



OIL SPILL SCIENCE

SEA GRANT PROGRAMS OF THE GULF OF MEXICO

PREPARING FOR OIL SPILLS IN THE WESTERN GULF: A REGIONAL WORKSHOP REPORT FROM THE NATIONAL ACADEMIES AND SEA GRANT COLLABORATIVE WORKSHOP SERIES



December 4-5, 2018, Houma-Terrebonne Civic Center, Houma, Louisiana

Contents

Acknowledgements	ii
Executive Summary	iii
Introduction	1
Methods	4
Results	5
Participants	5
Participant Feedback	6
Suggested protocols	7
Pilot project ideas.....	8
Research and outreach priorities.....	9
Resources	10
Conclusion	11
References.....	13
Appendices	14
Appendix A: Workshop Agenda	14
Appendix B: Detailed Responses From Participants	16
Appendix B1. Suggested protocols	16
Appendix B2. Pilot project ideas	24
Appendix B3. Research and outreach priorities	30
Appendix B4. Resources	37
Appendix C: Workshop Evaluation Form	46
Appendix D: Workshop Evaluation Results.....	48

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Cover photo

Oil spill science specialist Emily Maung-Douglass of Louisiana Sea Grant College Program records breakout notes during the first day of meetings in Houma. Photo by Mississippi-Alabama Sea Grant Consortium.

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Executive Summary

The Deepwater Horizon oil spill of 2010 led to the establishment of the Gulf Research Program (GRP), “an independent, science-based program [of the National Academies of Sciences, Engineering, and Medicine (NASEM)] that funds studies, projects, and other activities in the areas of research and development, education and capacity building, and monitoring and synthesis” (NASEM GRP, 2019). In 2018 and 2019, GRP collaborated with the Gulf of Mexico Research Initiative and multiple Sea Grant college programs to conduct a series of workshops to gather local and regional input from communities that have been or are likely to be impacted by oil spills. A total of five workshops were held in West Coast, mid-Atlantic, Alaska, and eastern and western Gulf of Mexico communities.

This report highlights priorities for the western Gulf region, identified by a diverse set of participants convened in Houma, Louisiana, on December 4 and 5, 2018. Participants focused on four themes to minimize health, social, and economic disruptions after oil spills:

- effectively integrating human health, community well-being, and social dynamics into local and regional response planning;
- building economic resilience to future events and creating a transparent compensation process;
- creating a network for effective risk communication; and
- developing disaster recovery programs based on audience needs.

Workshop participants suggested emergency response protocol improvements, pilot project ideas, research and outreach priorities, and resources available and needed. Participants identified the disconnect in communication between emergency responders and community members during and after oil spill incidents as the most prominent issue. Discussion centered on integrating communities into the local and regional response framework so that incident- and recovery-related information could continue to flow within communities long after a disaster. Attendees also raised lack of trust as a major concern, suggesting solutions that utilize trusted “gatekeepers” and “liaisons” to channel information. Creation of education and training programs that respect diverse cultures and capacities to better prepare people for mental, physical, social, and economic consequences of future spills was a focal point.

Participants discussed how human well-being is affected by economic processes, particularly the existing claims and compensation process. Baseline information regarding the socioeconomic levels of individuals and communities is needed before a spill occurs to better track impacts over time. Participants also expressed a need to document psychosocial factors that characterize a community in addition to traditional health statistics.

The results described in this report have been combined with those from four other regional workshop reports into a summary document that identifies research and outreach priorities that have national significance. This feedback will inform future funding proposals in support of research, outreach, and/or pilot projects related to oil spill preparedness and human well-being.

Introduction

Following the Deepwater Horizon oil spill of 2010, the federal government asked the National Academies of Sciences, Engineering, and Medicine (NASEM) to establish a new program dedicated to funding and conducting activities related to offshore energy system safety, human health, and environmental resources. The new program became the NASEM's Gulf Research Program (GRP), "an independent, science-based program that funds studies, projects, and other activities in the areas of research and development, education and capacity building, and monitoring and synthesis" (NASEM GRP, 2019). Activities focus on the transfer of knowledge within the Gulf of Mexico region and other U.S. regions where human communities, ecosystems, and energy production co-exist. Furthermore, GRP's Thriving Communities Initiative "seeks to improve the quality, accessibility, and use of information about how to protect communities from the impacts of oil spills" (NASEM GRP, 2019). For more information about the GRP, visit <http://www.nationalacademies.org/gulf/>.

In 2017, GRP and the Health and Medical Division of NASEM hosted a workshop in Washington D.C. titled "Preparing for a rapid response to major marine oil spills: Protecting and assessing the health and well-being of communities" (Giammaria, Nicholson, & Snair, 2018). The workshop participants discussed research opportunities for improving public health preparedness, response, and protection associated with oil spills. They identified potential challenges and opportunities for communities to support preparedness and resiliency after a spill and recommended that GRP gather input at the local level.

To address the need for local-level input and other recommendations identified in the August 2017 workshop, GRP collaborated with seven of the 34 Sea Grant college programs via the Gulf of Mexico Sea Grant Oil Spill Science Outreach Program. The outreach program's team is comprised of staff from the Florida Sea Grant College Program, Louisiana Sea Grant College Program, Mississippi-Alabama Sea Grant Consortium, and Texas Sea Grant College Program. They focus on synthesizing, translating, and delivering peer-reviewed oil spill science information for people whose livelihoods depend on healthy natural resources. With support from the GRP as well as the Gulf of Mexico Research Initiative, the team led two workshops in the Gulf of Mexico region and partnered with the Alaska Sea Grant College Program, University of Southern California Sea Grant Institutional Program, and Virginia Sea Grant College Program to lead regional workshops in their locations. The goal was to gather feedback at the local and regional levels to identify opportunities to improve preparedness for oil spills. The five regions identified for this national collaborative effort—the West coast, mid-Atlantic, Alaska, and eastern and western Gulf of Mexico—are all home to communities that have been impacted by oil spills. One workshop was planned for each region, focusing on three broadly defined topical areas—minimizing health, social, and economic disruptions after oil spills.

A GRP research fellow prepared a pre-workshop summary document to inform the development of the workshop series (Sibley & Hale, 2018). A project planning committee comprised of emergency responders, researchers, GRP advisory board members, and Sea Grant professionals formed in 2018 to guide the development of all five workshops (Figure 1). This project planning committee participated in monthly teleconferences to discuss the project objectives, recommend topics and speakers for each workshop, and review planning and reporting documents associated with the overall project. The following, listed alphabetically, were members of the project planning committee:

- Torie Baker, formerly Alaska Sea Grant College Program
- Michelle Covi, Virginia Sea Grant College Program
- Linda Duguay, University of Southern California Sea Grant Institutional Program

- Phyllis Grifman, University of Southern California Sea Grant Institutional Program
- Chris Hale, Texas Sea Grant College Program (chair)
- Doug Helton, National Oceanic and Atmospheric Administration Office of Response and Restoration
- Christopher Hershey, U.S. Coast Guard
- Davin Holen, Alaska Sea Grant College Program
- Richard Kwok, National Institute of Environmental Health Sciences
- Missy Partyka, Mississippi-Alabama Sea Grant Consortium
- Chris Rea, NASEM GRP
- Liesel Ritchie, Oklahoma State University and NASEM GRP Advisory Board
- Marika Schulhof, University of Southern California Sea Grant Institutional Program
- Stephen Sempier, Mississippi-Alabama Sea Grant Consortium
- Martha Sibley, NASEM GRP Fellow, Oklahoma State University
- Kevin Sligh, U.S. Coast Guard
- Grace Walker, Virginia Sea Grant College Program
- Maggie Walser, NASEM GRP



Figure 1. Five regional workshop planning committees and a project planning committee organized the workshops.

Each of the five Sea Grant program workshop leaders gathered a team of experts to form regional workshop planning committees to organize the five workshops. Each workshop planning committee identified locally and regionally relevant themes that aligned with the project goals and objectives. The five workshop planning committees identified leaders representing impacted communities as well as experts in emergency response and

preparedness (Figure 2), oil spill science, and human health and well-being, and invited them to share their knowledge with community stakeholders. The committees also established opportunities for participants to provide input that would be recorded and reported back to GRP.

The five workshop planning committees hosted the workshops in locations where communities had experienced or were likely to experience oil spills, listed here in order of occurrence:

- Houma, Louisiana, December 4–5, 2018
- Anchorage, Alaska, February 20–21, 2019
- Virginia Beach, Virginia, March 29, 2019
- Santa Barbara, California, April 5, 2019
- Mobile and Bayou La Batre, Alabama, May 6–7, 2019

This collaborative effort between GRP, Sea Grant, and the Gulf of Mexico Research Initiative focused on the workshop series'

designated topical areas—improving oil spill preparedness with a focus on public health, social disruptions, and economic impacts resulting from oil spills—to produce the following specific deliverables:

- clearly identified and articulated regional research and outreach priorities within the topical areas;
- clearly identified and articulated inter-regional research priorities within the topical areas;
- a list of suggested emergency response protocols to include in existing response and regulatory frameworks;
- a list of local, state, or regional pilot project ideas within the topical areas;
- a list of resources available within the topical areas;
- increased understanding of the topical areas by workshop participants;
- a foundation for future funding proposals to support research, outreach, and/or pilot projects related to the topical areas; and
- five workshop reports (one per regional workshop) and a synthesized summary document.

This report summarizes the suggested emergency response protocols, pilot projects, research and outreach priorities, and resources for improving oil spill preparedness that were identified by participants in the western Gulf of Mexico regional workshop.



Figure 2. Mike Sams, incident management and preparedness advisor for U.S. Coast Guard Region VI, explains the national emergency response framework and regional response planning process. Photo by Louisiana Sea Grant College Program.

Methods

The workshop committee for the western Gulf region included the following members, listed alphabetically:

- Julie Falgout, Louisiana Sea Grant College Program
- Chris Hale, Texas Sea Grant College Program (workshop leader)
- Emily Maung-Douglass, Louisiana Sea Grant College Program
- Missy Partyka, Mississippi-Alabama Sea Grant Consortium
- Liesel Ritchie, Oklahoma State University and GRP Advisory Board
- Stephen Sempier, Mississippi-Alabama Sea Grant Consortium
- Brandi Todd, National Oceanic and Atmospheric Administration Office of Response and Restoration

This committee selected Houma, Louisiana, as the location for the western Gulf workshop for several reasons. Houma is home to a mix of oil industry workers, tribal communities, fishing families, and other residents who share ties with the surrounding natural resources. Over time they continue to experience multiple types of disasters such as hurricanes, floods, land loss, and oil spills—such as Deepwater Horizon in 2010. Additionally, communities in Houma face many of the human health and disaster-related issues that also take place across the western Gulf region.

The workshop committee referenced past workshop reports (Giammaria, Nicholson, & Snair, 2018) and community needs assessments (Sempier, Graham, Maung-Douglass, Wilson, & Hale, 2015; Sibley & Hale, 2018), and consulted with the project planning committee to determine workshop themes that would resonate with communities in this region. The following themes were chosen:

- effectively integrating human health, community well-being, and social dynamics (individual and group dynamics) into local and regional response planning;
- building economic resilience to future events and creating a transparent compensation process;
- creating a network for effective risk communication; and
- developing disaster recovery programs based on audience needs.

Each of these themes guided a separate workshop breakout session, in which participants were asked the same four questions for each theme:

1. What are the **suggested protocols** to include in existing response and regulatory frameworks that address the theme?
2. What **pilot project ideas** do you have that address the theme?
3. What are **the research and outreach priorities** that address the theme?
4. What **resources** are available that address the theme?

For example, the first breakout session focused on the theme “effectively integrating human health, community well-being, and social dynamics into local and regional response planning,” and participants were asked, “What are some suggested protocols to include in

existing response and regulatory frameworks that will effectively integrate human health, community well-being, and social dynamics into response planning?” All four breakout sessions followed this format so that same four questions were answered in each session. The four questions were standardized across all five regional workshops, while each workshop developed unique themes that were most important to its region.

Sea Grant extension professionals facilitated discussions and documented feedback during the breakout discussion sessions (Figure 3). Each breakout session took an hour, allowing around 15 minutes of discussion per question. The facilitator recorded responses on a flip chart. The facilitators and workshop leader compiled notes after the workshop, and the workshop leader organized the participant feedback for this report.



Figure 3. During a breakout session, participants discuss their ideas while Sea Grant extension specialist Emily Maung-Douglass documents key points. Photo by Texas Sea Grant College Program.

To maintain anonymity, participants’ names are withheld from this report. However, attendees identified their sector (e.g., response, seafood industry) and affiliations (e.g., U.S. Coast Guard, self-employed fisher) during the registration process and when filling out a post-workshop evaluation. Participants provided additional feedback about the effectiveness of the workshop as part of the evaluation process (see Appendix C for the evaluation form and Appendix D for responses, which have also had specific identifiers removed to protect the confidentiality of participants). This report will be distributed to workshop participants, the Sea Grant network, GRP, and the wider public.

Results

Participants

After wide advertisement, a total of 45 individuals participated in the western Gulf workshop, including guest speakers. Participants came from 11 broad categories (listed alphabetically):

- coastal residents,
- community organizers,
- emergency responders,
- environmental nonprofit professionals,
- media representatives,
- natural resource managers,
- oil and gas industry representatives,
- outreach professionals,
- researchers,
- Sea Grant extension agents and specialists, and
- tribal members.

Participant Feedback

In each of the four breakout sessions, participants suggested emergency response protocol improvements, shared pilot project ideas, identified research and outreach priorities, and identified resources to address each theme.

Improving communications was one of the key concepts common across all discussion groups. Participants voiced concerns about the disconnect in communication and information flow between and among emergency responders, industries responsible for causing spills, local communities, and other impacted groups during and after oil spill incidents. Much discussion centered on integrating communities into the local and regional response framework so that incident-related information, as well as post-incident recovery information, could continue to flow within communities long after a disaster. Participants discussed ways impacted communities (e.g., fishers, tribes, tourism-dependent businesses, industries, and responders) could avoid becoming corrosive communities—communities in which fears, stress, anxiety, and conflict after a disaster impede their ability to recover. Instead, attendees shared potential ways to build a foundation for resiliency in both the short and long term. Breakout groups discussed creating education and training programs to better prepare people for mental, physical, social, and economic consequences of future spills, with respect for diverse cultures and capacities. Trust was a common theme—building trust and utilizing trusted “gatekeepers” and “liaisons” to channel information during and after spills.

In terms of research, participants discussed a need for baseline information regarding the socioeconomic status of individuals and communities before a spill occurs in order to better track impacts. They expressed concerns about how the existing claims and compensation process impact people’s well-being. Participants also identified a need to better characterize the health of the community to take into account psychosocial factors, such as mental healthcare options, in addition to traditional health statistics such as rates of obesity, health insurance, etc. The theme of communication also prevailed in the discussion of research and outreach needs; for example, more work is needed to understand how information flows through each community and what methods are effective in communicating risks.

Participants' responses to questions asked during the breakout sessions are organized below and presented in full in Appendix B. Responses mentioned only once were grouped together into an "Other" category. Responses were sometimes placed into more than one category.

Suggested protocols

The following tables summarize participants' suggestions for emergency response protocols and frameworks. Detailed responses are listed in Appendix B1.

Table 1a. Protocols to integrate human health, community well-being, and social dynamics into response planning.

Key categories	Number of responses
Communications	15
Response	12
Information access	7
Education, training, and planning	6
Research, baselines, and monitoring	5
Total	45

Table 1b. Protocols to build economic resilience to future events.

Key categories	Number of responses
Claims and compensation process	9
Education, training, and planning	5
Local employment	4
Liaisons	3
Communications	2
Employment diversification	2
Other	2
Total	27

Table 1c. Protocols to improve risk communication.

Key categories	Number of responses
Communications	13
Education, training, and planning	5
Liaisons	3
Spill drills	2
Total	23

Table 1d. Protocols to support recovery of particular audiences.

Key categories	Number of responses
Community-led efforts	4
Recovery protocols	3
Information access	2
Recovery definition	2
Other	3
Total	14

Pilot project ideas

The following tables summarize participants' ideas for pilot projects. Detailed responses are listed in Appendix B2.

Table 2a. Pilot projects for integrating human health, community well-being, and social dynamics into response planning.

Key categories	Number of responses
Community-led efforts	2
Long-term mental health support	2
Response tracking information	2
Collection of spill source data	2
Other	9
Total	17

Table 2b. Pilot projects for building economic resilience.

Key categories	Number of responses
Research, outreach	5
Employment diversification	5
Partnerships	4
Information access	2
Other	8
Total	24

Table 2c. Pilot projects for improving risk communication.

Key categories	Number of responses
Communications	9
Engagement	2
Training	2
Other	3
Total	16

Table 2d. Pilot projects for creating audience-based disaster recovery programs.

Key categories	Number of responses
Communications	4
Community-led efforts	2
Other	7
Total	13

Research and outreach priorities

The following tables summarize research and outreach priorities identified by participants. Detailed responses are in Appendix B3.

Table 3a. Research and outreach priorities for integrating human health, community well-being, and social dynamics into response planning.

Key categories	Number of responses
Research priorities	
Baseline information	4
Improve the research process	3
Citizen science monitoring	2
Other	4
Outreach priorities	
Local meetings	4
Education	3
Other	1
Total	21

Table 3b. Research and outreach priorities for building economic resilience.

Key categories	Number of responses
Research priorities	
Economic analysis	8
Employment diversification	4
Align plans across agencies, institutions	2
Other	4
Outreach priorities	
Community engagement	8
Preparedness	3
Other	4
Total	33

Table 3c. Research and outreach priorities for improving risk communication.

Key categories	Number of responses
Research priorities	
Seafood safety	3
Other	3
Outreach priorities	
Community engagement	3
Local employment	2
Other	2
Total	13

Table 3d. Research and outreach priorities for developing audience-based spill recovery programs.

Key categories	Number of responses
Research priorities	
Communications	8
Short-, mid-, and long-term recovery	4
Citizen science monitoring	2
Outreach priorities	
Baseline information	4
Preparedness	4
Citizen science monitoring	2
Total	24

Resources

In each breakout session, participants were asked to identify resources that were either currently available or needed to support emergency response protocols, research, outreach, projects, and individual and community recovery. Resources included anything that participants felt would be useful in the short and long term following a spill. Their responses are summarized in the tables below and listed in detail in Appendix B4.

Table 4a. Currently available resources.

Key categories	Number of responses
Organizations	36
Tools	24
Programs	10
Community contacts	7
Events	4
Meetings	3
Universities	2
Other	2
Total	88

Table 4b. Resources needed.

Key categories	Number of responses
Communications	7
Funding	4
Training	4
Tools	3
Community contacts	2
Meetings	2
Organizations	2
Partnerships	1
Other	5
Total	30

Conclusion

The western Gulf regional workshop had diverse representation with people from the response community, industry, academia, environmental nongovernmental organizations, tribes, media, and other groups. Workshop participants identified numerous opportunities to minimize health, social, and economic disruptions from oil spills. Communications-related issues were mentioned prominently throughout the workshop; participants proposed ways to improve communications and called for research to better understand communications breakdowns before, during, and after a spill. They also suggested strategies to better integrate communities into response and vice versa. Trust between groups and individuals was described as a foundational element that also needs to be strengthened. Several approaches were proposed to improve trust at the local and regional levels. The intersection of well-being, physical health, and economic stressors was also a focus of discussions. Specific needs were identified, including better understanding of the claims process and development of a more robust pre-spill, baseline understanding of communities' health situations that includes psychosocial aspects.

This workshop report will be shared with workshop participants, GRP, and the wider public. These results were combined with the results of the eastern Gulf, mid-Atlantic, West Coast, and Alaska regional workshops conducted as part of this collaborative project. A summary document capturing research and outreach priorities shared across all regions was developed to inform potential funding competitions in support of research, outreach, and/or pilot projects related to oil spill preparedness and human well-being. Please visit <https://gulfseagrant.org/oilspilloutreach/collaborative-workshop-series/> to access the other workshop reports and learn more.



Theresa Dardar shares challenges her Pointe-au-Chien tribal community continues to face following the 2010 Deepwater Horizon oil spill. Photo by Texas Sea Grant College Program.

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Panelists share their experiences and insights related to oil spill impacts in the communities where they live and work. Photo by Texas Sea Grant College Program.

Appendices

The appendices provide the complete responses by workshop participants, which were categorized in the main body of the report, as well as workshop agendas and evaluation results.

Appendix A: Workshop Agenda

**Prioritizing health and oil spill preparedness
December 4th and 5th, 2018
Houma-Terrebonne Civic Center
346 Civic Center Blvd, Houma, Louisiana**

Specific workshop outcomes:

- Suggest protocols to include in existing response and regulatory frameworks.
- List pilot project ideas.
- Identify research and outreach priorities.
- Identify resources available to address the topical issues.
- Foster new connections and partnerships.

Day 1/Tuesday, Dec. 4th

8:00 – Registration and check in, breakfast snacks and coffee

8:30 – Welcome, Sea Grant oil spill program and National Academies Gulf Research Program collaboration overview—Chris Hale, Sea Grant Oil Spill Science Outreach Program

8:45 – Pollution contingency planning and response overview—Mike Sams, Eighth Coast Guard District Incident Management and Preparedness Advisor

9:15 – Physical human health impacts from spills—Richard Kwok, staff scientist, National Institute for Environmental Health Sciences

9:45 – Break

10:00 – Mental health impacts from spills—Tim Slack and Kathryn Keating, Louisiana State University

10:30 – An overview of social science research on community impacts of marine oil spills—Liesel Ritchie, National Academies of Sciences Advisory Board, Center for the Study of Disasters and Extreme Events, Oklahoma State University

11:00 – Pointe-au-Chien Tribe—Our vanishing tribal heritage: Cause, effect, and accountability—Theresa Dardar, Pointe-au-Chien Tribe, Board Member of First Peoples' Conservation Council, President of Lowland Center

11:30 – Q and A Panel discussion with all speakers

12:00 – Lunch

1:00 – Breakout Session: Effective integration of human health, community well-being, and social dynamics into local and regional response planning

2:00 – Impacts of the offshore oil and gas industry on coastal communities—
Scott Hemmerling, Director of Human Dimensions, The Water Institute of the Gulf

2:40 – Breakout Session: Creating a transparent compensation process and building economic resilience to future events

4:00 – Recap and quick overview for Day 2/Adjourn

Day 2/Wednesday, Dec. 5th

8:30 – Welcome back, breakfast snacks and coffee

9:00 – Communicating about environmental health risks: Why science, emotion, and values are important—Melissa Finucane, Senior Behavioral and Social Scientist, RAND Corporation

9:30 – Breakout session: Creating a network for effective risk communication

10:30 – Break

10:45 – Panel discussion: Sharing oil spill experiences and insights

Community resilience efforts: Anne Parr and Mary Biegler; Bayou Grace
Louisiana fisheries and response efforts: Julie Falgout, Thu Bui, Rex Caffey; Louisiana Sea Grant
Peer listening: Steve Sempier, Mississippi Alabama Sea Grant
Risk communication, health impacts: Melissa Finucane, RAND Corp.
Coastal community changes: Scott Hemmerling, The Water Institute

12:00 – Lunch

1:00 – Breakout Session: Developing audience-based recovery programs

2:00 – Report out, evaluation forms, wrap up

3:00 – Adjourn

Appendix B: Detailed Responses From Participants

Comments were transcribed by breakout session facilitators and reworded for clarity where necessary by report authors [in brackets]. Responses are presented in the same order as the corresponding tables in the report.

Appendix B1. Suggested protocols

1a. Protocols to integrate human health, community well-being, and social dynamics into response planning

Communications

- Before discussing this question can someone give an explanation of how protocols [i.e., call to National Response Center] work? There are not all encompassing guidelines; it is a fluid process. When a call is received the responder asks lots of questions to assess the situation to (in part) understand the magnitude of response that will be needed. [Other participant suggested]: Maybe responders can change the line of questions to have human health slant to inform the response (e.g., ask caller "How are you being impacted?" versus only asking things like the number of gallons spilled).
- Can oil companies and Coast Guard share information (we are in it together)? [Industry suggestion]: If it is a BP response but Chevron has information on a community, can Chevron share this information with response? [Coast Guard response]: We are not aware of this happening. In drills we have an engagement plan—we would use this information in response and with Unified Command.
- Develop a resource guide specific to geographic areas, specific crisis, and based on human need (mental, physical, spiritual, etc.).
- Have a directory or phone book. If you don't know who to call it leads to frustration, confusion. There are too many incorrect numbers.
- Have communities pool resources too. Form a consortium. Mirror the technology approach. If something happens, develop how response could work but with focus on the community. This is best if driven by industry (since they are not in regulation). Area Committee meetings could include this idea. Put an annex in Area Contingency Plan or regional plan. Where does it say we need to do it? [If there is language in the plan directing response toward communities, then responders can act on it.]
- Look at social impacts. How to help employees during and after an event? How to continue the engagement after an event?
- Phone book/directory needs to be clear. Health professionals want to direct people to the right people the first time. People on the other end of the line need to know how to direct the calls.
- Phone directory/hotline must be a specific number for a specific need. An 800 number doesn't always deliver/connect. Should be a local number/area code.
- Public Information Officer in Incident Command needs to be linked in for command structure (linked in to resource guide and phone directory, etc.)

- Resource guide would address both short-term and long-term needs.
- Resource guide would be for practitioners to refer to (Sea Grant, U.S. Coast Guard, etc.).
- The resource guide and phone directory should be a living document, updated regularly.
- Try to have internal response teams also look at physical health, mental health. There is more emphasis on this now. Drills do not get into long term/deeper dive [on health impacts] in one day (typical length of spill drills). Institutionalize these aspects so people expect this in drills. Could baseline data be shared?
- U.S. Coast Guard knows who is involved in response, but difficulty getting that information out to researchers.
- What is the connection to large businesses? Do community engagement prior to moving into a community. We [industry] understand community. Information/assessments may be able to be shared by the industry and provided to others. Could this information inform response? Know issues ahead of time to plan for that. Industry has “stakeholder engagement plans” and “social investment plans.” What do we do in the aftermath? How did we help, how did we make the outcome better? What are health impacts to our employees?

Response

- Add a line item during response “check in” to agree to disclose/participate in studies.
- Different regions have different frequency of spills, which means different levels of external (e.g., volunteer) involvement. Command keeps track of who’s officially coming into the impacted area, but volunteers may just jump in without notifying anyone. Need to know [document] this number [external involvement].
- Incident command. Tap in liaison position early. Much is outside Coast Guard lane. Tie into liaison who can connect to the state and the communities. Liaison can help with listening.
- Involve the public in the information from the National Response Center (NRC) reporting process. It is currently tough to track down follow-up information on incidents after an NRC report is filed. Need a unique identifier for each incident that is consistent regardless of which system it is in (e.g., U.S. Coast Guard, Louisiana Department of Environmental Quality, Environmental Protection Agency all have different identifiers). Maybe do this at the federal level.
- Lack of record on who’s involved in response, which is the denominator that is used to calculate rates. Need a brief survey of responders with basic information of who was involved. Very brief: Who? What level of disaster? Change-over in staff and command makes tracking responders difficult without longer record keeping. How many years should records/surveys be kept?
- Look at Incident Command System structure and getting human element [incorporated] and making it [human element] an integral item taken into consideration to revise protocols.

- Need contact information for response participants beyond name. Need additional protocols to address FOIA (Freedom of Information Act) concerns and privacy of responders/participants.
- Need protocol at the beginning of response to systematically collect data on responders.
- NRDA (Natural Resource Damage Assessment)—where is the human component? Other than lost use and recreation?
- Organizations that pool resources for response—e.g., Clean Gulf Associates, or co-ops that businesses control—are needed. Marine Well Containment Company—all 10 major [petroleum industries] are part of this—they have much communication with Coast Guard. HWCG (Helix Well Containment Group) are deep water operators.
- Possibility of using an app to keep track of participants post-response.
- U.S. Coast Guard knows who is involved in response, but difficulty getting that information out to researchers.

Information access

- Can oil companies and Coast Guard share information (we are in it together)? [Industry suggestion]: If it is a BP response but Chevron has information on a community, can Chevron share this information with response? [Coast Guard response]: We are not aware of this happening. In drills we have an engagement plan—we would use this information in response and with Unified Command.
- Try to have internal response teams also look at physical health, mental health. There is more emphasis on this now. Drills do not get into long term/deeper dive [on health impacts] in one day [typical length of spill drills]. Institutionalize these aspects so people expect this in drills. Could baseline data be shared?
- Locations of actual impacts not easily known when private sector is involved. [Clarification: discussion was about the impacts to communities and employees of private sector firms when spills are contained within private property and therefore not reported.]
- Need instance/incident rates from X miles of pipeline. Many over/under reporting conflicts, no good statistics on rates [of incidents].
- Need knowledge on rates of damage to oil and gas infrastructure, pipelines, etc. How do these relate to rates of smaller spills? ERMA (Environmental Response Management Application) has these data publicly available but they are hard to access. Need changes to accessibility of spill data.
- Require private facilities/sector to report spills on private property.
- There is no current way to determine historical rates of spills at a given facility.

Education, training, and planning

- Coping with Technological Disasters guidebook [is a source for education and training]. Share information about the Incident Command System with others, e.g., what their role is.

- Educate communities [using] conversations, not just PowerPoint presentations. We need to educate management within oil companies on how Incident Command works. Community and industry [should] work together. Coast Guard training on Incident Command System—send a singular message.
- Have communities pool resources too. Form a consortium. Mirror the technology approach. If something happens, develop how response could work but with focus on the community. This is best if driven by industry (since they are not in regulation). Area Committee meetings could include this idea. Put an annex in Area Contingency Plan or regional plan. Where does it say we need to do it? [If there is language in the plan directing response toward communities, then responders can act on it.]
- Help communities learn how Incident Command System works—help them understand the process. How it works. Why it is set up. How is it different than when a hurricane occurs?
- Need to educate communities. Many within a community are not aware of potential impacts.

Training and written plans based on oil and impact on environment are needed. People and community share what will happen during a spill, but plans currently do not include what will happen to the community.

Research, baselines, and monitoring

- An assessment of economic impact is needed.
- Effective baselines and metrics to inform response are needed.
- Need a national standardized air monitoring plan, regardless of location and duration. State vs. federal regulations could potentially be political. Specific design would need to be vetted to ensure greatest protection of health.
- There is no baseline data for bloodwork (or other aspects of health).
- Understand community's health and well-being within the social networks.

1b. Protocols to build economic resilience

Claims and compensation process

- Agreeing to a settlement at the beginning of a spill prevents future claims. However, agreement was required before full understanding of impact. Options were not translated for multiple communities or language levels. This led to failure at the community level.
- Cultural guidance or best practices should be incorporated into the compensation process to alleviate stress.
- Currently funds are available for cleanup. OPA 90 (Oil Pollution Act of 1990) states that the Responsible Party sets claims process. Can [it be revised] so claims can be revisited after a few years?
- General guidelines for compensation are included, but the specifics are too variable. E.g., priests can't validate/verify your identity. [Clarification: Participants were talking about the difficulty for some community members to prove their identity]

when multiple forms of identification are required. May need to consider use of trusted community members to vouch for people.]

- Get attorneys more involved in [claims] process. How to get immediate money for support? Need the right people at the table.
- Help is needed filing claims, e.g., for the Vietnamese community. CCC (Coastal Conservation Corps) helped with filing paperwork. English language classes are needed.
- Know what you are insured for. Do research to make sure you are covered for certain risks.
- Need to hire someone specifically to work at claims, and make sure they are trained about that community.
- There needs to be a system so people don't have to sign away their future rights.
- They should be able to get more over time (e.g., herring fishery crashed many years after Exxon Valdez spill, but too much time had passed). Lessons from BP and Valdez (Valdez was purposefully stalled so claims process dragged on for many years). Change the claims process so impacted people don't feel the need to hurry up and get what they can.

Education, training, and planning

- Communities need to know the protocols ahead of time.
- Diversify the bread basket, i.e., have a backup plan. Need to make sure communities build in economic capacity to account for/buffer against future incidents.
- Education—need the right training for kids (STEM—science, technology, engineering, and math). Some groups (e.g., Vietnamese fishermen) save money so their kids can do something other than fish. They have different perspectives when making life choices. Some kids are discouraged from making decisions to do something else.
- Floating grocery store (literally floating)—have it in place BEFORE times of crisis so it can operate efficiently and effectively (and people know about it) when crisis hits. Helps alleviate food deserts during crisis times. Look into legal restrictions. It is a throwback to former forms of grocery delivery. Train people from community to do organizing work, etc. rather than outsiders, to keep power inside community. Create transparency in things like participating in VOO (Vessels of Opportunity). Build response capacity within members of community, for example, CERT—FEMA-based (Community Emergency Response Teams—Federal Emergency Management Agency). Also, train “evacuteers”—volunteer-based group to help evacuate (doesn't work in city, when everyone leaves during an emergency, but might work well in small communities).
- Train people about claims during “peace time.”

Local employment

- Build blue economy and build capacity. Involve local residents in response to storms and spills; don't bring in out-of-state people. Include coastal restoration within state groups.

- Responsible parties, feds, and state agencies should have a requirement to hire locals short and long term (ex: restoration activities; during response hire local caterers etc., unions).
- U.S. Coast Guard work with OSROs (oil spill removal organizations) to work with fishing industry to train them to be involved in response. VOO (Vessels of Opportunity) program is an example [but it has] pros/cons. Federal organizations can't favor/select any one organization over another.
- VOO program had many issues. Funds had been previously allocated with little remaining when really needed.

Liaisons

- Liaison protocols poorly run.
- Need someone who can “slide in” to Area Committee. Local pockets or lists of people that can speak to community issues.
- People put in place to work as liaisons or VOOs (Vessels of Opportunity) were not well trained or prepared. Need to prioritize finding individuals and building strategies for engagement.

Communications

- Make sure spokespeople (1) are knowledgeable, (2) understand community, and (3) can translate information to audience effectively.
- Takes too long for “good” information to be released. Information has to be vetted up the chain [of command in the response] and fishers suffer. False information comes out and hurts communities.

Employment diversification

- Diversify the bread basket, i.e., have a backup plan. Need to make sure communities build in economic capacity to account for/buffer against future incidents.
- Industry left the Ohio River area (not diverse). We have diversity in the Gulf. Look at other industries—diversify. Don't just do what previous generation did (don't forget education). Look at Great Lakes region.

Other

- Change zoning regulations.
- NRDA (Natural Resource Damage Assessment)—where is the human component? Other than lost use and recreation?

1c. Protocols to improve risk communication

Communications

- An adaptive management plan should be created that includes risk communication. Be able to assess if information is reaching the people. Evaluate how information is received by people. Was it the way it was intended? Incorporate feedback by audience for future. E.g., Jetty is a communications company that allows industry to assess how information is received.

- Center for Risk Communication works and provides framework for understanding your target audience and networks to utilize [for information exchange].
- Citizen outreach should be conducted annually or semiannually. Letter in mail is received by all in community (e.g., letter says a pipeline runs through area). This currently occurs and has a warning that it is in your area and what to do if notice a problem. Could include this in the water bill. Update and continue to engage with citizens. Have a mechanism to collect feedback. How to handle if paper mail is not received (not everyone gets paper mail). Example: brain-eating amoeba was in a parish and we got information from the Coast Guard about it (but did not receive any information by being a citizen in the community). Chevron pipeline spill: Chevron employees went door to door with a set of talking points and a leave-behind [pamphlet] was provided.
- Incident Command is a source of information. Once emergency response ends then Joint Information Center closes, so then where do you go to get information? People need a continued single point for information after demobilization. Sustain communications with community. Hurricane Harvey is still in recovery phase; it is a diverse community. Theresa Dardar gave a good example where her husband found oil but did not know where to report it.
- Look at the temporal aspect when spill occurs. Researchers would be in the way of a spill. Communicate out front for people to get out. Researchers could coexist but need clear communications with responders.
- Need concise communications.
- Need to differentiate between communication (one way) and engagement (two way). Both are important in emergency—e.g., you must evacuate (one way); where do I go? (two way).
- Not all communications fit. Not one size fits all. Example: flood mitigation CRS (Community Rating System). If it has an outreach plan a community can get CRS points. Could include PPI (Program for Public Information) risk mailing for CRS and include flood, hurricane, and spill information.
- Researchers are rarely the best person to communicate risk. Need for non-advocacy; descriptive not prescriptive. Focus on concerns for exposure, consumption, etc. Needs to happen as soon as possible after event.
- Takes a long time to gain trust; easy to lose it.
- This (Joint Information Center/Incident Command System) is at high level. Need to adapt to individual community needs. E.g., something in Massachusetts does not work but it could work in Louisiana, or something could work in East Houma but not work in West Houma. Understand your stakeholders.
- Two take-aways: Immediate communication. Long term communication.
- When regulatory changes are made then we share information easily in terms that people can understand. Example: Flint, Michigan—a decision was made but not trusted since it was not communicated well.

Education, training, and planning

- Develop frequently asked questions/FAQs (internal or external) for understanding of relative risks for different types of exposure.
- Embed outreach component into response to communicate risk. Use an embedded field agent.
- Include risk communication during spill drills. Include an education component. Assist with preparedness. Set up trust between people in advance. Depending on what part of the country there are different levels of trust.
- Perception exceeds actual risk.
- U.S. Coast Guard uses scenario planning/exercises (e.g., tabletop exercises) to prepare and train. But are residents adequately included in exercises? It's difficult to get them to come out (also, invites are dependent on the scenario). It can be valuable for citizens to understand what the process/protocol is for response.

Liaisons

- Increase capacity for Sea Grant-type agents.
- Need a community member acting as representative of the area during incidents.
- Provide one source of information that communities can look to as trusted source. This source or spokesperson of source needs to be able to make decisions about community needs to convey them up to response.

Spill drills

- Include risk communication during spill drills. Include an education component. Assist with preparedness. Set up trust between people in advance. Depending on what part of the country there are different levels of trust.
- U.S. Coast Guard uses scenario planning/exercises (e.g., tabletop exercises) to prepare and train. But are residents adequately included in exercises? It's difficult to get them to come out (also, invites are dependent on the scenario). It can be valuable for citizens to understand what the process/protocol is for response.

1d. Protocols to support recovery of particular audiences

Community-led efforts

- Include audience-based requests into programs using a bottom-up approach instead of top-down. Tailor programs to audience needs.
- Increase inclusion of target audience in development of recovery programs. E.g., VOO (Vessels of Opportunity) issues. Use embedded locals.
- Work with communities on what they envision/want out of recovery. Integration of community needs and definition of resilience is key on front-end of pre-planning and continuing through every phase. How do you assess success? Have community design metrics to evaluate their community. Might need professional moderator to work through.

- Working through pastors in community is important to reach audiences. May need many meetings because of geophysical disparities. Make every voice heard, which also entails having accessible meetings (on weekends, with childcare, etc.).

Recovery protocols

- Parallel NRDA (Natural Resource Damage Assessment) and mandate this is followed. Have inclusion of local knowledge in this process.
- Tailgate-test of recovery process is not as rigorous as required by NRDA (Natural Resource Damage Assessment). It is less defensible than NRDA.
- Use of post-event “hot wash.”

Information access

- Cannot access state-level data in a timely manner.
- Requirement to have valuable information provided to audiences when creating programs. Don’t just check the box; don’t waste audience time.

Recovery definition

- Disagree with concept of “recovery” to “normal.” Need to redefine “recovery” because what is “normal” may not be good. Community could return to an artificial good/better baseline. Does change necessarily promote good for community or is it gentrification? Gentrification problems already exist in New Orleans and Houma and it has created tension in these communities.
- Recovery needs to be achieved at multiple levels—geographically and metaphorically.

Other

- An assessment of economic impact is needed.
- Build community trust. Example: in state of Washington a community felt unsafe, particularly at night—street lamps were largely broken or no light bulbs. The mayor took note and implemented a program to replace street light bulbs on a schedule. This enhanced the community’s sense of safety at night and they felt heard. This program increased the community’s trust in government.
- Post-assessment health checks are needed.

Appendix B2. Pilot project ideas

2a. Pilot projects for integrating human health, community well-being, and social dynamics into response planning

Community-led efforts

- Network within community and organizations to increase resilience capacity. This could help understand who key players are, resources, and areas of disconnect.
- Community [should be] leading the way. [Efforts] would be [made] with outside funding but community-led; not an outside entity leading and executing inside the community.

Long-term mental health support

- Mental health [support is needed]. Many people do not go to mental health professionals. How does social infrastructure work? How to enhance the social networks [for mental health support]? Coast Guard training uses Critical Incident Stress Management (CISM). It was developed post-Vietnamese war and helps people come to terms with what they saw. Coast Guard has CISM peers. This is the first line of decompression, and follow-up resources [are offered] for responders. CISM is part of demobilization. Chaplains are available too. Could this be implemented within the community? Some companies are integrating this (e.g., Progressive Insurance). [We] could use a model like grief counseling within a company, and long-term peer-listening evaluation.
- Ongoing mental health support that is free and available to impacted communities [could be a project]. Doctors would be involved as part of this long-term project (research) but communities would get help they need. E.g., fishers that do not have insurance participate in free group therapy sessions offered by health practitioners/doctors.

Response tracking information

- Develop an exit questionnaire of personnel following an incident for pre/post comparison of response. Incorporate environmental health/safety into this. It is better to have participants opt out than opt in, and can default their inclusion in a follow-up [questionnaire].
- Development of a “responder app” for checking in at a spill. Need to develop unique identifier that is not sensitive but links to more permanent information for tracking, e.g., SSN (Social Security number).

Collection of spill source data

- Project to determine rates of discharge from aging infrastructure.
- Currently more information available from offshore spills than onshore, potential project to gather this information.

Other

- Adopt international protocols for reporting (e.g., Norway).
- CLEARN (Community Resilience Learning Collaborative and Research Network) [study] is developing a resource guide.
- Community well-being should be considered. Do not count on census data. What are community dynamics? Quality of life—how do stressors disrupt quality of life? A challenge is that this cannot be done in every community. Select areas where hazard risk is higher. Chevron developed data analytics in areas of higher risk. Integrate academia and industry. Community well-being requires face-to-face interaction, cost, time, and building relationships with communities. It is not basic research, but applied, and it is hard to find resource to do it. Community health clinics in Lafourche, Louisiana, had collected this type of information. Each state has their own health authority. Some measure temperature of people but do not capture stress. State supports Incident Command System and community drills. Work with

communities through drills. Explain what you want in exercise; industry has freedom to frame exercise [based on what is wanted/needed].

- Educate communities, neighborhood associations, church groups, children, and schools (generational education).
- In Alaska, health impact assessments (HIA) are done when a big project is being planned. HIA looks at [factors like] substitution (e.g., if you don't catch fish what is the alternative, which may not be as healthy), and looks at where people get groceries. Who does subsistence fishing? We don't know how much subsistence fishing there is, and we don't know the extent in the Gulf of Mexico either. Baseline data is collected pre-event and done at the community level. [Consider] regulations. Gather community input if they want industry in area (e.g., shipping/cargo). How will waterway be impacted (e.g., land erosion)? Usually state and local governments are involved. Example: when port risk assessments are published—want local government input.
- Industry operators and Coast Guard work at Captain of Port or Region 8 level. Could have two appendices (not yet at industry level) [in Regional or Area Contingency Plans]. For example, seafood liaison and science and technology liaison.
- Need community-level preparedness, both in terms of infrastructure and at the institutional level.
- Network within community and organizations to increase resilience capacity. This could help understand who key players are, resources, and areas of disconnect.
- Partner a researcher or funder with a person in the community doing the work and utilize crowd-sourcing of information needed ("citizen science" style).

2b. Pilot projects for building economic resilience

Research, outreach

- Compare long-term vs. short-term recovery. E.g., BMPs (Best Management Practices) are time-sensitive.
- How [do we] bridge risk communications? Incorporate an understanding of people's perceptions. Are we resonating with what is happening on the ground?
- Need a good objective assessment of economic impacts. Determine money needed to make it "right" vs. just satisfying.
- Test effectiveness of a "strike group" of communicators, like Sea Grant.
- What did audiences (e.g., fisher people) like about the process or response (from Deepwater Horizon)?

Employment diversification

- Aquaculture [could be] developed so that there is potential to buffer impacts to fishing industry during times when wild caught isn't available (because wild caught fishing areas are closed due to spill).
- Buy-back program for unused fishing equipment [could be created] so fishers can buy or trade new equipment for new/alternative job during disaster time frame.

- Fishing/harvesting communities [should be able to] switch between species that can be targeted. If harvest is closed for a species impacted by spill, are fishers allowed to switch to a different species during that time?
- Need more companies and business opportunities outside of oil and gas. E.g., Silicon Valley in Louisiana.
- Sportsman to Sportsman outreach project is ongoing in Louisiana [and an example project]. Sportsmen from Louisiana promote sportsmen from other states to come to southern Louisiana to hunt and fish. Example of infrastructure to support this are cabins [for sportsmen] to stay. Prioritization of many moving variables in environment and Louisiana Department Wildlife and Fisheries alters hunting/fishing regulations accordingly.

Partnerships

- Can food banks, shelters, churches, and other groups work closer together on a regular basis so they can be better prepared when crisis occurs?
- Create a co-op of shared funds/resources, and involve food banks. Consider the people who live day-to-day.
- Public/private partnerships, like Chevron and Shell and water institutes, [could be developed]. Where [should] dredge materials be put to protect the community? Where is the greatest protection? Oil and gas industry employees live there too.
- Use part of lottery for economic resilience to economic stressors.

Information access

- Access to electronic information (e.g., podcasts), recordings, or other formats [could be made] available to a community years after [a spill] event, but during the claims process.
- Determine impacts of “gatekeepers” for access to communities and community access to information. It can be hard to gain access to communities if you don’t know who the gatekeeper to the community is, but these gatekeepers may also (perhaps unintentionally) reduce community access to information or participation in projects.

Other

- A claims backup plan [could be created]. For example, like a hurricane savings plan or stockpile shrimp to eat. Coast Guard training includes hurricane preparedness training that includes financial management. [However,] vulnerable populations may live week to week so are not be able to save. They are living a disaster every day.
- Compensation scenarios—like spill drills—can mitigate stress associated with claims process. Can this be part of overall training that we give the community on Incident Command System? This could be one segment of the training.
- Create a sustainable local area natural resources tourism pilot project (e.g., ecotourism).
- Develop a template for “something’s occurred” following event. A faster report would expedite the process and get information to community. Consistency is needed in

information gathering at same scale that allows for cross-event analysis and future planning. Standardization is needed that allows for outcome analysis, and no guessing during stress of event.

- Get civilians involved (paid) in restoration projects. E.g., training of tribes at Superfund sites.
- Mental health student programs [could be created] where students could participate in a Strike Team. Mental health professionals can help guide impacted individuals to the economic resources and programs they need. Students should be highly trained by professionals/experts (they should avoid the “I’m here to save you” attitudes and mindsets). Could also include local churches, with trained peer groups to provide listening and venting services, but also know when to defer to other professionals. Economic and mental impacts and services are connected.
- Stafford Act [allows for] low-interest loans to be available when a natural disaster occurs. Can you use this model for a large-scale spill? E.g., a disaster loan for individual families, or communities. Can Gulf Research Program leverage this idea at higher level, can they change the law?
- Use of a Sea Grant agent added to response contingency plans; does this work? E.g., like Louisiana Sea Grant pilot program.

2c. Pilot projects for improving risk communication

Communications

- Build an evaluation tool. Area Committee meetings are on Fridays during normal working hours, but how to engage with people who are busy at that time? It can alleviate or create conflict; when should you have the meeting? Hold meetings when and where the people are. [Evaluate] radio, mailers, door-to-door, social media (though not all people are on this).
- Co-design a communications and outreach strategy. Offer a stipend for local community members and response community members. Develop a communications/outreach plan with many different people at table. Industry has regular meeting with community leaders and community members. Some isolated pockets [of people] in some areas.
- Create communications strategies for K–12 students. Use schools and include information in school flyers for parents too. Develop materials, e.g., industry shares booklets for teachers to use to share information about new industry projects. Removes anxiety. Kids can become advocates.
- Determine best method for communicating information given that people have different ability to access information.
- How to bridge risk communications? Incorporate understand of people’s perceptions. Are we resonating with what is happening on the ground?
- Standardize way/guidelines to communicate. Have flexibility. Include researchers and findings in risk communication to draft the models. How figure out communications? Get mental health professionals’ assistance. Economic professionals’ assistance. Different pockets within community to communicate to.

- Test effectiveness of a “strike group” of communicators, like Sea Grant.
- Training in risk communication is needed. Scientists and community leaders should learn risk communication skills pre-incident. It would curb sensationalist media/social media posts during incidents (made by researchers) and make sure leaders have the right scientific info going into the event. Mini-science experiments to demonstrate concepts to leaders (e.g., how dispersants work) could be included. Perception vs. reality plays into people’s pre-existing ideas, which is why this training is so important.
- Understand what methods of communication to use. Determine a person’s ability to retain information after delivery. Determine impact of word-of-mouth vs. electronic communication.

Engagement

- After a response is over, is there a model we can adapt/adopt for longer-term communications/engagement with the community?
- How to maintain a communication point [of contact] during and after an incident?

Training

- Move trainings into places like churches and provide good food and childcare. For example, the community forum during Bayou Beer Festival. Southeastern Louisiana is very open to knowledge during social gatherings.
- Training in risk communication is needed. Scientists and community leaders should learn risk communication skills pre-incident. It would curb sensationalist media/social media posts during incidents (made by researchers) and make sure leaders have the right scientific info going into the event. Mini-science experiments to demonstrate concepts to leaders (e.g., how dispersants work) could be included. Perception vs. reality plays into people’s pre-existing ideas, which is why this training is so important.

Other

- Convene local stakeholders to create a local action plan, identify gaps, determine risks, and make a plan.
- Expand the Peer Listening program.
- Explain how the Incident Command System works at a local level, and how the structure works. Say if x happens then this is what happens next. Make it more easily understood. Adapt Mike Sam’s talk and make it for local community members.

2d. Pilot projects for creating audience-based disaster recovery programs

Communications

- A comprehensive list of resources/toolkit, or a flowchart of which resource for specific situation at hand, is needed. An Environmental Protection Agency interface currently exists. Develop an app, Excel spreadsheet, or even a flowchart. It should be made at the level of community, state, parish, U.S. Coast Guard Area Committee (but note broader level is less useful to community members).
- A recovery podcast [could be created].

- Hotlines are needed for people to connect with real people (like National Response Center) that are direct and not a lot of numbers to press to speak to someone.
- Response and recovery lines [hotlines] can be overlapped.

Community-led efforts

- Local needs/resources must go through community (e.g., housing and food).
- Small events may be handed off to local government.

Other

- Create a network of administrative units of geographical areas to work to understand shared concerns, and be sure to include industry in discussion. It would help build trust but would need good facilitation. Create a continual base of communication and keep/build trust. Important for industry to try to remain engaged whether their company is involved or not. Supplemental environmental projects can be catalyzed and more inclusive of community needs if all players (including industry and feds) are involved.
- Compare long-term vs. short-term recovery. E.g., BMPs (Best Management Practices) are time-sensitive.
- Federal government limited by statutory authorities but government (via U.S. Coast Guard) could send volunteer to do things like help (e.g., sandbag vulnerable areas in community).
- Incorporate audience members into drill planning.
- Need a good objective assessment of economic impacts. Determine money needed to make it right vs. just satisfying.
- [Understand the] value of providing cash instead of just information or technology transfer. Impacted communities don't need to be taught how to manage stress before helping them get on their feet. Feed the stomach before the mind.
- What did audiences (e.g., fisher people) like about the process or response (from Deepwater Horizon)?

Appendix B3. Research and outreach priorities

3a. Research and outreach priorities for integrating human health, community well-being, and social dynamics into response planning

Research priorities

Baseline information

- Economics of communities [needs to be understood] before a disaster vs. after.
- Need baseline data—work with communities to gather that data—maybe through citizen science. LEAN (Louisiana Environmental Action Network) exists, maybe do workshops to gather the needed information. Big issue is this stuff exists but people often don't use it because citizen science is not considered legitimate by some. Also lack of money/funding is a problem.

- Baseline information is needed, such as oil from natural seeps—how much? How often? How is that impacting people?
- What are baseline psychosocial issues? (E.g., what are the stressors on community?) Give the info to the U.S. Coast Guard, etc., to use.

Improve the research process

- Keep in mind the research process (including application for funding) takes time. This is a drawback.
- [Researchers should be held] accountable to community after using the community to collect information.
- Reward structure (within your profession) makes it tough to see outside of your work box (how you can connect with others and serve). Or if you can collect that info (baseline data), can you release it to others? Need to make RFPs (requests for proposals) geared to benefit community not just other academics.

Citizen science monitoring

- Consider Public Lab (a form of citizen science) and low-tech data monitoring (something like, "What is the air quality like?").
- Create citizen science opportunities for responding to cleanup, e.g., Superfund sites.

Other

- How can technology tie in to research and outreach priorities? Can technology (social media) help?
- Informing the public about what is going on is important. More transparency is needed. Help the public avoid using Facebook as a news source.
- Need more information regarding daily effects.
- Why won't fishers contribute to or participate in group therapy? Focus groups, social opportunities, etc. Maybe they experience "psychological weakness," and there is competition between fishers.

Outreach priorities

Local meetings

- Before the next incident, networks need to be connected.
- Come to Area Committee Meetings to update Area Contingency Plans and integrate a resource guide into the plan.
- Locals need to attend LEPC (Local Emergency Planning Committee) and other forums but are fatigued by meetings.
- [We] have to meet people where they are, on weekends or evening meetings.

Education

- Create courses/opportunities for communities regarding mental health. Use continuing education credits for community members that take offered courses. State license holders have to take continuing education credits for accreditation, why not other community leaders/members?

- Local residents still don't know who to call, who is in charge, or the response plan.
- Offer credits to social workers, attorneys, others that work with communities, for participating in workshops/seminars like this one. Some organizations require preapproval of agenda/topics to be accepted as CEs (Continuing Education credits).

Other

- Responders are mission-focused and may need additional resources/attention to consider personal safety and mental health. Need to advocate for responder health.

3b. Research and outreach priorities for building economic resilience

Research priorities

Economic analysis

- A benefit/cost assessment for different investments into community could be made; industry does this. Put an economic decision-making guide into a model to see different opportunities. For example, what are economic returns of flooding? What are benefits of different economic investments? Boston built an island for wastewater to handle a city-wide problem. It was a big investment but created many jobs. Need to account for market and nonmarket valuation in evaluation. Quantify value of an area of a certain kind of habitat.
- "Blue economy" turns Louisiana's biggest threat into its greatest asset. We are experiencing flooding and becoming a national leader in flood technology. Explore ecotourism options.
- How [do we] address multiple scales? The short-term compensation [contrasts with] the long-term and systematic resilience process.
- How does diversification work in smaller communities?
- Identify trends and diversify the economy. What skills will be needed 10–20 years from now? Position citizen and state to be competitive. E.g., Houston diversified previously. They became good with STEM (science, technology, engineering, and math) and are now pushing technology. Other communities are taking notice of these approaches.
- Take the economic piece out of the political cycle. Plan 10 years out or more, not limited to a four years or less time frame. For example, [politics were a] challenge in Houston, post-Harvey.
- What are the barriers to economic resilience? What are opportunities that benefit [the economy, people]? Blue economy, locally [is an opportunity].
- What is the need for oil companies? Ensure that workers are documented. Allow dual roles for staff such as production and response qualifications for the same individual. Diversify staff that can serve 2 different roles. If a spill occurs, stop production and start response.

Employment diversification

- Build on seafood programs, aquaculture, etc. Modified atmospheric packaging of seafood [is an example of diversification].

- Byproduct conversion of sellable product such as from seafood, farms, and other [could be an option]. Could byproduct be used to clean up spills?
- Do people in Houma care enough to pursue change [in employment, in health]?
- Economists could do a study about what other/additional skill sets we have here, in order to branch out and bolster the economy. E.g., are there boat builders and net makers among the communities? Can their skills be put to work? Boats and nets are needed around the country, so if fishermen are out of work because of a spill, would it be lucrative for them to switch to boat building or net making as an alternative income?

Align plans across agencies, institutions

- Align all plans together, such as economic development plans, comprehensive plans, hazard mitigation plans. This could be a pilot project and/or a research project. There is a resilience planning score card at Texas A&M University.
- RESTORE Act [provided] millions of dollars to restore the Gulf of Mexico. We talk with federal, state, and local agencies, and industry, before we build (restore). Are we prepared to protect it? Incorporate into Area Contingency Plans and other plans up front. How do we build and maintain projects in an environmentally responsible way?

Other

- Coastal land loss is driving the cost of land up. How do we change zoning regulations to bolster economic resilience? What is the most beneficial and most effective use of land? What are the long-term benefits vs. short-term benefits of changing zoning and land use?
- Continue seafood safety studies on the data samples. How much does foreign seafood play in versus fear of Deepwater Horizon contamination? Shrimpers need the most help to educate people on health of seafood post-Deepwater Horizon oil spill.
- Fishers need to keep records to prove they lost business for claims/compensation process. One issue is that fishermen need to pay taxes, they need insurance (other groups do too, not just fishers), and fishers don't get subsidies (they don't get paid not to fish, like farmers do).
- In the state of Louisiana, how [do we] deal with older, retired equipment (e.g., decommissioned platforms)? Right now, [companies] sell a lot of good and old wells so companies take on both and plan to plug some.

Outreach priorities

Community engagement

- Develop a pool of individuals that can engage communities on economic issues. Develop the trust of the community.
- Identify community members that are uniquely qualified to engage the community. Prioritize the community.
- Limitation in data availability on phones [is a problem]. Even when phones are sent out for free, phones not used for the purpose provided.

- [People] can't parachute in; researchers must develop trust. Relationships take time to develop; changeover can cause lags or issues if there are not adequate overlaps. Sea Grant offices/colleges have someone specific that is able to connect with the local community on spill/disasters.
- The Mosquito Supper Club (family-style Cajun food, farm to table) can be used as a model for community engagement.
- Use established festivals to exchange information and share ideas.
- Workshops bring in different groups to reduce division and get people talking.
- Need to show/tell people who to call, where to look, how to ask to get best information. [Doing this] during an event is too late.

Preparedness

- Groups (e.g., fishers) need to be educated about claims process and compensation process before incident.
- How do you convince people to get the training and education they need? People are already depressed or struggling.
- Need more organization for locals to support each other and locate resources before incident (ex: Cajun Navy is/was highly organized).

Other

- Create a credential program for coastal restoration specialists as a pilot project.
- Free resources are needed, as are mental health professionals on the ground immediately during a spill ("strike team"). Potential medical student opportunity.
- Tie Sea Grant in more closely to response.
- Youth outmigration ("brain drain") is a problem. How do we get youth to stay in the area? It's frustrating that many good jobs go to people from outside the area. Focus in on things culturally unique to the area to promote the area, e.g., Louisiana folk life program. Take advantage of cultural capital—do outreach on it! Identify potential sources (vocations) causing brain drain. Organize a coalition of researchers versus everyone competing against one another and doing separate work (and accomplishing much less than if everyone banded up together to tackle issue).

3c. Research and outreach priorities for improving risk communication

Research priorities

Seafood safety

- Conduct follow-up studies from Deepwater Horizon risk perception for seafood. Couple of surveys with science about actual risks.
- Differences between national vs. local risk from consumption.
- Improve ability to track commodities, farm to table. Unknown origin leads to distrust. Informative labeling allows for tracking and trace registry. Information needs to be passed both ways.

Other

- How [do we] build trust in a community? Provide information to people already in positions of trust, such as physicians, barbers, and therapists. Use cachet of university to build trust in community (Geaux Tigers!! Everyone gets behind Louisiana State University, for example). For example, the water incident in Flint, Michigan. They brought in doctors (dermatologists) from outside who understood African American skin issues to see patients and respond to patients' concerns very unique to that group. Time investment built trust. Cultivate an environment that promotes trust. Community leaders could initially kick off an effort and then let community discuss how to do it (all this takes place pre-incident). Can also bring in outsiders (e.g., from federal government) and train leaders on front end and let community take over. Ignite the fire!
- Survey the community about risk perception immediately following, and/or coupled with, an academic article or science communication.
- What are the local social factors that impact science communication and perceptions of risk? Improvements—like tools, strategies, and methods that do a better job of creating appropriate use of information—lead to effective communication.

Outreach priorities

Community engagement

- Impacts can be felt even far away from physical presence of oil.
- Outreach requires flexibility.
- Town hall meetings with face-to-face contact [can be used to] deliver Frequently Asked Questions and facts.

Local employment

- Perceptions that VOO (Vessels of Opportunity) program was not equitable [exist in communities]. Communities felt decisions were unfair.
- VOO program was poorly organized and poorly communicated. Need new ways of getting information to communities.

Other

- A train-the-trainer program [should be created with] industry and Coast Guard and other risk communication experts and community members. Get together and train community members. Community members can then share with others. E.g., city council members become points of contact for more in-depth questions, but with Coast Guard, it can be hard to build relationships since they move.
- Outreach personnel need a direct point of contact, one source, to get information from. People need to know who to call when event happens. During Deepwater Horizon many communication issues required multiple phone calls to many offices without answers. People didn't know how to contact Incident Command and didn't know the right source of information. The 800 number had wrong or bad information.

3d. Research and outreach priorities for developing audience-based spill recovery programs

Research priorities

Communications

- Create story maps of data similar to the New Orleans historical information story map that is available online.
- Create a network for communication across audiences. Find an “interpreter” to cross over audience differences.
- Figure out how to tailor messaging to specific audiences.
- Identify barriers to messaging depending on audiences.
- Need balanced messaging to avoid blame. One-sided messaging should be avoided.
- Need to target youth audiences. Prioritize audiences based on vulnerability. Youth are particularly vulnerable but underserved. Young community members are vulnerable to misinformation or false information while also being overlooked during a response. People that deal with youth issues should be tapped to interact with response communication to ensure young people are not left out of the conversation and not overlooked for potential mental health threats.
- [Research] use of pop-up ads to target audiences. Type of ads relate to needs or online searches.
- Tap into social media to determine outreach needs. Use Twitter or Google Analytics to find most searched keywords or trends. Similar to disease mapping, of hot spots, [it is] based on specific searches (like symptoms). Determine limitations to access of social media data. Does Louisiana State University (or smaller school) have same access as Harvard to social media data? How do researchers get “in”?

Short-, mid-, and long-term recovery

- Create a roadmap for recovery at multiple time scales.
- Determine the common denominator across audiences, and determine when they differ.
- Compare short-, mid-, and long-term approaches to recovery.
- Study how communities (individual to administrative structure) deal with and are impacted by longevity of disasters.

Citizen science monitoring

- Develop standards and metrics for recovery and an app to track them.
- Track citizen scientists.

Outreach priorities

Baseline information

- Conduct mental health assessments and studies.
- Make linkages with Traditional Ecological Knowledge. Sea Grant can help make those connections.

- Take census data and conduct ethnographic interviews.
- Track calls to National Response Center; data is available through Freedom of Information Act offices. This data can be used to track which geographic areas have the most reports and to do proactive response planning. Get groups like Louisiana Department of Environmental Quality to investigate.

Preparedness

- Identify personnel with skill sets that can help with analyses, e.g., GIS (Geographic Information System) specialists for mapping out closures or other boundaries.
- Need to figure out who the scientific experts are, and which ones can communicate to audiences effectively.
- Network response and outreach [personnel] together prior to event.
- Subject matter expert lists need to include extension and others with actual experience and it needs to be updated regularly. Groups like this workshop are a resource.

Citizen science monitoring

- Develop standards and metrics for recovery and an app to track them.
- Track citizen scientists.

Appendix B4. Resources

4a. Currently available resources

Organizations

- American Medical Association. Can broaden scope.
- Barataria-Terrebonne National Estuary Program (BTNEP) is a classic connector in community in southeastern Louisiana.
- Cajun Navy.
- Centers of Excellence for different states. Link each state and RESTORE Council.
- Churches—reach out to each. E.g., in Houston, there is a collaboration of different religions that work on social issues.
- Coast Guard has communications and outreach people.
- Community of Practice— isn't there one with a citizen science focus? Folks could utilize this resource to help ground-truth information for their actual community.
- Conservation Corps.
- Credit Unions and banks might offer financial planning and workshops to help through tough times. They will visit neighborhood associations.
- Delcambre Direct's shrimp boats sell directly to consumer.
- Environmental groups and nongovernmental organizations.
- Faith-based organizations.

- FEMA (Federal Emergency Management Agency) has a recovery support framework which can also come into play during technological disasters. FEMA is great but won't get involved in oil spill (e.g., they paid translators to connect with communities in Puerto Rico hurricane).
- Food trucks and the Food Truck Association.
- Green Army.
- Groups like CCC (Coastal Conservation Corps) are a critical resource to get involved in economic resilience. They focus on specific communities, e.g., Gulf Coast Center for Law. Could all NGOs get together to work collaboratively on a long-term issue?
- Gulf of Mexico Research Initiative (GoMRI) and Gulf of Mexico Oil Spill and Ecosystem Science Conference (GOMOSEs). Gets word out. Does it aid in integration? [They might] transition to response.
- Gulf Research Program has longer lifespan than GoMRI. They focus on applied research.
- Gulf Restoration Network.
- Health and Human Services deals with health.
- Healthy Communities Forum—SNAP program.
- LA SAFE—Louisiana's Strategic Adaptations for Future Environments.
- Local Environmental Planning Committee. County-wide or major city representation is the lowest/most local government level activity/planning opportunity that state and county officials will get involved in.
- Louisiana Environmental Action Network.
- Louisiana Oil Spill Coordinator's Office (LOSCO).
- National Estuarine Research Reserve (NERR) coastal training program.
- National Institutes of Health (NIH) has a page on resources available and a listserv that gets information out.
- National Oceanic and Atmospheric Administration (NOAA) and Responsible Party, demos to youth audiences.
- National Pollution Fund Center.
- Office of Community Development. Can use this to help determine if money actually stays within the community.
- Red Cross (getting food and water out to people).
- Sea Grant. Can help with advertising meetings and opportunities. Capacity limitation to fulfill all roles.
- Second Harvest—a nonprofit organization. They give away primarily food, and volunteers package and deliver it.
- U.S. Coast Guard harbor patrols drive around to keep an eye on communities.

- Volunteer organizations.
- Youth Conservation Corps, Americorps, Civilian Conservation Corps.

Tools

- 211 is a phone number for social services. General line, area-specific, and fairly direct line and same as 311 (disaster preparedness, social services, and other helpful related issues). In Louisiana, social services connected with United Way, who will send out glossy cards to be distributed during response with contact information.
- Charrette planning process to engage community [and help incorporate] community members wants and needs and head off gentrification ("design by consensus"). E.g., LA SAFE gets community to have voice and dictate what they see vs. what they want to see.
- Citizen science.
- Coastal Protection and Restoration Authority (CPRA) flood risk and community resilience viewer.
- Damage Assessment and Restoration Plan (DARP).
- Environmental Response Management Application (ERMA) mapping tool for oil spills and large disasters (is limited but available to public).
- EPA Enforcement Compliance History Online (ECHO) and Toxic Substances Control Act (TOSCA).
- Freedom of Information Act (online FOIA.gov).
- Inter-university Consortium for Political and Social Research (ICPSR) database is searchable for specific surveys/areas. All social science related information.
- Louisiana Sea Grant fisheries page.
- Massage therapy.
- National Institutes of Health has a page on resources available and a list serve that gets information out.
- National Oceanic and Atmospheric Administration.
- Natural Resource Damage Assessment.
- News outlets.
- Peer listening.
- Policymap.com. Compiles data from NOAA (National Oceanic and Atmospheric Administration), Census, etc. Can use the information to view things like food desserts, transportation issues, etc. Does correlation maps, etc., but you need a subscription to use some of the features.
- Public Lab.
- Radios.
- Right to Know Network (RTK.org).
- Sea Grant extension publications.

- Skytruth.org is a citizen satellite data resource.
- Social media.
- Video conferencing and other technology like Facebook Live during community meetings.

Programs

- Barataria-Terrebonne National Estuary Program is a classic connector in community in southeastern LA.
- Charrette planning process to engage community [and help incorporate] community members wants and needs and head off gentrification ("design by consensus"). E.g., LA SAFE gets community to have voice and dictate what they see vs. what they want to see.
- Community health workers make home visits, door to door to bring information to people.
- Credit unions and banks might offer financial planning and workshops to help through tough times. They will visit neighborhood associations.
- Gulf Research Program has longer lifespan than Gulf of Mexico Research Initiative. They focus on applied research.
- Healthy Communities Forum—SNAP program.
- LA SAFE—Louisiana's Strategic Adaptations for Future Environments.
- National Estuarine Research Reserve (NERR) coastal training program.
- National Estuary Program—Barataria-Terrebonne.
- National Oceanic and Atmospheric Administration and Responsible Party, demos to youth audiences.

Community contacts

- Community "gatekeepers." E.g., fish houses and processing facilities, barbers and salons, and bartenders are centers for information exchange.
- Community health workers make home visits, door to door to bring info to people.
- Community leaders.
- Parish presidents, mayors—they could be another link to Unified Command.
- Public relations liaison in the Incident Command System structure.
- Sea Grant is a point of entry to communities. They are flexible.
- Use trusted community leaders (faith and community organizations). Could include in the train-the-trainer. Similar structure as Joint Information Command. Coast Guard is the number one trusted group according to research by Dr. Ritchie. Coast Guard saves people's lives.

Events

- Oil industry and fishing industry Shrimp/Petroleum Festival.
- Sea Grant's Louisiana Fisheries Forward Summit—fishermen selling seafood directly to consumers at the dock helps build capacity further by for-hire fishing tours.
- Sea Grant's Marsh Maneuvers.
- Sea Grant's Ocean Commotion.

Meetings

- Area Committee meetings, Regional Response Team meetings. They have specific guidance to do this.
- Include Coast Guard with industry at meetings or door to door meetings. Captain of the port and others. When community meetings are led by industry, we do it at schools. We listen. We use a classroom and if there is interest in our topics we go to different rooms. Alleviate the yelling all in one room. More effective in engaging local level.
- Regional Response Teams (RRTs) and Area Committee Meetings (ACMs).

Universities

- Tap into colleges/universities with willing graduate/undergraduates. Consider using eager high school students wanting to build resumes. Companies could use these as pools of potential applicants, thereby increasing economic potential in next generation.
- Universities, if they have proper outreach component, but it would need oversight.

Other

- Industry has communication and outreach people.
- Once money released by Responsible Party, people are able to be hired.

4b. Needed resources

Communications

- Communication methods need to be free, e.g., "Can't burn up people's phones with your texting!"
- Grants for environmental literacy and risk communication should be made available for nonprofits and community groups. E.g., EPA (Environmental Protection Agency), HUD (US Department of Housing and Urban Development), USDA (US Department of Agriculture), EDA (US Economic Development Administration). How does a community member/group know how to or have time to do this? South central planning. Partner with Sea Grant!! Groups like Sea Grant and Barataria-Terrebonne National Estuary Program do outreach during an event, but during non-spill times make tie-ins with other relevant issues people care about (e.g., land loss in Louisiana). Expand to all community members. Develop an industry/community consortium. Knowledgeable group of people/applicants that are a part of those communities.

- Need broader distribution of Sea Grant publications.
- Need two-way exchange up to responders and down to communities.
- Other methods of communicating, e.g., VHF, Amber Alerts, Facebook messaging, National Broadcast, and Notice to Mariners. These (radio communications) may be adapted to broadcast in multiple languages during specific times and/or on specific sub-channels.
- RFP (request for proposal) has to be written to integrate/partner with local people/local knowledge (communities). Can there be a repository of local interested community groups—maybe create a listserv call and build database (current method is Googling and cold-calling). Stakeholder advisory boards to act as conduit (also helps add trust). Doing nothing can lead to gentrification problems making it impossible for area to keep locals due to being too costly.
- Translate the data from NOAA (National Oceanic and Atmospheric Administration) and LOSCO (Louisiana Oil Spill Coordinator's Office) which is already accessible in English for the average citizen.

Funding

- A Citizens Regional Advisory Council, like in Alaska, did not form across the Gulf states. It works well in Alaska. Louisiana would be a good state to do it. Louisiana master plan pulled advisory groups together. It is in Oil Pollution Act 1990 (the Alaska one); supports monitoring and oil spill science. Pilot project: Gulf Research Program startup funds for meetings and bringing people together to start this? Co-ops. Oil spill removal organizations (OSRO). Organizations are hired to write response plans for communities (operations manuals and other required documents). Examples are Forefront, ESH, Ample, Oil Mop.
- Grants for environmental literacy and risk communication should be made available for nonprofits and community groups. E.g., EPA (Environmental Protection Agency), HUD (US Department of Housing and Urban Development), USDA (US Department of Agriculture), EDA (US Economic Development Administration). How does a community member/group know how to/have time to do this? South central planning. Partner with Sea Grant!! Groups like Sea Grant and Barataria-Terrebonne National Estuary Program doing outreach during an event, but during non-spill times make tie-ins with other relevant issues people care about (e.g., land loss in Louisiana). Expand to all community members. Industry/community consortium. Knowledgeable group of people/applicants that are a part of those communities.
- Many resources suffer from funding limitations.
- Money needed to incorporate human dimensions into response; funds need to be distributed.

Training

- Create workshops for fishers to help them adapt to changing conditions (ways to change) and connect them with info on changing conditions and how to change with them (entrepreneurial training).
- Grants for environmental literacy and risk communication should be made available for nonprofits and community groups. EPA (Environmental Protection Agency), HUD

(US Department of Housing and Urban Development), USDA (US Department of Agriculture), EDA (US Economic Development Administration). How does a community member/group know how to/have time to do this? South central planning. Partner with Sea Grant!! Groups like Sea Grant and Barataria-Terrebonne National Estuary Program doing outreach during an event, but during non-spill times make tie-ins with other relevant issues people care about (e.g., land loss in Louisiana). Expand to all community members. Industry/community consortium. Knowledgeable group of people/applicants that are a part of those communities.

- Trade schools, colleges could offer free trainings, business courses for impacted groups or likely to be impacted groups, as well as continuing education courses.
- Training/informing/educating local firefighters, police officers, emergency operations centers (through parish).

Tools

- Create dual-purposing existing forecasting apps to include disaster information.
- Spatial resources, GIS, and other tools. Inventory of what's been done to date needed to determine resources that are available for next event. History of collective resources for hurricanes, but not spills. Need to tap history. GIS specialists and data layers for mapping boundaries/closures.
- Utilizing cell phones for alerts, emergency broadcasting system.

Community contacts

- In Morgan City there was a recycling point person but no one knew who it was; we did not know who to call to figure it out.
- RFP (request for proposal) has to be written to integrate/partner with local people/local knowledge (communities). Can there be a repository of local interested community groups—maybe create a listserv call and build database (current method is Googling and cold-calling)? Stakeholder advisory boards to act as conduit (also helps add trust). Doing nothing can lead to gentrification problems making it impossible for area to keep locals due to being too costly.

Meetings

- A Citizens Regional Advisory Council, like in Alaska, did not form across the Gulf states. It works well in Alaska. Louisiana would be a good state to do it. Louisiana master plan pulled advisory groups together. It is in Oil Pollution Act 1990 (the Alaska one); supports monitoring and oil spill science. Pilot project: Gulf Research Program startup funds for meetings and bringing people together to start this? Co-ops. Oil spill removal organizations (OSRO). Organizations are hired to write response plans for communities (operations manuals and other required documents). Examples are Forefront, ESH, Ample, Oil Mop.
- Provide childcare at meetings.

Organizations

- A Citizens Regional Advisory Council, like in Alaska, did not form across the Gulf states. It works well in Alaska. Louisiana would be a good state to do it. Louisiana master plan pulled advisory groups together. It is in Oil Pollution Act 1990 (the

Alaska one); supports monitoring and oil spill science. Pilot project: Gulf Research Program startup funds for meetings and bringing people together to start this? Co-ops. Oil spill removal organizations (OSRO). Organizations are hired to write response plans for communities (operations manuals and other required documents). Examples are Forefront, ESH, Ample, Oil Mop.

- Grants for environmental literacy and risk communication should be made available for nonprofits and community groups. EPA (Environmental Protection Agency), HUD (US Department of Housing and Urban Development), USDA (US Department of Agriculture), EDA (US Economic Development Administration). How does a community member/group know how to/have time to do this? South central planning. Partner with Sea Grant!! Groups like Sea Grant and Barataria-Terrebonne National Estuary Program doing outreach during an event, but during non-spill times make tie-ins with other relevant issues people care about (e.g., land loss in Louisiana). Expand to all community members. Industry/community consortium. Knowledgeable group of people/applicants that are a part of those communities.

Partnerships

- RFP (request for proposal) has to be written to integrate/partner with local people/local knowledge (communities). Can there be a repository of local interested community groups—maybe create a listserv call and build database (current method is Googling and cold-calling)? Stakeholder advisory boards to act as conduit (also helps add trust). Doing nothing can lead to gentrification problems making it impossible for area to keep locals due to being too costly.

Other

- A lot of foundations focus on urban areas and tend to leave out rural populations. These groups want scalability and this is an issue (can't apply approaches/lessons learned in urban areas to rural areas).
- Grants for environmental literacy and risk communication should be made available for nonprofits and community groups. E.g., EPA (Environmental Protection Agency), HUD (US Department of Housing and Urban Development), USDA (US Department of Agriculture), EDA (US Economic Development Administration). How does a community member/group know how to/have time to do this? South central planning. Partner with Sea Grant!! Groups like Sea Grant and Barataria-Terrebonne National Estuary Program doing outreach during an event, but during non-spill times make tie-ins with other relevant issues people care about (e.g., land loss in Louisiana). Expand to all community members. Industry/community consortium. Knowledgeable group of people/applicants that are a part of those communities.
- Money needed to incorporate human dimensions into response, and funds need to be distributed.
- Need broader distribution of Sea Grant publications.
- Spatial resources, Geographic Information System and other tools. Inventory of what's been done to date is needed to determine resources that are available for next event. History of collective resources for hurricanes, but not spills. Need to tap history. Geographic Information System specialists and data layers are needed for mapping boundaries/closures.



Sea Grant oil spill specialist Melissa Partyka reports breakout group discussion highlights on day two of the workshop. Photo by Texas Sea Grant College Program.

Appendix C: Workshop Evaluation Form



Workshop Evaluation

Prioritizing health and oil spill preparedness

Dec. 4th & 5th, 2018, Houma, Louisiana

Name: (Optional) _____ Organization (Optional) _____

Email: (Optional) _____

Please share your ideas to help us better serve you in the future.

1. What specific questions do you continue to have about oil spill related topics?

2. How do you wish to receive the latest oil spill information? (check all that apply)

- | | |
|---|---|
| ☐ 8-page summary publication | ☐ Email correspondence |
| ☐ 1-page informational sheet | ☐ In-person correspondence |
| ☐ Short videos | ☐ Sea Grant oil spill website |
| ☐ Workshops with facilitated discussions | ☐ Brochure |
| ☐ Science seminars | ☐ Other, please specify: _____ |

Please share your feedback related to today's workshop.

3. What did you like about this workshop?

4. What could we do to improve this workshop?

5. Are there individual presentations or speakers you would like to comment on? This helps inform planning for our future events.

--Wait! There's more on the back!!--

6. Please reflect your level of agreement with the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
This workshop increased my knowledge.	☐	☐	☐	☐	☐	☐
I learned something to apply to my work now or in the future.	☐	☐	☐	☐	☐	☐
I would recommend this type of workshop to others.	☐	☐	☐	☐	☐	☐

7. How would you best describe yourself:

☐ Emergency responder	☐ Oil and gas industry member
☐ Environmental consultant	☐ Policymaker
☐ Member of fishing community or industry (commercial, for-hire, recreational, subsistence)	☐ Sea Grant/Cooperative Extension agent
☐ Health professional (clinical or community)	☐ Tourism industry staff
☐ Natural resource manager	☐ University researcher
☐ Non-profit staff	☐ Other, please specify: _____

8. Which state(s) do you primarily work in? (check all that apply)

☐ Texas	☐ Florida
☐ Louisiana	☐ Outside of U.S. Gulf of Mexico region
☐ Mississippi	Please enter location: _____
☐ Alabama	

9. Please provide any other ideas, comments, questions, or feedback.

Thank you for your participation and feedback!

Appendix D: Workshop Evaluation Results

Question 1. Please reflect your level of agreement with the following statements. (N = 27)

Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
This workshop raised my knowledge of public health issues related to oil spills.	59%	37%	4%	0%	0%
This workshop helped promote networking among groups that may not have previously interacted.	59%	30%	11%	0%	0%
This workshop identified regional-level needs and priorities for improving preparedness.	37%	56%	7%	0%	0%
This workshop identified resources to address the issues discussed.	37%	52%	11%	0%	0%

Question 2. What did you like about this workshop?

- A) Opportunity to interact with stakeholders not previously engaged with, such as Coast Guard and local NGO reps in Houma area. B) Good questions.
- Being together to exchange contact info and understand job.
- Breakouts.
- Brought awareness to aspects not always discussed in my field.
- Diverse representation but needed more civic organizations, local government should be here.
- Diversity of attendees. Learning about research done.
- Enjoyed the pace and the breakout sessions.
- Format was good, rotating between talks and group discussions. Good mix of people.
- Forming connections between groups with similar initiatives, fostering ACTIVE PARTICIPATION.
- Great scale—not too big or small—to achieve effective communication between individuals.
- How speakers stuck to the timeline, length of presentations, the panel discussions.
- I like the breakout sessions.
- I liked the breakout sessions! It was great to hear everyone's ideas about resilience and community building.
- I liked the thorough background from speakers, followed by interdisciplinary breakout groups. Very fruitful discussions.
- I never knew that Sea Grant was available to plug into the local community.
- I really liked hearing from people with varying backgrounds, speakers and attendees.

- Location; focused subject matter with multiple experts in discipline.
- Panel discussion to share perspectives.
- Presenters speaking in categories of human, economic, social, and community factors related to oil spills/disasters. Also liked the breakout discussions, spurred ideas and networking.
- The breakout sessions were very valuable for plugging into the local community resources.
- The combination of talks and breakout sessions effectively broke up the long days. Having the same breakout participants led to greater interaction.
- The opportunity to interact with entities I wasn't previously exposed to and potentially wouldn't have been otherwise.
- The panel of PhDs to ask questions.
- The presenters did a great job presenting their research.
- Very informative.
- Wide variety of agencies involved in workshop.

Question 3. What could we do to improve this workshop?

- Better lighting (i.e., less lighting) in front of screen; sharpen screen; maybe present a little more of the data behind certain findings (e.g., greater social support linked to lower odds of depression in non-fishers, but higher odds of depression in fishers. Is depression clinical or diagnostic? How was that finding established?) Include baseline studies w/ certain studies.
- Breakout groups are great, but full group discussions are useful to ensure all ideas are heard and all possible linkages are made.
- Continue to try to get community members to attend.
- For every 50 minutes of talking, allow for 10 minutes of break.
- Greater participation from community-based voluntary organizations.
- Include more policy related officials as well as more local officials.
- Increase local involvement.
- Increase public leaders' participation and involve some public policy decision makers so they can also hear the issues.
- Make the second (or last) day a half day as many participants had to leave early. Also, have a note taker separate from the facilitator to make it easier on the facilitator.
- Maybe a few less question boards.
- More breaks. Rearrange breakout sessions to earlier in day.
- More local community guest speakers.
- More networking opportunities for groups to interact more.

- Not much. . . a pithier title perhaps.
- Perhaps 1–2 fewer speakers or shorter talks (on day 1). Helpful but slight listening fatigue.
- Reduce breakout session to maybe three instead of four. It just got a little long on the last day.
- Separate breakout topic into separate conversations: transparent compensation process and building economic resilience to future events are not naturally contiguous processes.
- Slides ahead of time? Lighting to be dimmed during presentations.
- Slides were very hard to see and read.
- The break out groups needed a bit more structure. Maybe shorten them to focus the discussion. Ours seemed to be heavy on industry and Coast Guard, lack of community.
- Work in a few more breaks—move breakouts to earlier in the day (we ran out of steam).
- Would love to hear more from Tribal community members and folks doing community work of all types.

Question 4. Are there individual presentations or speakers you would like to comment on? This helps inform planning for our future events.

[Purposely left blank for confidentiality.]

Question 5. What specific questions do you continue to have about oil spills, planning and response, and public health related topics?

- Can Sea Grant help tribes with their issues?
- Great workshop!
- How do we get in touch with the local government and maybe invite a member of local government to the workshop.
- I have the contact info of Dr. Kwok to ask in case I do have questions in the future.
- I learned a lot and will be using some of what I learned in my outreach programs.
- Please let me know if there's any way I could be involved further! Thanks for inviting me.
- Resources for funding sources to continue the research initiatives outside of academia.
- Too many to articulate!
- What can be done during peace time to address mental health issues?

Question 6. How do you wish to receive the latest oil spill information? (Check all that apply.) (N = 27)

Answer	%	Count
Email correspondence	17%	16
1-page summary publication	16%	15
Workshops with facilitated discussions	16%	15
Short videos	12%	11
Sea Grant oil spill website	12%	11
8-page summary publication	10%	9
Science Seminar	10%	9
In-person correspondence	4%	4
Other, please specify ^a	3%	3
Total	100%	93

^aSocial media, interactive digital news (maps, etc.), get them to the public as well.

Question 7. How would you best describe yourself? (N = 27)

Answer	%	Count
Emergency responder	38%	14
University researcher	11%	4
Other, please specify ^a	11%	4
Oil and gas industry member	8%	3
Sea Grant/cooperative extension agent	8%	3
Environmental consultant	5%	2
Health professional (clinical or community)	5%	2
Natural resource manager	5%	2
Non-profit staff	5%	2
Policymaker	3%	1
Member of fishing community or industry (commercial, for-hire, recreational, subsistence)	0%	0
Tourism industry staff	0%	0
Total	100%	37

^aFederal regulator, Environmental Justice and Tribal Coordinator, federal government: environmental agency, government, NGO researcher.

Question 8. What states do you primarily work in? (Check all that apply.) (N = 27)

Answer	%	Count
Louisiana	64%	21
Texas	15%	5
Mississippi	3%	1
Alabama	3%	1
Florida	3%	1
Outside of U.S Gulf of Mexico region. Please enter location. ^a	12%	4
Total	100%	33

^aAlaska, D.C. headquarters so entire U.S., all of U.S. and its territories, California

Question 9. We will be following up with workshop participants within the next year to help us determine the effectiveness of our workshop series. Are you willing to be contacted to answer a few survey questions? Identifying information (name, contact info) will be kept confidential. If so, please leave your name and email on this form.

[Purposely left blank for confidentiality.]

Question 10. Please provide any other ideas, comments, questions, or feedback.

- 2nd day panel discussion that included direct experiences and stories was very helpful to hear different perspectives.
- Didn't care for the food. I had the salad which didn't have good salad dressing selection. Maybe allow us to buy our own or stick with a subway (example).
- Good job.
- Great training! Learned a lot!
- Great workshop. Very worthwhile and well-produced.
- I loved the breakout session!
- I was not previously aware of the peer listening training and am interested in how that can help communities in need.
- Inviting more community people to the workshops will have a greater impact on the breakout sessions.
- Need community leaders to attend, fishermen, etc. Heavy on industry and Coast Guard.
- Thank you for all the work that went into this workshop!
- Thank you!
- Try to get local emergency responders to attend. More tribes would help.
- When you break out into sessions, churn the group participants.
- Wonderful learning experience and great for local resources and local contacts. Also mental health and personal stress is rarely addressed during or after a spill and I'm glad it has been, is being, and will be addressed in the future.