



Priority Science and Research Needs and the Oil Pollution Act of 1990

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My Perspective and Background

- Career practitioner in the spill response and incident management fields
 - 23 years as Coast Guard civilian, supporting Northeast field units, and later nationally at HQ
 - 3 years at NOAA as Emergency Response Division (ERD) Chief in the Office of Response & Restoration
 - ERD has for 40 years provided the Scientific Support Coordinators and Team to Coast Guard spill leadership
 - DOC/NOAA National Response Team representative, and NOAA ICCOPR representative/vice chair
- My own perspective, based on roles in the system



Disclaimer

The views, findings, and conclusions expressed in this presentation are those of the author and do not necessarily represent the views of the Department of Commerce / National Oceanic and Atmospheric Administration (NOAA).

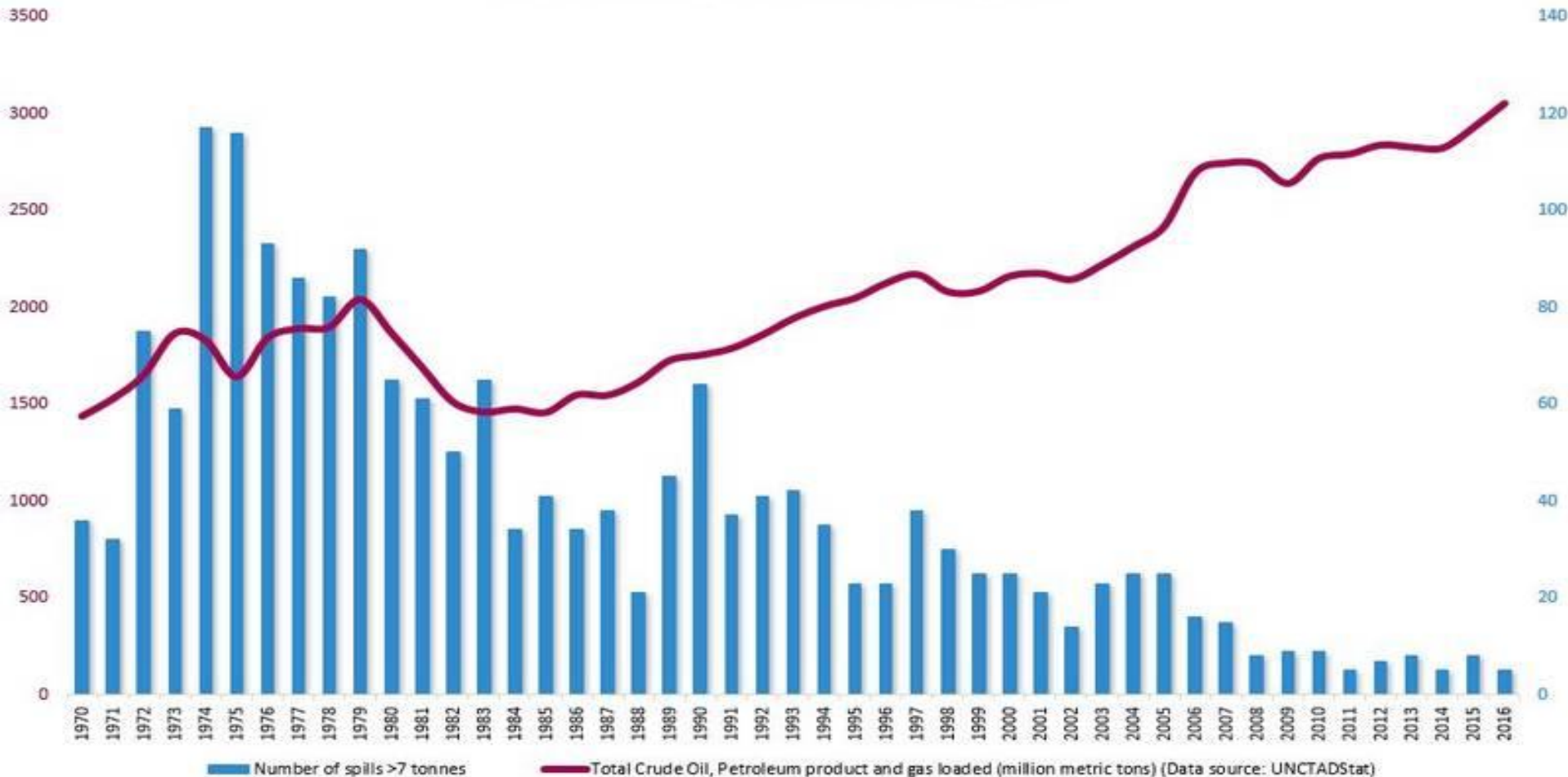


OPA 90 - General

- Enhanced National Response System with stronger prevention, response, liability, and compensation
- Solidified environmental response as principally a regulated private endeavor vs. public function as compared to other emergencies
 - Regulated polluter prepares, responds, pays
 - Stronger federal response oversight and resources in unified approach with states (Unified Command, minimal pre-emption for issues relating to vessel regulation)
- Natural Resource Damage Assessment: Trustee agencies assess and restore injuries to natural resources including lost public use

Prevention (international): Tanker Spills (>7 tonnes) vs. Crude/Petroleum/Gas loaded 1970-2016

Decline in Number of Tanker Spills
vs
Growth in Crude, Petroleum and Gas loaded





OPA / National Response System: Science, Research Operations and Needs



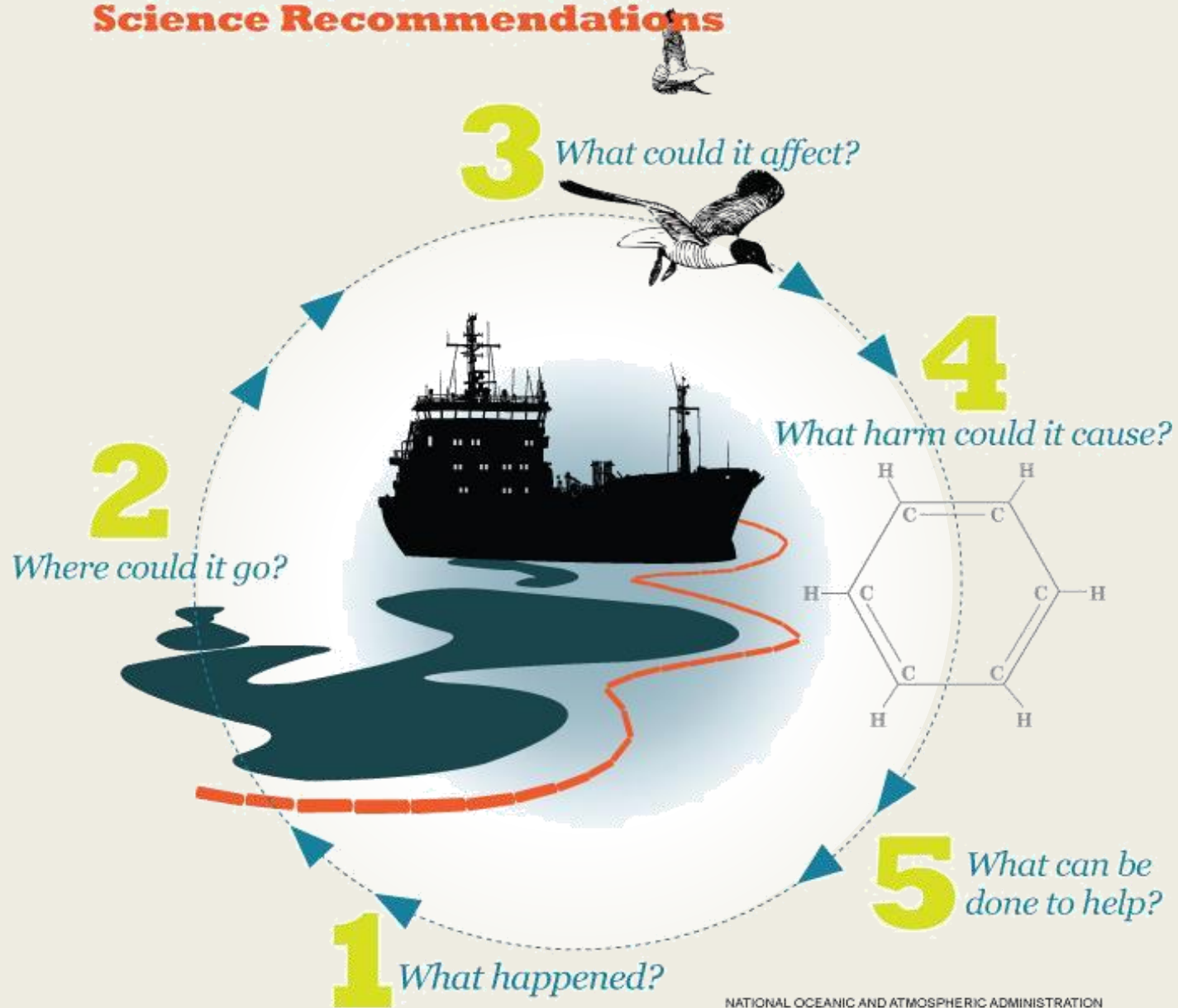
National Response System: Scientific Support

- **Scientific Support first emerged during the 1976 Argo Merchant spill**
 - A DOC/NOAA Spilled Oil Research Team was asked by the Coast Guard for assistance in interfacing with the scientific community
 - “The DOC/NOAA response in providing scientific investigations was invaluable to the OSC during the actual response efforts and in providing public information.” ...
“Each OSC should be assigned a scientific advisor ... for the duration of the response action to interface with the scientific community on scene...”
The Argo Merchant Oil Spill On-Scene Coordinator’s Report 1977
- **The Scientific Support Coordinator first incorporated in 1980 NCP**
 - It now states: Scientific Support Coordinators (SSCs) may be designated by the OSC ... as the principal advisors for scientific issues, communication with the scientific community, and coordination of requests for assistance from state and federal agencies regarding scientific studies. The SSC strives for a consensus on scientific issues affecting the response, but ensures that differing opinions within the community are communicated to the OSC...
 - NCP Special Teams section, 40 CFR 300.145

NOAA Scientific Support since 1976



Questions Guiding NOAA's Oil Spill Science Recommendations





Science at a Spill: Operational, Injury Assessment, Knowledge

Investigates specific solutions to operational problems in real or near-real time. Direct input to the response.



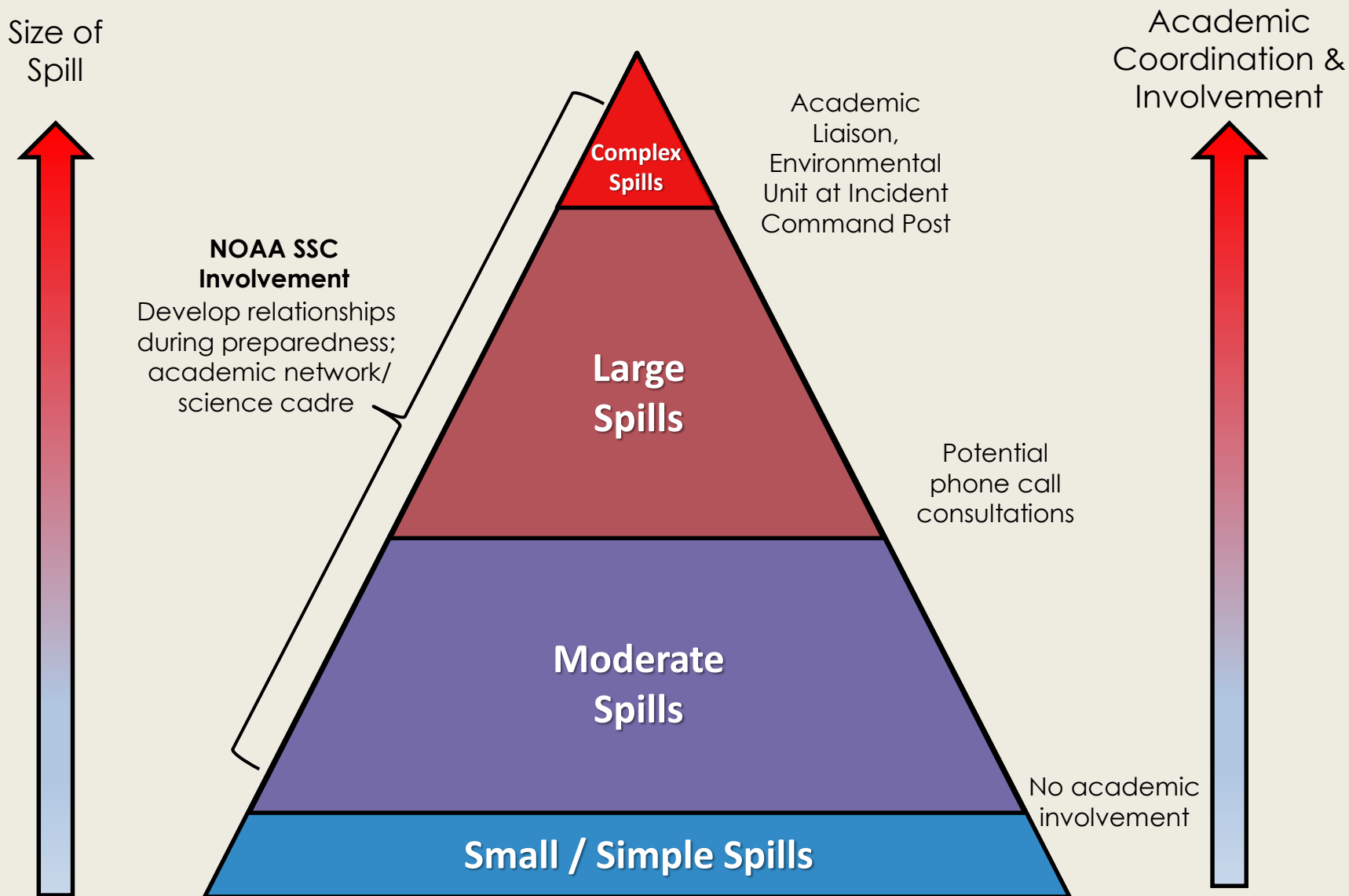
Provides information to state and federal trustees who are determining environmental injury and restoration requirements



Investigation involving incident in the field yields a better understanding of issues applicable to the next emergency event.



Typical Response Academic Involvement



OPA 90: Approach to Research

Interagency Coordinating Committee on Oil Pollution Research (ICCOPR)

- Title VII of OPA: Brought together 15 member agencies conducting research on oil spills.
- Purpose: (1) Prepare coordinated federal oil pollution research and technology plan (OPRTP); and (2) to promote cooperation with industry, universities, research institutions, state governments, and other nations through information sharing, coordinated planning, and joint funding of projects.

TITLE VII—OIL POLLUTION RESEARCH AND DEVELOPMENT PROGRAM

SEC. 7001. OIL POLLUTION RESEARCH AND DEVELOPMENT PROGRAM.

(a) INTERAGENCY COORDINATING COMMITTEE ON OIL POLLUTION RESEARCH.—

(1) ESTABLISHMENT.—There is established an Interagency Coordinating Committee on Oil Pollution Research (hereinafter in this section referred to as the “Interagency Committee”).

(2) PURPOSES.—The Interagency Committee shall coordinate a comprehensive program of oil pollution research, technology development, and demonstration among the Federal agencies, in cooperation and coordination with industry, universities, research institutions, State governments, and other nations, as appropriate, and shall foster cost-effective research mechanisms, including the joint funding of research.

(3) MEMBERSHIP.—The Interagency Committee shall include representatives from the Department of Commerce (including the National Oceanic and Atmospheric Administration and the

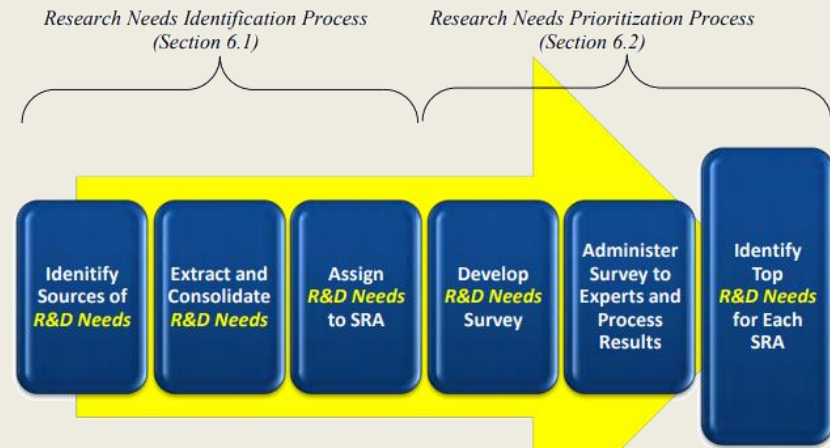
- Regional grants 1991-1995
- Research & Technology Plan 1992, 1997, 2015
- Coordination rekindled 2009+
- Individual agency funding only

Research Needs: Research & Technology Plan

- ICCOPR R&T Plan: establishes priorities; agencies fund based upon appropriations during “peacetime”



Prevention	Preparedness	Response	Injury Assessment & Restoration
<ul style="list-style-type: none"> • Human Error Factors • Offshore Facilities and Systems • Onshore Facilities and Systems • Waterways Management • Vessel Design • Drilling • Rail & Truck Transportation • Pipeline Systems 	<ul style="list-style-type: none"> • Pre-spill Baseline Studies • Response Management Systems 	<ul style="list-style-type: none"> • Structural Damage Assessment and Salvage • At Source Control and Containment • Chemical and Physical Behavior Modeling • Oil Spill Detection and Surveillance • In- and On-water Containment and Recovery • Shore Containment and Recovery • Dispersants • In-situ Burning • Alternative Countermeasures • Oily and Oil Waste Disposal • Bioremediation 	<ul style="list-style-type: none"> • Environmental Impacts and Ecosystem Recovery • Environmental Restoration Methods and Technologies • Human Safety and Health • Sociological and Economic Impacts

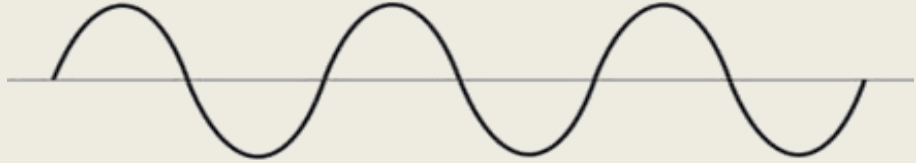


CONTROL AND RECOVERY TECHNOLOGY
<ul style="list-style-type: none"> ➢ Develop new mechanical recovery methods/technologies for logistically challenging (e.g., cold water, ice, broken ice) Arctic conditions. ➢ Develop new tools to control and recover oil that is submerged, suspended in the water column, or on the seafloor. ➢ Develop control and recovery capabilities for ice flows.

ENVIRONMENTAL BASELINE PLANNING
<ul style="list-style-type: none"> ➢ Develop models of background variability relative to habitat and species data in various environments where oil is transported or extracted so that the impacts from oil or other stressor(s) can be delineated from those of natural variation. ➢ Evaluate the adequacy of existing ecosystem-based scientific studies for legal defense of Natural Resource Damage Assessment (NRDA) injury assessments for Outer Continental Shelf areas that are currently in production or likely to be explored/developed. ➢ Conduct baseline studies of microbial communities in a variety of areas where oil is transported or extracted (e.g., Great Lakes, rivers, ports, offshore) and their potential for hydrocarbon degradation in the event of a spill.



Challenges:

- Sustaining investment
 - Centers of Research (industry, federal, grants)
 - Federal research selection based upon appropriations
 - Striking appropriate balance of investments in prevention and response
 - Synthesizing and incorporating immense amount of new science across response ↔ restoration continuum
- 



Challenges:

- Deeper Human Health considerations
- Engagement, communication, transparency
- Driving best available science and technology
- Mechanisms for funding and coordination to learn during spills without disrupting response
- Appetite for change

Actions within the system

- Scientific Support: strengthening and sustaining connections, sharing information on roles and expertise



NPST
Charter

CHARTER of the
NATIONAL PREPAREDNESS SCIENCE AND TECHNOLOGY TASK FORCE
SUBCOMMITTEE ON DISASTER REDUCTION
COMMITTEE ON ENVIRONMENT, NATURAL RESOURCES, AND SUSTAINABILITY
NATIONAL SCIENCE AND TECHNOLOGY COUNCIL



NOAA/UNH
CRRC

International Oil Spill Conference



API • BSEE • IMO • IPIECA • NOAA • PHMSA • USCG • USEPA



Texas • Louisiana • Florida
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Oil Spill
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ICCOPR



The National Academies of
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GULF RESEARCH PROGRAM

INNOVATE | EDUCATE | COLLABORATE

The COAST GUARD Journal of Safety & Security at Sea
PROCEEDINGS
of the Marine Safety & Security Council
May-December 2017

Integrating Science and Technology into Crisis Leadership

by Mr. SCOTT LANSBURY
NOAA Office of Response and Restoration, Emergency Response Division
National Oceanic and Atmospheric Administration

During his confirmation testimony, Admiral Paul Zukunft was asked which lessons learned from the Deepwater Horizon (DWH) incident he would apply in another major disaster. His answer was the "biggest challenge during the Gulf oil spill is whole of science."

While DWH was anomalous in scale, there have been a number of coastal and ocean "black swan" crises in the recent past that have warranted, and been challenged by, substantial science and technology (S&T) engagement and investigation. These include the DWH oil spill, the radioactivity leak at the Fukushima Daiichi nuclear plant in Japan, the Indian Ocean Tsunami, and the M/V Prestige oil spill.¹ Certainly crises of these proportions can challenge the usual mechanisms for scientific engagement. Are there steps we can take now to improve S&T scalability engagement for future incident management and crisis response? My view is that we can, we must, and work is already underway.

highlighted this point in the spill response field, appropriate S&T engagement is warranted across contingencies. This challenge means incident leadership and organizations that facilitate scientific coordination must engage in advance of, as well as during, incidents.

NOAA and Science and Technology Support
The U.S. Coast Guard and the National Oceanic and Atmospheric Administration (NOAA) have a long legacy of engagement on S&T topics. NOAA is America's environmental intelligence agency, providing timely, reliable, and actionable information, based on sound science, every day to millions of Americans. This service includes support for decisions to emergency response organizations like the Coast Guard. This important collaboration helps to protect the U.S. economy, sustain our natural resources, and protect lives and property.

The Great East Japan Earthquake and tsunami caused massive destruction.
Photo by Jeffery Stratton.com

18 PROCEEDINGS May-December 2017 www.coastguard.mil/Proceedings/