeline and the surrounding underwater terrain have been developed and conducted by Michigan Technological University. These consist of “flying” the AUV under fully autonomous control, at a prescribed elevation above the bottom (typically five meters, following the terrain) and at a prescribed horizontal offset from the pipeline (typically 15 meters) to place the pipeline in the field of view of the imaging, side-scan sonar system. This configuration allows large regions of the pipeline and surrounding underwater landscape (sea-scape) to be viewed. This technique does not provide an “inspection” of the pipeline and its associated coating, but does provide details of regions of the bottom that are either eroding or depositing sediment, and hence, details on the pipeline span lengths being supported. Attached below is an example of a high-resolution, side-scan sonar image of a section of the Line 5 pipeline beneath the Straits of Mackinac, acquired by Michigan Tech’s IVER3 AUV. The pipeline is the long linear feature on the left side of the image (at 18 meters from the dark center directly beneath the AUV), passing under a mound of bottom sediment.



The technology to acquire such images and to produce precise measurements of the unsupported span lengths, developed by Michigan Tech, has been transferred to Enbridge and their commercial contractors for ongoing implementation.

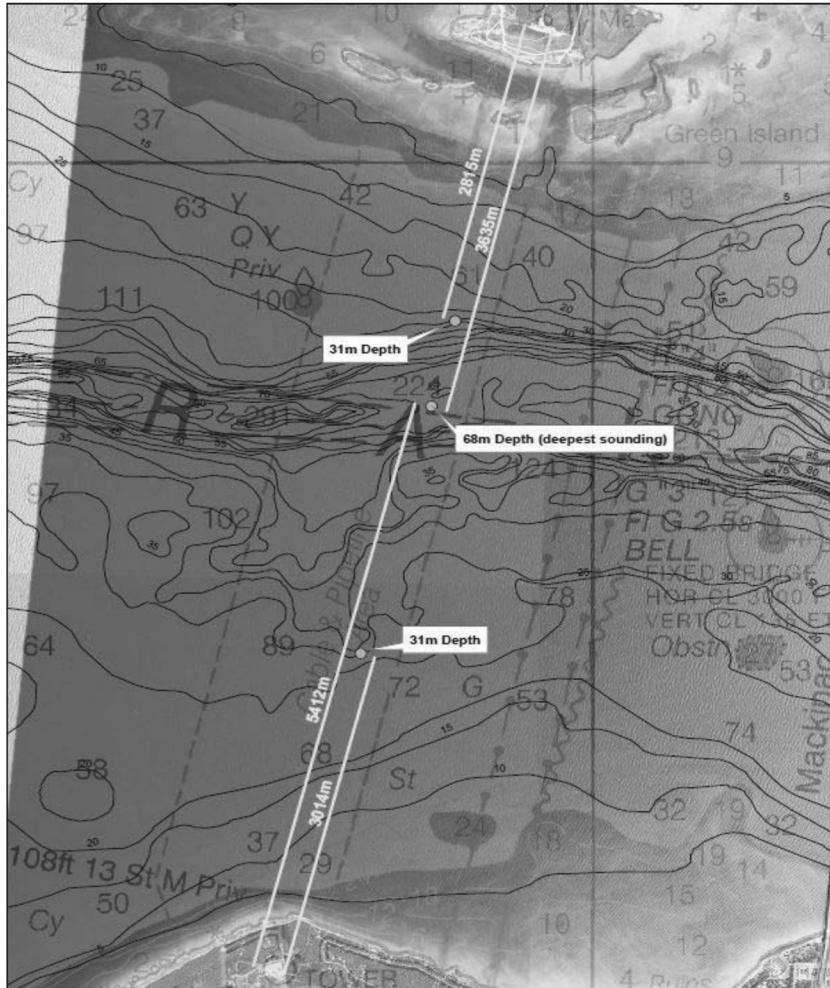
In addition, with these advanced, high resolution, acoustic images it is also possible to detect underwater plumes. The following pair of images was acquired in shallow water of a ground water plume seeping out from the bottom. Give the acoustic contrast between oil and water, there is no doubt that a seep of oil would also be detectable with these systems.



Future improvement of these technologies is always possible. The Straits offer a challenging environment within which to make such detailed observations/measurements due to the strength and constant changes of near bottom currents. Direct measurements of currents from either Michigan Tech's surface buoy or from our proposed bottom mounted, underwater cabled observatories, has and will continue to greatly improve the forecasting of bottom current conditions. We are seeking research funds to continue development of these new technologies for implementation in the Straits of Mackinac. Under present conditions, the strength of currents on the bottom of the Straits do at times exceed the capabilities of AUV sensing and navigation systems.

Michigan Tech, originally at the request of Enbridge and more recently at the request of the State of Michigan, has developed a plan for bottom-mounted, underwater cabled observatories to provide 24/7, all season monitoring of waves, currents and ice keel depth from the bottom looking upward. This plan involves placement so three such installations across the Straits of Mackinac, either in the vicinity of the Line 5 pipelines or supported by the pylons of the Mackinac Bridge, or both. With such a system, power to the instrumentation is supplied by underwater cables from shore and real-time data is transmitted back, providing instantaneous and continuous monitoring of the flows, waves, and ice depth. Underwater cables will be selected to have the capability to support a wide array of other, additional instrumentation such as live video, hydrocarbon sensors, water quality sensors, etc. A schematic of this proposed installation is provided below. Michigan Tech has previously developed and deployed an underwater/under-ice cabled observatory and operated it beneath the ice continuously for four months during the harsh winter of 2014–15 (see: <http://www.mtu.edu/news/stories/2015/january/michigan-tech-deploys-under-ice-research-instruments-frozen-portage-waterway.html>). The “Tech Observatory” is pictured to the right, along with a view from the live-to-the-internet, underwater, video camera from the observatory (left).





Estimated costs for the above system are approximately \$500,000 for instrumentation and cables and approximately \$100,000/year for Operation and Maintenance. These estimates do not include the costs of cable laying, but do include the cost of armored, underwater, high-capacity data and power cables, capable of supporting the additional instrumentation outlined above (including live video).

Question 3. New pipeline agreement: The Governor of Michigan and Enbridge signed an agreement to explore alternative options for Line 5 at the Straits of Mackinac, halt pipeline operations if severe weather hits the current-churned stretch of water that separates Lakes Michigan and Huron, and improve monitoring and reporting on Line 5.

How will this agreement influence the conditions considered in the risk analysis?

Will the alternatives proposed by the agreement between the state of Michigan and Enbridge and the potential risks they pose be considered in the risk analysis that you are leading?

Is shutting down the lines if waves reach 8 feet or more for more than 60 minutes adequate to reducing the risk of a spill incident?

Are there other severe conditions, such as significant ice cover, that also would merit a shut down due to restricted response capabilities that such conditions pose?

Answer. To adequately answer these questions, I would like to provide some relevant background information.

In 2010, Michigan experienced the largest inland oil spill in U.S. history when a pipeline known as Line 6B burst and spilled heavy crude into a tributary of the Kalamazoo River. To prevent future accidents of this nature, the State formed a multi-agency task force called the Michigan Petroleum Pipeline Task Force. The task force issued a report in 2015 that made 13 recommendations, including the commissioning of an independent risk analysis for the Straits Pipelines portion of Line 5, two parallel 20-inch pipelines that run for 4.5 miles beneath the Straits of Mackinac. Line 5 is owned by Enbridge.

In recommending the commission of an independent risk analysis, the task force said the State of Michigan should 1) require Enbridge to pay for (but not control) an expert analysis of the potential liability from a worst-case scenario spill, and 2) require Enbridge to then maintain an adequate financial assurance mechanism to cover liability for all damages or losses to public and private property. The State has the authority to do this under a 1953 easement that granted permission for the pipelines' construction.

If the State engages Michigan Tech to lead the independent risk analysis, the underlying premise of our work is that the "worst case" has already occurred. The task is to define the magnitude and extent of this spill and to assemble the total costs of that disaster. At this point in time, it is difficult to say what influence, if any, the recently signed agreement between the State of Michigan and Enbridge will have in making those determinations.

While it is difficult at this time in the process to evaluate the adequacy of the November 27 agreement between the State and Enbridge, I do believe the agreement is a positive step forward. The line can now be shut down quickly when necessary. In fact, just recently—on December 5—Line 5 was shut down temporarily when waves reached the limit of eight feet. The waves ultimately exceeded nine feet that day. Not long after, further action was taken by the PSAB to recommend to further reduce the wave-height criteria.

I do want to point out here that the eight-foot wave criteria is based on the ability of clean-up equipment to skim oil. It is *not* based on reducing the risk of damage to the pipeline.

Regarding other severe conditions that might merit a shutdown of the pipeline, I prefer to leave those determinations to the PSAB, from which I resigned earlier this year in order to undertake the independent risk analysis.

Question 4. Collaboration with the Coast Guard: As you know, the worst inland oil spill in U.S. history occurred in Michigan in 2010. The Kalamazoo River was devastated by this event with clean-up costs exceeding \$1 billion. The Coast Guard Research and Development Center has done a great deal to improve technologies to respond to oil spill response. Some of these transfer well from the oceans to the Great Lakes, but not all, and the Coast Guard Commandant has stated that the Coast Guard does not have the resources or research in the Great Lakes to respond to a freshwater oil spill.

How much have you worked and collaborated with the Coast Guard R&D center?

Answer. Prior to joining Michigan Tech in 2012, I have had extensive collaborations with the USCG while at the University of Michigan, both in graduate education of USCG offices at the MSE level and with the Marine Safety and R&D branches of the USCG. Since arrive at Tech, our operations in the Straits, including AUV operations above the pipelines and environmental monitoring buoy operations, are all closely coordinated through and with USCG Sector Soo. Initially at the request of Enbridge and later at the request of the State of Michigan and Senator Peters' office, I have developed plans for a Center of Excellence on Oil in Freshwater. A summary is provided in the two slides below:

Center of Excellence: Oil and Freshwater Goals

- **Prevention**
 - The primary overarching goal of all parties involved, is to prevent the introduction of oil into freshwater. This requires advanced engineering, planning, human dimensions and decision making and understanding of the dynamic environment in which we work.
- **Emergency Response**
 - Should an accident occur, a well conceived, well planned and well executed instantaneous response is imperative. This will involve the highest and most effective technology available, deployed in the most efficient and rapid way possible.
- **Mitigation**
 - In the aftermath, the process and actions required to return the environment to full ecological function in the broadest sense, must be undertaken. This plan, expectations, and time scales must be honestly, effectively and rapidly communicated to those affected and they must be part of the solution.
- **Education and Outreach**
 - Effective Communication of Risk demands: Accept and involve the public as a legitimate partner; Plan carefully and evaluate your efforts; Listen to the public's specific concerns; Be honest, frank and open; Coordinate and collaborate with other credible sources; Meet the needs of the media; Speak clearly and with compassion.



Center of Excellence: Oil and Freshwater Areas of Focus

- Aquatic Ecology and Ecosystem Dynamics
 - The interaction of oil with the aquatic and coastal environments
- Marine Technology and Engineering
 - Advanced technology for prevention, emergency response and mitigation of oil in freshwater environments for all seasons
- Resources and Human Dimensions
 - The interaction of petroleum providers with stakeholders, communication and perception of risk, prevention and mitigation
- Education and Outreach
 - Developing a shared vision for a future of collaborative problem solving and developing the next generation workforce at all levels



Question 5. Oil spill response in ice: There were many challenges associated with cleaning up oil from a spill under ice in the Yellowstone River, including not only finding the oil, but the lack of stability of the ice. In your testimony, you highlight the potential for advanced technologies to improve oil spill response in ice.

What can be done to improve our ability to respond to oil when ice is present?

So far, technologies to skim oil in ice conditions have not proved as effective as hoped.

What can improve our technology to recover oil in ice?

What research are you currently conducting that could improve response?

Answer. Oil with Ice is a very tough problem both in salt and to an even greater extent in water. Fresh water produces ice at a higher temperature and in some conditions to a greater extent than does seawater. To my knowledge there are no present, large scale, operational technologies to extract oil from within ice, on ice,

or under ice. More and very recent information is available from the Arctic Response Technology website at: arcticresponsetechnology.org, and from their recent final report entitled “Detection of Oil On-In-and-Under Ice—Final Report 5.3,” at: <http://www.arcticresponsetechnology.org/wp-content/uploads/2016/06/Remote-Sensing-Report-Final.pdf>.

Remote sensing, however, of oil and ice is possible. We have proposed to NOAA on several occasions (all without funding success) to install oil sensing radars at the Straits of Mackinac. The Norwegians in the North Sea have taken the detection, tracking and clean-up of oil from petroleum exploration and production platforms very seriously. With work that has been led by Michigan Technological University’s, Michigan Tech Research Institute (MTRI) in Ann Arbor, they have equipped oil platforms with oil detection and tracking radar units. The towers of the Mackinac Bridge are ideal for such a similar installation. It is important to note that this remote sensing technology, also directly measures, in real-time, surface water currents important for fate and transport estimates of spills, directing cleanup operations and for detection with ice present.

MTRI has also teamed with AKELA Inc., to utilize a highly portable, wide-band, bistatic radar, operating from 300–3,000 MHz, to detect oil in or under sea ice, freshwater ice, and snow. The primary hypothesis is that a wide-band, bistatic data collection at penetrating radar frequencies provides sufficient measurement diversity to produce radar imagery with sufficient spatial resolution to reliably detect oil pockets/layers in an inhomogeneous ice/snow background. Practical field collection of wide-band bistatic data is feasible due to the recently development of a field-portable AKELA radar system to support Department of Defense (DoD) efforts to detect buried explosive hazards. The prototype system is lightweight, very portable, and can operate on the ice or snow surface, from a sled, ship, or other vehicle, or even potentially an Unmanned Aerial System (UAS). The system is relatively low cost; thus, many units could be constructed and deployed at oil spill recovery sites throughout the globe.

Question 6. Unmanned surface vessels: You mention that unmanned surface vessels are currently being used in conjunction with geophysical survey ships in the Gulf of Mexico and offshore of the Alaska coastline.

How do these unmanned surface vessels work?

What are the capabilities and benefits of these unmanned surface vessels?

Answer. Michigan Tech, through a collaboration with MTRI, and I were early developers of Autonomous Surface Vessels (ASVs) for use in surveying lakes of the Alaskan North Slope, used by the oil exploration industry. These ASVs were purposefully designed to be small (fit on your lap in a helicopter) for easy deployment on very remote bodies of water. Based on this experience, NOAA asked us to organize and conduct a recent national level workshop on new advances of ASVs to meet NOAA’s needs. This workshop was held in November 2015 at Solomons, Maryland, and was attended by approximately 40 representatives from government, natural resources managers, academics, and manufacturers of ASVs. The workshop report is available at: http://www.act-us.info/Download/Workshops/2015/CBL_Autonomous_Surface/files/assets/basic-html/page-1.html#

The current “state of the art” in ASV technology is quite advanced. These vessels can work either totally unattended or under “supervised autonomy,” under the watchful eye of an operator on an adjacent vessel. In either case, the ASV knows and understands the “rules of the road,” can sense other vessel approaching and alter its course accordingly, conduct a wide variety of missions without human intervention (including placing oil booms and monitoring the location and spread of spilled oil). Michigan Tech currently has a pending proposal before the National Science Foundation (NSF) to be the first university to operate an ASV as a fully autonomous research vessel. We have chosen the ASV Global, Co-Worker 5 to be a shared use asset across Great Lakes universities. This vessel, pictured below working off the coast of Alaska for the oil industry, is 5.5 meters in length (18 feet), can be transported down the road on a trailer behind a pick-up truck, can work up to five days, 24 hours a day. As indicated by our ASV Workshop report, these unmanned vessels are best utilized to perform duties that are dull, dirty and/or dangerous to human crews. The cost of such an advanced ASV is approximately \$1million.



RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. ROGER F. WICKER TO
LEE W. SMITHSON

Question 1. Post Katrina, can you talk about the measures Mississippi has put in place to improve communication between state and local officials to ensure that the resources available are effectively utilized?

Answer. Since Hurricane Katrina in 2005, Mississippi has developed the Mississippi Wireless Integrated Network (MSWIN) that is truly the best in the Nation. This system is fully interoperable and has coverage of over 97 percent of the state. The system is reliable, redundant and hardened to withstand windspeeds of more than 160 mph. Thanks to the concerted efforts of our congressional delegation, more than \$400 million was invested by the Federal Government to build this system. The system was first tested in the summer of 2010 during the *Deepwater Horizon* oil spill. It proved capable of linking responders at the local level to state and even Federal responders. It is used daily by more than 35,000 responders.

In addition to building a state of the art system, Mississippi has also improved its procedures for exchanging information during a crisis. We have implemented a process that defines critical information and when and to whom that information is sent. We have implemented a virtual situation room that allows local leaders as well as state leadership to access critical information via computer anywhere at any time. This “one stop shop” consolidates information and makes it readily available to all responders and stakeholders.

Question 2. FEMA administers the Hazard Mitigation Grant Program, the Flood Mitigation Assistance Program and the Disaster Mitigation Program to provide state and local governments with funding mechanisms to build resiliency against disasters. Given the numerous recent hurricanes experienced along the Gulf Coast, can you comment on the importance of these programs and the benefits they have had for local communities?

Answer. Without the Hazard Mitigation Grant Program, it is doubtful Mississippi would have recovered as well as we have from Hurricane Katrina’s devastation. Since 2006, MEMA has managed more than \$340 million in mitigation projects ranging from safe rooms to flood mitigation projects to public awareness campaigns. In October 2017, Hurricane Nate made landfall as a Category One storm. While there was widespread damage, the gulf coast returned to normal operations with schools, businesses and government offices open less than 48 hours after landfall. There were no injuries or loss of life. This resiliency is due exclusively to the investment in mitigation efforts made by the local, state and Federal governments in the decade since Katrina.

Question 3. Through your extensive experience on disaster response during incidents such as Hurricane Katrina, *Deepwater Horizon*, Hurricane Nate and numerous others, you have personally witnessed response efforts that were both effective and ineffective. From a Federal perspective, the U.S. Coast Guard’s ability to pro-

vide adequate resources is critical in any major disaster relief effort. As you mentioned in your testimony, Hurricane Nate is one example of a well coordinated preparedness and response effort across multiple entities.

As the Coast Guard's resources are strained with competing demands from different mission sets and simultaneous operations, what would be the effects on a community undergoing a major natural disaster if the Coast Guard were not able to provide a surge in manpower and resources?

Answer. The U.S. Coast Guard has become an integral partner in preparedness and response. From the Gulf Coast to the Mississippi River, the Coast Guard provides outstanding support to Mississippi every day. As evidenced during the search and rescue in Houston, TX after Hurricane Harvey, the capabilities brought to a response by the Coast Guard cannot be replicated by other agencies. No agency has the ability to do aerial search and rescue like the Coast Guard. Without the ability to surge manpower and resources after a disaster, the simple truth is that people will die. It is imperative that the U.S. Coast Guard be fully funded and continue its close partnership with the states it serves.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. GARY PETERS TO
LEE W. SMITHSON

Question 1. Coast Guard and EOCs: You mention in your written statement that it would be ideal for Coast Guard members to be assigned to state emergency operations centers on a daily basis, not just during large scale emergencies.

During emergencies they have a very clear role, can you elaborate on what their regular role would be if they were assigned to the centers as a tour of assignment?

Answer. One of the many missions given the U.S. Coast Guard is to maintain our Nation's navigable waterways. The Mississippi River is a crucial part of the U.S. economy and makes up Mississippi's entire western border. There are navigation incidents almost daily on the Mississippi River that require local and state responses. The daily presence of a U.S. Coast Guard member in the State Emergency Operations Center would allow for instantaneous communication and collaboration with our Federal partners to ensure the waterways stay open and to respond to incidents that could require a large-scale response, such as a hazardous material release. Further, having a U.S. Coast Guard member in the operations center would be very beneficial in the exchange of intelligence pertaining to the security of the ports throughout the state. The Mississippi Intelligence and Analysis Center (Fusion Center) is located within the Mississippi Emergency Management Agency and has intelligence analysts from numerous state and local agencies including the Mississippi Bureau of Investigation, Mississippi Bureau of Narcotics, and the Hinds County Sheriff's Office. Additionally, the Center has a Department of Homeland Security intelligence analyst. The addition of a Coast Guard member would greatly benefit the intelligence gathering, analysis and dissemination statewide and with our Federal partners.

Question 2. Would they mostly be standing by in case of emergency or do you envision a larger role for them within the emergency operation centers?

Answer. A larger role. The Coast Guard member would be sending and receiving reports daily from the numerous Coast Guard Sectors that cover Mississippi. The presence of a Coast Guard member would also provide in-depth collaboration in operations management activities. A Coast Guard member would bring skill sets to the operations center that are not ordinarily present. The diverse training and real-world experiences of a typical mid-grade Coast Guard officer would greatly benefit the operations center. The interagency collaboration that a Coast Guard member would participate in would also greatly benefit the Coast Guard and would enhance the servicemember's career.

Question 3. In 2010, as my home state of Michigan was facing the Kalamazoo River oil spill, you were facing the *Deepwater Horizon* oil spill that devastated the Gulf of Mexico. Can you expand on the unified approach and how that was realized as the way forward for *Deepwater Horizon*?

Answer. Since the terrorist attacks in 2001, federal, state and local responders are required to follow the National Incident Management System (NIMS), as defined by the National Response Framework. NIMS is a comprehensive, national approach to incident management that is applicable at all jurisdictional levels and across functional disciplines. It is intended to be applicable across a full spectrum of potential incidents, hazards, and impacts, regardless of size, location or complexity. Additionally, it is designed to improve coordination and cooperation between public and private entities in a variety of incident management activities. Lastly, it provides a common standard for overall incident management. In the first 20 days of response

to the *Deepwater Horizon* oil spill, the Coast Guard's mindset was that they were in charge and the assets, experience and dedication of state and local responders were ignored. This led to a disorganized response and created significant issues in deploying assets to detect and clean up oil in the Mississippi Sound. The utilization of boom material was critical. Yet the Coast Guard initially did not consider the requests for deployment of boom material by the local officials. However, it was the locals who were familiar with the coast's marshlands, oyster reefs and other sensitive environmental areas. Further, when National Guard helicopter flights detected degraded booms, the Coast Guard would take the reports and wait until the day after the reports were provided to develop a response. This led to further boom degradation. Also, the Mississippi Air National Guard had a fixed wing plane that had Forward Looking Infra-Red (FLIR) that was capable of detecting oil both during daylight and night time hours. The aircraft's sensors could also detect submerged oil. The Mississippi National Guard submitted numerous requests to have the Coast Guard approve the use of this aircraft. However, approval was not granted until the 20th of May, a full month after the well exploded. Once the aircraft was fully deployed, Admiral Zunkunft called it "a game changer" and "worth its weight in gold".

It was only after then Governor Haley Barbour met with senior Coast Guard officials did the Coast Guard admit that response efforts were slowed due to poor communication with state and local officials. The Coast Guard agreed to establish an operations center in Gulfport, MS and collaborate with Mississippi's lead agencies including, the Department of Marine Resources, Department of Environmental Quality and the National Guard. When a unified approach was utilized, the responses to oil found in the Mississippi Sound were streamlined and expedited. The Coast Guard began operating on Mississippi's statewide interoperable radio system which was instrumental in getting manpower and equipment where it was needed. The Coast Guard members in the Mississippi operations center were exceptionally professional and dedicated to the mission. By the end of May 2010, the interagency collaboration and cooperation was exceptional and the partnership with both the Coast Guard and BP was exemplary. Mississippi formed the Vessels of Opportunity (VOO) taskforce, which was charged with locating and cleaning up oil. The Coast Guard was responsible for deploying the VOO taskforce. Once the interagency collaboration began, the success of the VOO taskforce grew exponentially. The reason is that National Guard helicopters would locate oil and immediately radio the VOO taskforce commanders using the statewide radio system. This allowed for instantaneous response to oil in the Sound and allowed for the oil to be skimmed. Prior to the collaboration between VOO and NG helicopters, the amount of oil cleaned up in the sound was negligible. Former U.S. Representative Gene Taylor referred to the VOO taskforce as "a bunch of boats patrolling the Gulf with absolutely no clue". Once the vessels integrated with the National Guard, literally tons of oil product were skimmed.

When the *Deepwater Horizon* oil well exploded in April 2010, the U.S. Coast Guard had never been required to operate in an interagency environment of this magnitude. Four states were involved in responding to the oil leak 100 miles off the Mississippi coast and in water more than a mile deep. The complexity of this event was unprecedented and the only way the overall response would be successful was to leverage all available resources, both from the private sector and from government. While the Coast Guard's initial unwillingness to integrate other agencies into its response, it was obvious by the time the leak was stopped and all oil was cleaned up that the Coast Guard fully embraced NIMS and the need to form interagency alliances. As I stated in my initial testimony, I believe the U.S. Coast Guard fully applied the lessons learned from the largest man-made disaster in our Nation's history and it is indeed a better organization as a result of the *Deepwater Horizon* incident.



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