

Nov 6-7, 2019

 <a href="http://www.epaosc.org/rrt6-homepage">www.epaosc.org/rrt6-homepage</a>	<b>Meeting Location:</b> US EPA Training Center 16650 Westgrove Drive Addison, Texas	<b>RRT Co-Chairs:</b> Craig Carroll, EPA <a href="mailto:Carroll.Craig@epa.gov">Carroll.Craig@epa.gov</a> Michael Sams, USCG <a href="mailto:Michael.K.Sams@uscg.mil">Michael.K.Sams@uscg.mil</a>	<b>RRT Coordinators:</b> Steve Mason, EPA <a href="mailto:Mason.Steve@epa.gov">Mason.Steve@epa.gov</a> Todd Peterson, USCG <a href="mailto:Todd.M.Peterson@uscg.mil">Todd.M.Peterson@uscg.mil</a>
---	---	---	---

Day 1 – RRT-6 General Session – Wednesday, Nov 6, 2019

Time	Topic	Presenter / Facilitator
8:30 – 8:45 AM – 15 Minutes	Introductions / Admin Announcements / Opening Statements	Craig Carroll, EPA Michael Sams, USCG
8:45 – 9:15 AM – 30 Minutes	Review RRT Priorities / Status	Michael Sams, USCG
9:15 – 9:30 AM – 15 Minutes	Open Forum	All
<b>9:30 – 9:45 AM -- 15 Minutes</b>	<b>Break</b>	
9:45 – 10:45 AM – 60 Minutes	State Reports (NM, TX, AR, OK & LA)	State Agencies
10:45 – 11:30 AM – 45 Minutes	Arkansas River Flooding – State Activities	Jennifer Handley, ODEQ Stephen Ratley, ADEQ
<b>11:30 AM – 1:00 PM – 90 Minutes</b>	<b>Lunch</b>	
1:00 – 2:00 PM – 60 Minutes	Flower Garden Banks National Marine Sanctuary (FGBNMS) Tabletop Exercise	Charlie Henry, NOAA
<b>2:00 – 2:15 PM -- 15 Minutes</b>	<b>Break</b>	
2:15– 3:15 PM – 60 Minutes	2 <sup>nd</sup> 80's Fire	Adam Adams, EPA Anthony Buck, TCEQ
3:15 – 4:00 PM – 45 Minutes	Bayport Channel Collison Incident	CDR Jarod Toczko, USCG Sector Houston-Galveston
<b>4:00 – 4:15 PM -- 15 Minutes</b>	<b>Break</b>	
4:15 – 5:15 PM – 60 Minutes	Federal Agency Reports	Federal Agencies
<b>5:15 PM</b>	<b>Adjourn</b>	

<b>5:30 PM</b>	<b>Networking Session – Location TBD</b>	<b>All</b>
----------------	--	------------



**Day 2 – RRT-6 General Session – Thursday, Nov 7, 2019**

<b>Time</b>	<b>Topic</b>	<b>Presenter / Facilitator</b>
8:30 – 9:00 AM – 30 Minutes	Oil Spill Trajectory and Fate Model	Gabrielle McGrath, RPS Group
9:00 – 10:00 AM – 60 Minutes	Environmental Health Support to the FOSC	Michael Sams, USCG
<b>10:00 – 10:15 AM – 15 Minutes</b>	<b>Break</b>	
10:15 – 10:45 AM – 30 Minutes	HWCG-Fieldwood Energy ISRRT Exercise Summary	Pat Eiland, Fieldwood Energy Roger Scheuermann, HWCG LLC Michael Sams, USCG
10:45 – 11:15 AM – 30 Minutes	Shaken Fury Earthquake Exercise – Going forward	Christine Hanson, FEMA
<b>11:15 – 12:45 – 90 Minutes</b>	<b>Lunch</b>	
12:45 – 1:15 PM – 30 Minutes	Surface Collecting Agents	Tim Nedwed, ExxonMobil
1:15 – 1:30 PM – 15 Minutes	Improved Coordination of Natural Resource Damage Assessment (NRDA) with Response – NOAA SSC comparison of the 2 <sup>nd</sup> 80's Fire and the Bayport Channel Collision	Paige Doelling, NOAA
1:30 – 2:00PM – 30 Minutes	Gulf of Mexico University Research Collaborative Workshop Findings and other Projects	Dr. Thomas Douthat, LSU
2:00 – 2:30 PM – 30 Minutes	RRT-6 RCP Updates	Michael Sams, USCG
<b>2:30 – 2:45 PM -- 15 Minutes</b>	<b>Break</b>	
2:45 – 3:30 PM – 45 Minutes	EPA FOSC Reports	EPA FOSCs
3:30 – 4:30 PM – 60 Minutes	USCG FOSC Reports	USCG FOSCs
4:30 – 4:45 PM – 15 Minutes	Open Forum	All
4:45 – 5:00 PM – 15 Minutes	Closing Remarks	Craig Carroll, EPA Michael Sams, USCG
<b>5:00 PM</b>	<b>Adjourn</b>	

Dates for next RRT Meetings:	Confirmed	Spring 2020	May 6-7, 2020
	Confirmed	Fall 2020	November 5-6, 2020
	Proposed	Spring 2021	May 12-13, 2021

**Adobe Connect:** <https://epawebconferencing.acms.com/region6rrtmeeting/>  
**Conference Call:** 202-991-0477 **Pin:** 563-4699#



# Welcome to the Fall 2019 Meeting



6-7 Nov 2019

Skype Meeting: <https://meet.lync.com/usepa/fisher.kelsey/ZQFMB0GD>

Conference Call: (210) 469-3886

Pin: 10935973#

WIFI Password: xxxxxxxxxxxxxxxxxxxxxx



# Meeting Administrative Issues

- Silence all Cell Phones
- Please Use Microphones
- Breaks/Lunch
- Restrooms
- Avoid Acronyms
- Parking Lot Items
- Smoking





# Emergency Procedures





# Opening Remarks

## Co-Chairs



Craig Carrol, U.S. EPA



Michael Sams, USCG



# Day 1 – RRT-6 General Session – Wednesday, Nov 6, 2019

Time	Topic	Presenter / Facilitator
8:30 – 8:45 AM – 15 Minutes	Introductions / Admin Announcements / Opening Statements	Craig Carroll, EPA Michael Sams, USCG
8:45 – 9:15 AM – 30 Minutes	Review RRT Priorities / Status	Michael Sams, USCG
9:15 – 9:30 AM – 15 Minutes	Open Forum	All
<b>9:30 – 9:45 AM -- 15 Minutes</b>	<b>Break</b>	
9:45 – 10:45 AM – 60 Minutes	State Reports (NM, TX, AR, OK & LA)	State Agencies
10:45 – 11:30 AM – 45 Minutes	Arkansas River Flooding – State Activities	Jennifer Handley, ODEQ Stephen Ratley, ADEQ
<b>11:30 AM – 1:00 PM – 90 Minutes</b>	<b>Lunch</b>	
1:00 – 2:00 PM – 60 Minutes	Flower Garden Banks National Marine Sanctuary (FGBNMS) Tabletop Exercise	Charlie Henry, NOAA
<b>2:00 – 2:15 PM -- 15 Minutes</b>	<b>Break</b>	
2:15– 3:15 PM – 60 Minutes	2 <sup>nd</sup> 80's Fire	Adam Adams, EPA Anthony Buck, TCEQ
3:15 – 4:00 PM – 45 Minutes	Bayport Channel Collison Incident	CDR Jarod Toczko, USCG Sector Houston-Galveston
<b>4:00 – 4:15 PM -- 15 Minutes</b>	<b>Break</b>	
4:15 – 5:15 PM – 60 Minutes	Federal Agency Reports	Federal Agencies
<b>5:15 PM</b>	<b>Adjourn</b>	



# Day 2 – RRT-6 General Session – Thursday, Nov 7, 2019

Time	Topic	Presenter / Facilitator
8:30 – 9:00 AM – 30 Minutes	Oil Spill Trajectory and Fate Model	Gabrielle McGrath, RPS Group
9:00 – 10:00 AM – 60 Minutes	Environmental Health Support to the FOSC	Michael Sams, USCG
<b>10:00 – 10:15 AM – 15 Minutes</b>	<b>Break</b>	
10:15 – 10:45 AM – 30 Minutes	HWCG-Fieldwood Energy ISRRT Exercise Summary	Pat Eiland, Fieldwood Energy Roger Scheuermann, HWCG LLC Michael Sams, USCG
10:45 – 11:15 AM – 30 Minutes	Shaken Fury Earthquake Exercise – Going forward	Christine Hanson, FEMA
<b>11:15 – 12:45 – 90 Minutes</b>	<b>Lunch</b>	
12:45 – 1:15 PM – 30 Minutes	Surface Collecting Agents	Tim Nedwed, ExxonMobil
1:15 – 1:30 PM – 15 Minutes	Improved Coordination of Natural Resource Damage Assessment (NRDA) with Response – NOAA SSC comparison of the 2 <sup>nd</sup> 80's Fire and the Bayport Channel Collision	Paige Doelling, NOAA
1:30 – 2:00PM – 30 Minutes	Gulf of Mexico University Research Collaborative Workshop Findings and other Projects	Dr. Thomas Douthat, LSU
2:00 – 2:30 PM – 30 Minutes	RRT-6 RCP Updates	Michael Sams, USCG
<b>2:30 – 2:45 PM -- 15 Minutes</b>	<b>Break</b>	
2:45 – 3:30 PM – 45 Minutes	EPA FOSC Reports	EPA FOSCs
3:30 – 4:30 PM – 60 Minutes	USCG FOSC Reports	USCG FOSCs
4:30 – 4:45 PM – 15 Minutes	Open Forum	All
4:45 – 5:00 PM – 15 Minutes	Closing Remarks	Craig Carroll, EPA Michael Sams, USCG
<b>5:00 PM</b>	<b>Adjourn</b>	



# Introductions

- **Name**
- **Agency**
- **Job Title**





# Approve Spring 2019 Meeting Minutes

## MEETING MINUTES

### JOINT MEETING of REGION 6 & REGION 7 REGIONAL RESPONSE TEAMS

Pipeline and Hazardous Materials Safety Administration Training and Qualifications Center  
3700 S MacArthur Blvd., Oklahoma City, Oklahoma

A meeting of Region 6 and Region 7 Regional Response Team (RRT) member agencies and stakeholders convened at 0830 on March 27-28, 2019, at 3700 S. MacArthur Boulevard, Oklahoma City, Oklahoma. RRT Co-Chairs and Alternate Co-Chairs of the U.S. Environmental Protection Agency (EPA) and U.S. Coast Guard (USCG) Eighth District (D8) presided over morning sessions of their respective RRTs before moving to a joint session Wednesday afternoon. The joint meeting recessed on Wednesday (3/27) at 1700 and reconvened Thursday (3/28) at 0830 until adjournment at 1700.

Before the joint meeting, Region 6 RRT (RRT-6) and Region 7 RRT (RRT-7) Executive Committees convened independently on March 26, 2019 to discuss the status of various items on its regional priority list. Friday (3/29), representatives of Enbridge Energy, Inc. presented a historical overview of the local petroleum industry and provided a tour of the Enbridge Cushing Terminal.

Notes: Agendas, meeting presentations, and final minutes from past meetings are accessible at <https://epaossc.org/rt6-meetings> and [response.epa.gov/R7RRT](https://response.epa.gov/R7RRT). A list of meeting participants is on page 5.

#### Wednesday, March 27th

##### **RRT-6 General Meeting (Morning Session)**

1. Welcome and opening remarks by RRT-6 Co-Chairs:
  - Region 6 EPA, Bryant Smalley
  - USCG D8, Michael Sams
2. Introduction of RRT-6 members, guests, and remote attendees
3. Review/update of RRT-6 2019 Priorities
  - USCG D8, Michael Sams
4. State agency updates on preparedness and response activities:
  - Arkansas:
    - Arkansas Department of Environmental Quality, not present
    - Arkansas Department of Emergency Management, Chris Foreman and Latryce Robinson
  - Louisiana:
    - Louisiana Department of Environmental Quality, Jerry Lang
    - Louisiana Oil Spill Coordinator's Office, Karolien Debusschere
  - Oklahoma:
    - Oklahoma Department of Environmental Quality (ODEQ), Jennifer Hanley
  - Texas:
    - Texas Railroad Commission, Jessica Cofrancesco
    - Texas General Land Office, Steve Buschang
    - Texas Commission on Environmental Quality, not present
  - New Mexico:
    - New Mexico Homeland Security and Emergency Management, Julie Jolly







## Priority List -- In Progress or Continuing

	Priority	Assigned	Status
1.	Monthly Executive Committee Teleconferences	Executive Committee	Ongoing
2.	Conduct Incident-Specific Conference Calls, including Exercises and Document Results	RRT Function	Ongoing
3.	Develop Region 6 RRT Evaluation Job-Aids for Alternative Response Technologies	Preparedness Committee	In progress
4.	Improved Coordination of Natural Resource Damage Assessment (NRDA) with Response	Preparedness Committee	In progress
5.	Review / Update RCP, Including Volume 4	Executive Committee	In progress
6.	Update existing RRT-6 Surface Washing Agent Guidance	Executive Committee	In progress
7.	Develop Non-Synthetic Loose Sorbent Guidance	Executive Committee	In progress



# Open Forum





# 15 Minute Break





# Lunch



# Networking Session



4901 Belt Line Road  
Dallas, TX 75254



# Closing Remarks

## Co-Chairs



Craig Carrol, U.S. EPA



Michael Sams, USCG





# State Report



## RRT-6 Fall 2019 Meeting

06 November 2018





# Executive Summary – TGLO Oil Spill Program

## May 1-October 31, 2019

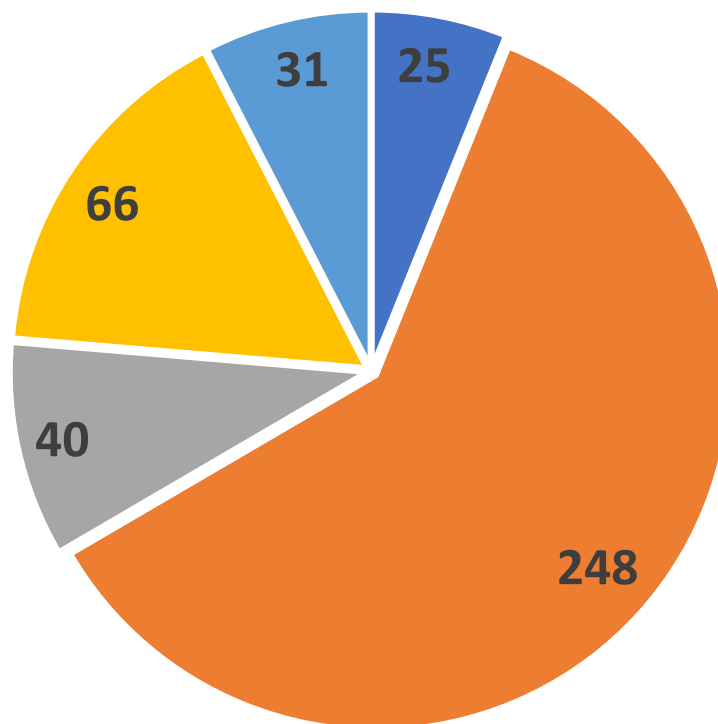
- The Texas Legislature looked favorably on the Oil Spill program's vessel removal efforts paving the way for Oil Spill to access additional funding. SB 500, the Supplemental Appropriations Act, provides the GLO Oil Spill program with **\$2 million** from the Coastal Protection Fund for abandoned vessel removal. The program has until August 31, 2021 to spend or encumber the funds.
- With financial assistance from Commissioner Bush, the Oil Spill program secured money to purchase a new command post for use during spills and natural disasters. The old command post, a 26 year old refurbished horse trailer, will be replaced by a new **42' gooseneck Mobil Emergency Response** Center and will include a new communications system, updated technology, power sources and a new tow vehicle. The command post will be fully mobile and self contained.
- The GLO is the lead state agency for deepwater port applications and continues to evaluate five applications in differing approval stages.





## Metrics/Trends Texas

May 1 – October 31, 2019  
410 Responses



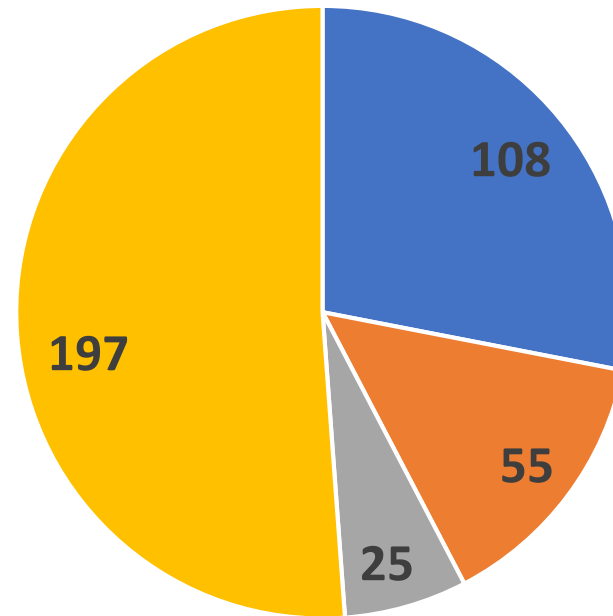
■ Drill ■ Spill Found ■ Threat ■ No Spill Found ■ Non JD by GLO





# Metrics/Trends Texas

May 1-October 31, 2019  
Spill Sources  
(not including drills)

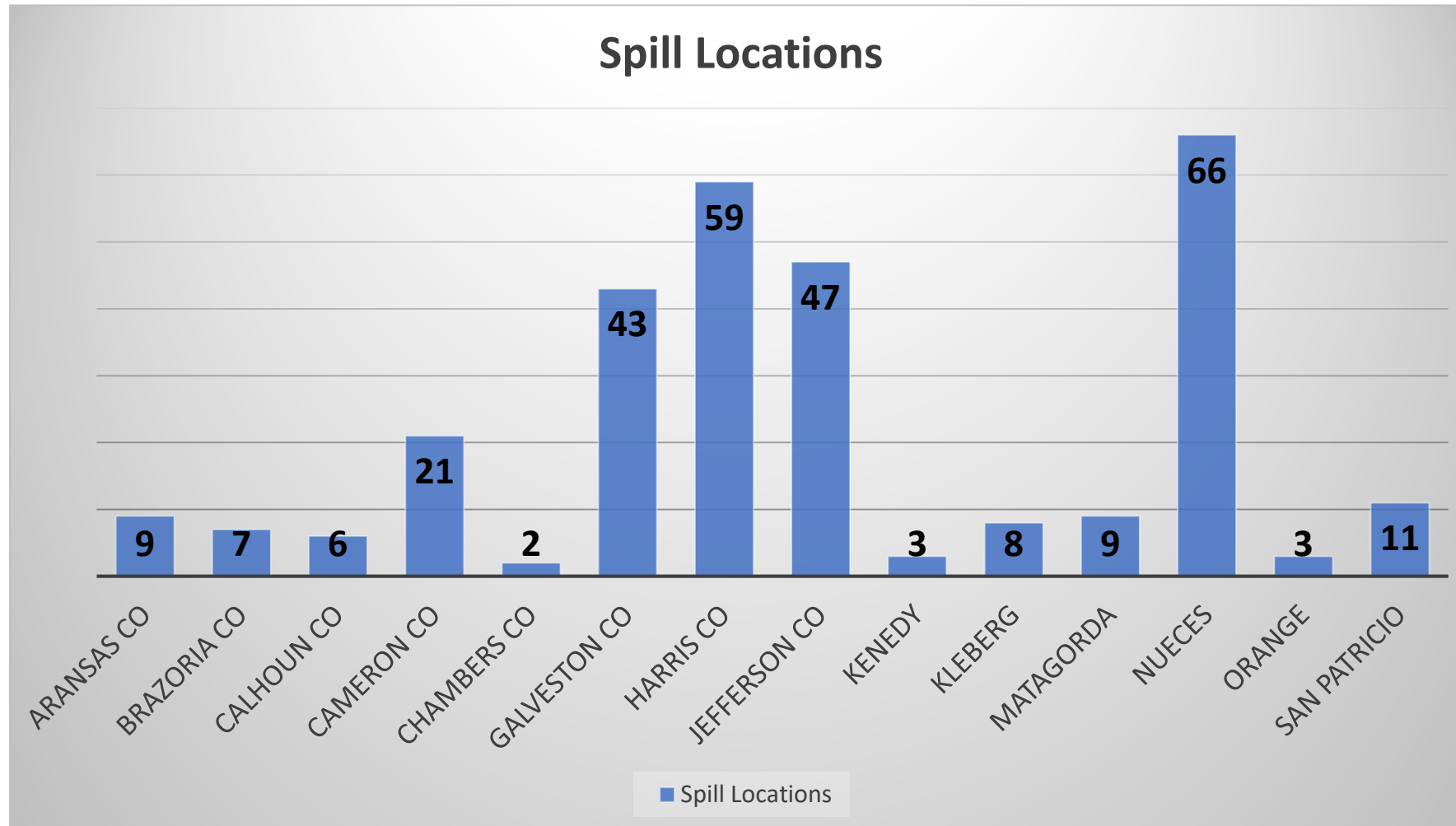


■ Vessels ■ Facilities ■ Other ■ Unknown





# Metrics/Trends Texas May 1 – October 31, 2019







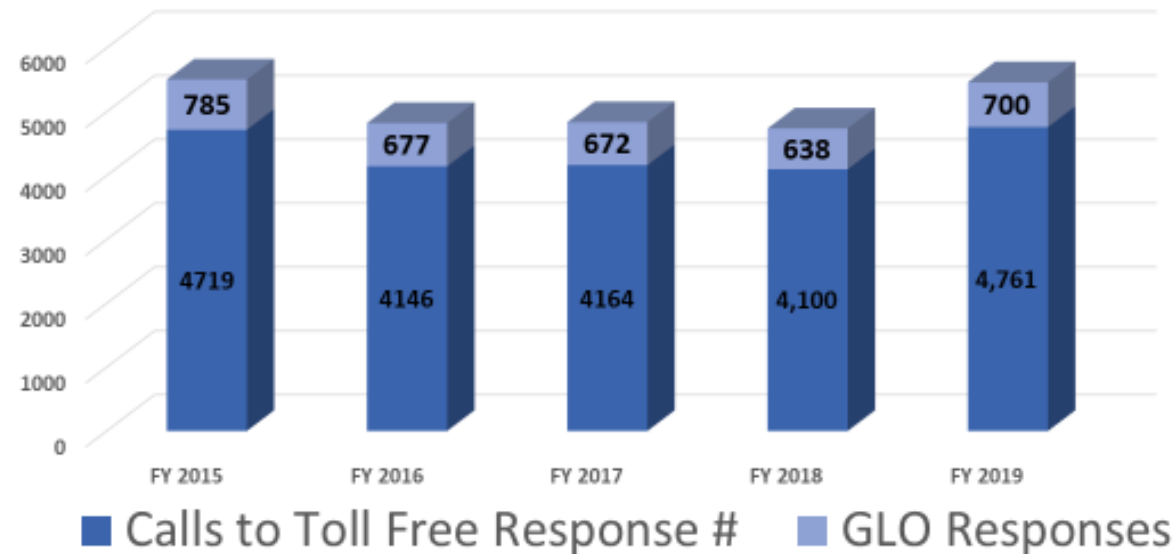
# Metrics/Trends/Challenges

Texas General Land Office



## Historical Trends Texas Spill Reports & Spill Responses FY 15-19 *FY 2019 = more calls, more responses*

During FY 2019 the number of statewide calls to the TGLO response line jumped by 660 calls; almost 9 percent, compared with a relatively steady rate for the previous 3 years. Responses within TGLO jurisdiction rose correspondingly - by 10 percent from FY 2018.





# Spills and Incidents of Significance – FY 2019

Oil Spill responded to 27 spills of equal or more than a barrel.

- 14 were cleaned by the responsible party
- 5 were determined to be no clean up
- 1 was cleaned by TGLO
- 7 were federalized by USCG

Additionally, the TGLO assisted with responses to

- Intercontinental Terminals Company (ITC) incident, a large scale petrochemical fire in Deer Park, TX that generated a public health air incident and considerable media interest (3/17/19)
- Atlas Air Flight 3591 crash, a domestic cargo flight for Amazon Air en route to George Bush International Airport that crashed into Trinity Bay on approach to Houston, spilling some 2,291 gallons of jet fuel (2/23/19)
- Kirby Bayport Collision, a barge/tanker collision in the Houston Ship Channel which resulted in a spill of 599,000 gallons of gasoline additive (5/10/19)

Texas General Land Office  
George P. Bush, Commissioner



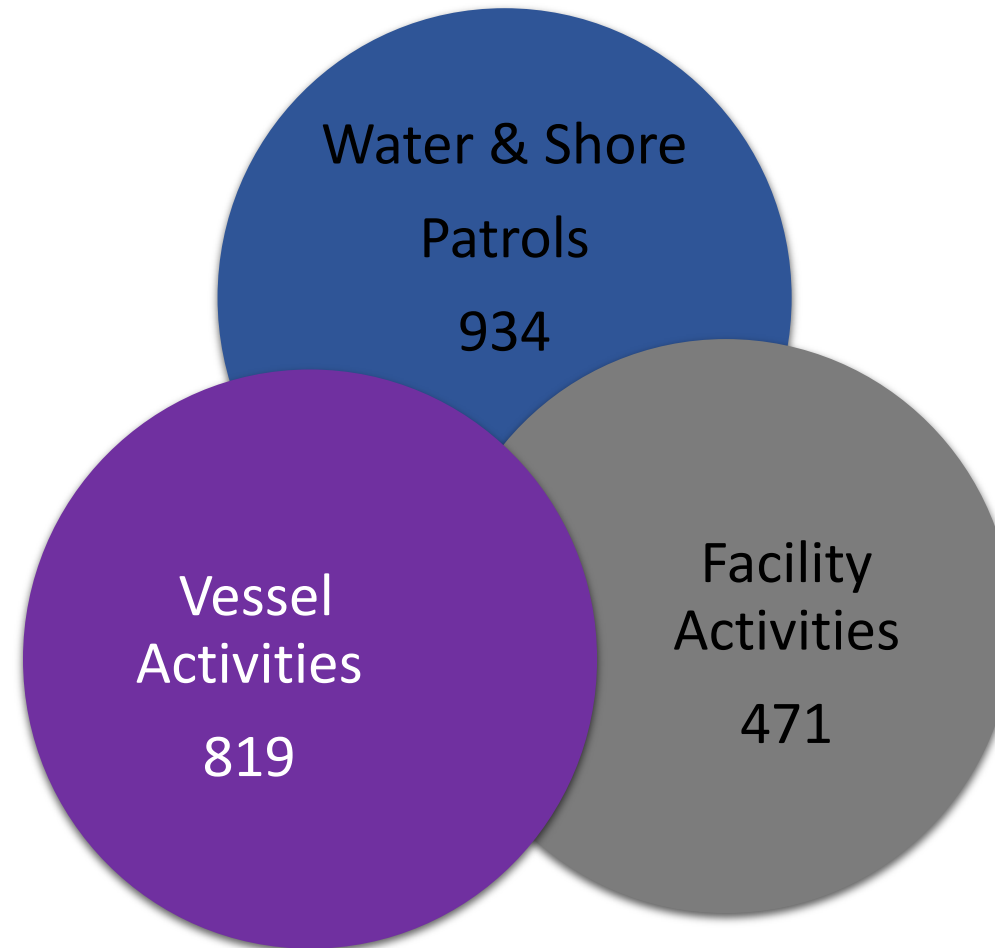
Spill Source	Date	Reg	County	Water Body	Clean Up Type	Amt In Water
1 Vessel	05/10/2019	2	Chambers	Houston Ship Channel	RP cleaned	599,681
2 Facility	09/27/2018	4	Cameron	Brownsville Ship Channel	RP cleaned	4,780
3 Vessel	10/17/2018	2	Harris	Houston Ship Channel	RP cleaned	2,400
4 Other	02/23/2019	2	Chambers	Trinity Bay	No Clean up conducted	2,291
5 Vessel	12/17/2018	3	Nueces	Corpus Christi Inner Harbor	RP cleaned	1,995
6 Facility	10/05/2018	2	Harris	Houston Ship Channel	RP cleaned	630
7 Vessel	07/09/2019	4	Cameron	Brownsville Ship Channel	GLO-DCO	629
8 Facility	11/21/2018	2	Harris	Houston Ship Channel	RP cleaned	420
9 Facility	11/15/2018	1	Jefferson	Gulf of Mexico	Federalized	391
10 Unknown	05/05/2019	3	Kleberg	Gulf of Mexico	No Clean up conducted	200
11 Vessel	05/26/2019	1	Jefferson	Sabine-Neches Ship Channel	RP cleaned	190
12 Facility	11/24/2018	3	Aransas	Copano Bay	No Clean up conducted	174
13 Other	06/27/2019	2	Harris	San Jacinto River	RP cleaned	165
14 Unknown	05/07/2019	3	Nueces	Gulf of Mexico	Federalized	150
15 Vessel	05/10/2019	1	Jefferson	Neches River	RP cleaned	110
16 Unknown	08/03/2019	2	Brazoria	Gulf of Mexico	Federalized	84
17 Facility	07/14/2019	3	Nueces	Corpus Christi Inner Harbor	RP cleaned	84
18 Unknown	04/29/2019	4	Cameron	Gulf of Mexico	No Clean up conducted	65
19 Unknown	08/18/2019	3	Nueces	Gulf of Mexico	Federalized	65
20 Unknown	05/07/2019	4	Cameron	Gulf of Mexico	No Clean up conducted	62
21 Vessel	09/07/2018	3	San Patricio	Redfish Bay	RP cleaned	60
22 Unknown	07/16/2019	3	Nueces	Gulf of Mexico	Federalized	55
23 Unknown	07/13/2019	3	Nueces	Gulf of Mexico	Federalized	50
24 Unknown	08/15/2019	1	Jefferson	Pass Channel	Federalized	50
25 Vessel	12/30/2018	3	Nueces	Corpus Christi Inner Harbor	RP cleaned	50
26 Vessel	07/10/2019	2	Galveston	Galveston Ship Channel	RP cleaned	48
27 Other	01/04/2019	2	Harris	Bayport Channel & Turning Basin	RP cleaned	42





**Metrics/Trends**  
**Texas**  
**May 1-October 31, 2019**

**Prevention Activities**







**VTIP – TGLO’s voluntary, event-based opportunity for vessel owners to relinquish unwanted vessels at no cost. The Oil Spill Prevention and Response program develops partnerships with local public offices and private businesses. Each entity assumes a role for the safe salvage, cleaning and disposal of unwanted vessels to help rid the Texas coast of unsightly pollution and navigation hazards.**

# VTIP

## TGLO Vessel Turn In Program

The Oil Spill Prevention and Response VTIP program held six VTIP events during FY 2019.

Date	Location	Relinquishments	Footage	Fuel/Oil	Other Debris/Pollution
January	Brazoria County	26	432		
February	Galveston County	79	1060	20 gallons	
April	Corpus Christi	66	1086	100 gallons of fuel	31 trailers
April	Matagorda County	26	451	45 gallons	
June	Calhoun County	37	695	50 gallons fuel/oil	
October	Aransas County	18	360 (a)	60 gallons fuel/oil	4 trailers
Lifetime Program Totals	(March 2015-October 2019)	692	11,384.50	1,166 gallons	65 trailers

Texas General Land Office  
George P. Bush, Commissioner







# Metrics/Trends/Challenges

Texas General Land Office



## Deepwater Port Activity

- **Texas Gulf Terminals (Trafigura Group PTE) - Nueces County**  
Capacity: 60,000 barrels per hour; 1,440,000 barrels per day
- **SPOT (Sea Port Oil Terminal/Enterprise Products) - Brazoria County**  
Capacity: 85,000 barrels per hour; 2,000,000 barrels per day
- **Texas COLT (Enbridge US) - Brazoria County**  
Capacity: 85,000 barrels per hour; 2,000,000 barrels per day
- **Bluewater Texas Terminal, LLC (Philips 66) - San Patricio County**  
Capacity: 80,000 barrels per hour
- **TexasGulfLink, LLC (Sentinel Midstream, LLC) - Brazoria County**  
Capacity: 85,000 barrels per hour, 1,000,000 barrels per day

Texas General Land Office  
George P. Bush, Commissioner

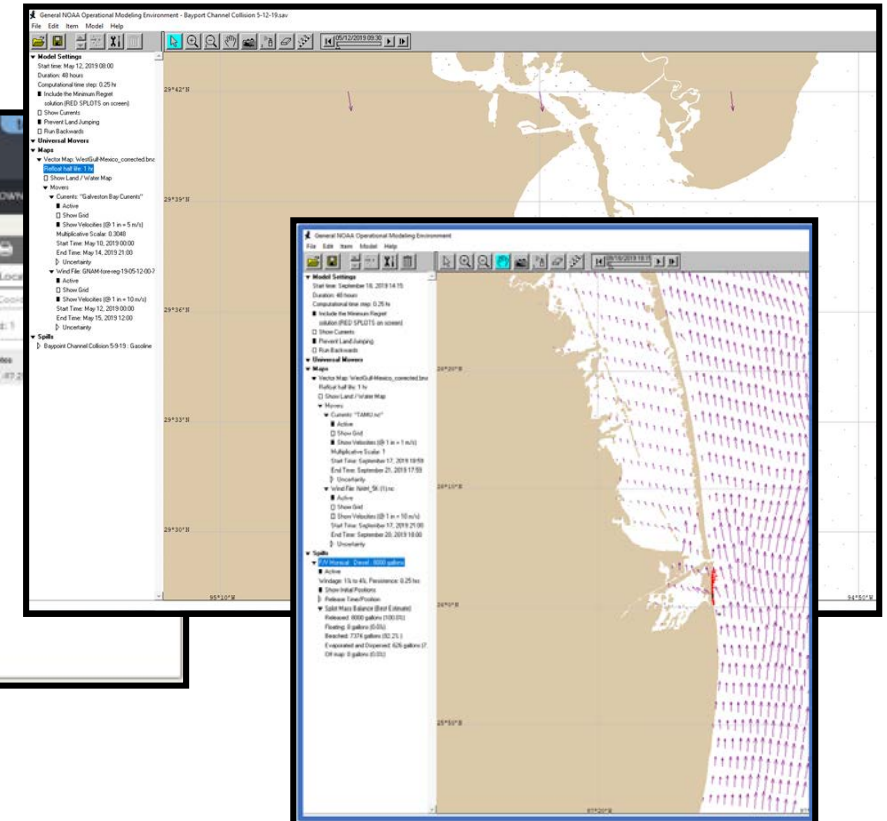
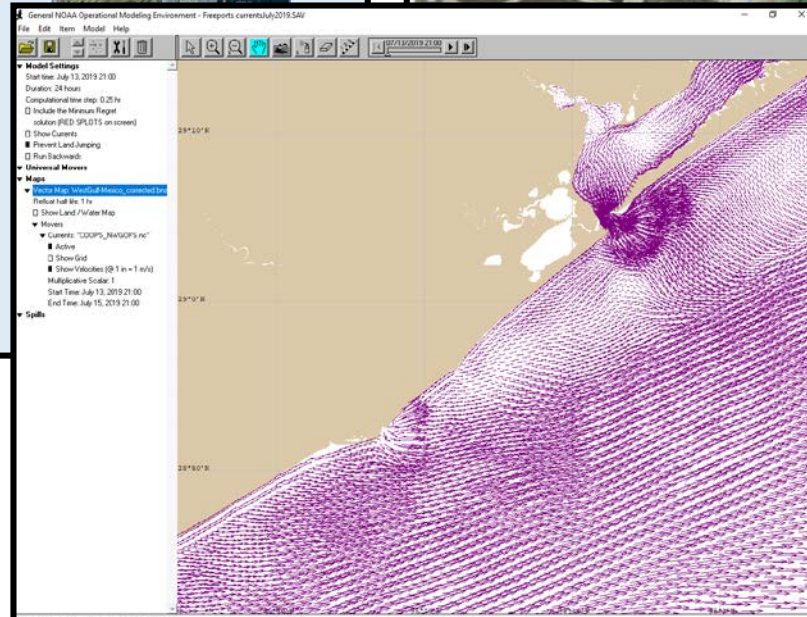
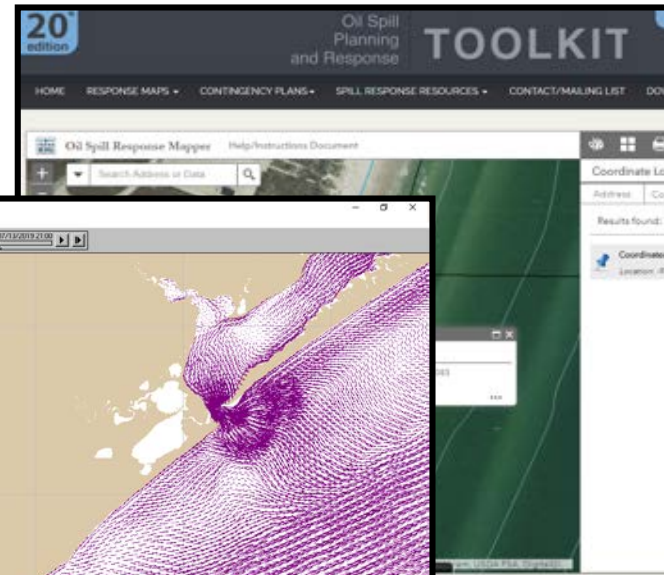
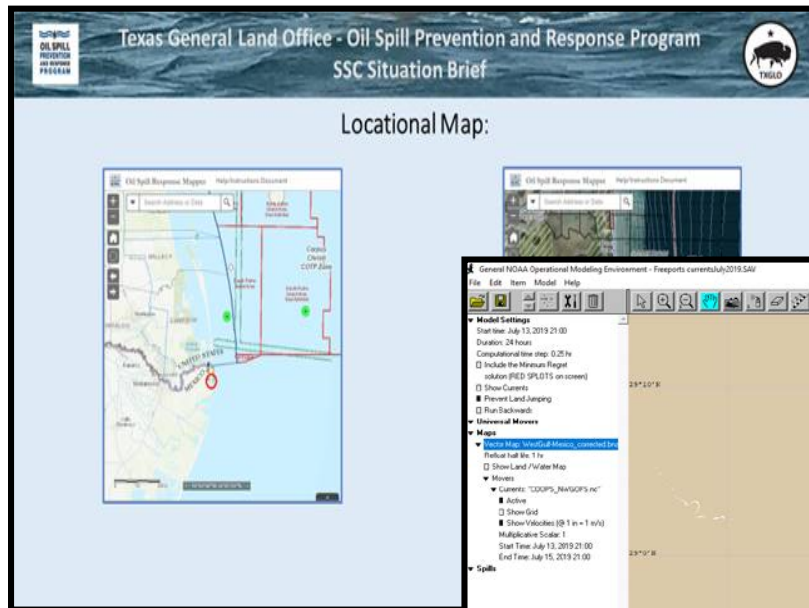






# State Scientific Support Activities - Texas

- Spill modeling events
  - South Texas tarball impacts hindcast May 6
  - Bayport Collision May 10 trajectories and response
  - F/V Monica Sept 18
  - Freeport Bacterial loading (in support of our Coastal Beach Watch program) July 16







# Oil Spill Current Preparedness Activities Texas



- **Oil Spill Toolkit update 2019 (new ACs, maps, ESI, BMPs, RARs)** <http://www.glo.texas.gov/ost/>
- **RARs, BMPs inclusions into ESI atlas**
- **Updated biological data sets in ESI atlas**
- **GCOOS ExCOM and RRT VI ExCOM working group participation (SWA, Loose Sorbents, NRDA coordination, In-situ Burn plans data integration and dissemination**
- **HF Radar installations coordination in south Texas coordination with UTRGV, and Louisiana, through GCOOS funding, as well as coordinated a CODAR HF single array test site on GLO owned coastal sentinel station Freeport.**
- **Working on efforts to acquire monies through both FEMA and potentially GOMESA for buoys at the Flower Gardens National Marine Sanctuary and to harden the entire TABS array.**





# Oil Spill Research and Development Activities, 2018-2019

## Texas Projects



- **UT Austin** - Extending and improving Texas Bay/Estuary oil spill simulations
- **UT Dallas** - Mixing in the Texas coastal zone through coordinated simulations and field measurements: the role of Langmuir cells in sediment suspension and oil-mineral aggregation
- **A&M Oceanography**, Improving Hydrodynamic Predictions of Surface Currents Near the Texas Coast Used for rapid Oil Spill Response – Phase 5
- **A&M GERG**, Interfacing HF Radars and Buoys for Better Spill Prediction
- **A&M GERG**, Tarball Classification and Hydrous Pyrolysis Treatment
- **A&M Corpus Christi** - Improving Oil Spill Response through Integrated Geospatial Reporting Tools and UAS Protocols
- **A&M Corpus Christi**, Evaluation of Surface Washing Agents for Applications Potentially Affecting Texas Environments
- Acquired TDEM/FEMA Harvey mitigation funds to rebuild and harden and strengthen buoys damaged in storm.





# Oil Spill Research and Development Activities, 2020-21

## Texas Projects



- **UT Dallas** - Mixing in the Texas coastal zone through coordinated simulations and field measurements: the role of Langmuir cells in sediment suspension and oil-mineral aggregation
- **A&M Corpus Christi**, Evaluation of Surface Washing Agents for Applications Potentially Affecting Texas Environments
- **A&M GERG**, Tarball Classification and Hydrous Pyrolysis Treatment
- **UNT** - Development of an in situ testing platform for oil spill response and assessment
- **A&M Galveston** - Oil spills during natural and man-made disasters: protecting estuaries through science and promoting social well-being.
- **A&M GERG** - Connectivity of the Coastal and Bay Environment
- **A&M Engineering** - Developing UAV and Satellite Tools for Ocean Currents and Oil Transport





# State Scientific Support Activities - Texas

## Drills, Exercises, Trainings, and Coordination

- GCOOS ExCom and open meeting <https://gcoos.org/> , (April '19, Oct '19))
- SCAT Training - Joint GLO/NOAA, Port Aransas, Texas. (April '19
- Leveraging Science and Academic Engagement Symposium in California, (April '19
- Organized UAS training course for GLO pilots (MOU in place our pilots are now certified and flying), (May'19)
- Science of Dispersants presentation at USCG Dispersant Seminar Sector Corpus Christi (June '19)
- RRT VI ExCom, Monthly calls, document/plan review and consultation
- BP America Large Scale Functional exercise (July '19)
- GOMRI Core 7 Operational Spill Forecasting workshop (Oct. '19)
- Clean Gulf Session -Session OSRO's 30 Years of Change

Upcoming (abstracts accepted)

- GOMOSES Feb 2020 - session: Evaluation and Development of Spatially Related Response and Restoration Data Collection , Use , and Retrieval Tools
- IOSC May 2020 - Session – Resources at Risk: Making the most of the ICS 232





## On the Horizon...

---

- Implement procedures for vessel removal funding and establish a prioritization schedule to begin removing derelict vessels with the goal of securing dedicated, ongoing program funding for vessel removals.
- Continued updating and revamping of Oil Spill Prevention and Response (OSPRA) regulatory processes and rules, including facility secondary containment and vessel spill penalty procedures
- Continued monitoring of deepwater port application process and existing port expansion initiatives
- Security updates to the Vessel Response Plan and Certified Facility databases for external users

Texas General Land Office  
George P. Bush, Commissioner







# Outlook

Texas



## Training

Description	Dates
GLO Training Academy, South Padre Island, Texas	February 3-6 and 10-13
SCAT Joint GLO/NOAA Galveston, Texas	April 6-9

## Exercises/Workshops

Description	Dates
GOMOSES Conference	January 3-6
NDOW Quarterly meeting	Jan 22-23

## Fed/State/Local planning and coordination efforts

Description	Dates
State Wide Area Committee Meeting Anadarko-Woodlands, Texas,	April 14-16



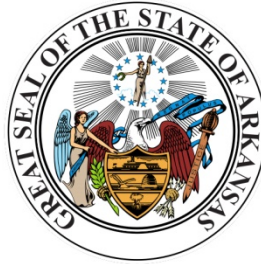
# State Report Outs



## RRT-6 Fall 2019 Meeting



# Arkansas



PRIMARY	ADEM	Chris	Foreman	chris.foreman@adem.arkansas.gov
ALTERNATE	ADEM	Latryce	Robinson	Latryce.Robinson@adem.arkansas.gov
PRIMARY	E&E	Stephen	Ratley	ratley@adeq.state.ar.us
ALTERNATE	E&E	Heather	Saco	sacoh@adeq.state.ar.us
PRIMARY	ADH	Lori	Simmons	lori.simmons@arkansas.gov
ALTERNATE	ADH			





# Executive Summary

## Arkansas

- Historic flooding of the Arkansas River
- Formation of Levee Task Force
- Unpermitted dump site fire in NWA
- Transformation of State Government





# Arkansas River Flooding

Arkansas

- **Facility Surveys**
  - Inundation zone
  - Permitted facilities and sites
  - Tier II
  - WWTP
  - DEQ COOP activation
- **No Action Assurance(Asbestos)**
  - EPA and DEQ
  - National Emissions Standards for Hazardous Air Pollutants (NESHAP)
  - Flexibility on 10-day notification and inspection requirements
- **Managing Debris from Declared Disasters**
  - Guidance for county and municipal solid waste operators and communities





# Arkansas Levee Task Force

## Arkansas

- Executive Order (June 27, 2019)
- Study and analyze:
  - Current condition
  - Resources needed
  - Monitoring and reporting systems
  - Laws and organizational structure
- Final report due to the Governor by December 31, 2019
- Commissioner of State Lands
- Department of Public Safety
- Department of Agriculture
- Department of Finance and Administration
- Arkansas Natural Resources Commission
- Arkansas Department of Emergency Management
- State Geographic Information Coordinator
- Arkansas Waterways Commission
- County judges
- County clerks
- Municipal elected officials
- Citizens





# Unpermitted Dump Site Fire

Arkansas

- Bella Vista (NWA)
- Underground fire
- Declared emergency by Governor
- Contractor developed Response Action Plan
- ADH, 61<sup>st</sup> CST, EPA, Contractors
- Bella Vista POA
- Phase I work complete





# Transformation of State Government

Arkansas

Department	Division
Arkansas Department of Energy and Environment (E&E)	Division of Environmental Quality (DEQ)
Arkansas Department of Public Safety	Division of Emergency Management (ADEM)
Arkansas Department of Health	No change





# **Arkansas Department of Energy and Environment (E&E)**

**Arkansas**

- Division of Environmental Quality (DEQ)
- Oil and Gas Commission (OGC)
- Geological Survey (GS)
- Liquefied Petroleum Gas Board (LPGB)
- Pollution Control and Ecology Commission (PC&EC)





# Arkansas Department of Energy and Environment (E&E)

Arkansas

- Transformation Action Team (TAT)
  - Increase efficiencies
  - Improve effective management of resources and services
  - Identify cost savings
- Shared services (Legal, HR, Fiscal, Communications)
- Fleet
- Facilities
- Policies





# Arkansas Department of Energy and Environment (E&E)

Arkansas

- Secretary's Office
  - Office of Chief Counsel
  - Office of Communications
  - Office of Operations
  - **Office of Chief Technical Officer**
    - CTO Larry Bengal
    - Emergency Management
    - Planning and Preparedness



# State Report Outs



## RRT-6 Fall 2019 Meeting

11/06/2019



# Louisiana



PRIMARY	LDEQ	Jeff	Dauzat	jeff.dauzat@la.gov
ALTERNATE	LDEQ	Daniel	Lambert	daniel.lambert@la.gov
ALTERNATE	LDEQ	Jerry	Lang	jerry.lang@la.gov
ALTERNATE	LDEQ	Ji	Wiley	ji.wiley@la.gov
PRIMARY	GOHSEP	Chris	Guilbeaux	Christopher.Guilbeaux@LA.GOV
PRIMARY	LSUHSC	Jimmy	Guidry	jguidry@la.gov
ALTERNATE	LSUHSC	Luanne	White	lawhite@tulane.edu
ALTERNATE	LOSCO	Karolien	Debusschere	Karolien.Debusschere@la.gov
PRIMARY	LOSCO	Marty	Chabert	marty.chabert@la.gov
PRIMARY	LPCC	Mark	Ryan	mryan@lsuhsc.edu
ALTERNATE	LSP	Gene	Dunegan	gene.dunegan@la.gov
PRIMARY	LSP	John	Porter	john.porter@la.gov





# Executive Summary

Louisiana

<b>Challenges-</b>	Retaining experienced personnel (Retirement and loss to Industry)
<b>Best Practices-</b>	Continued cooperation with Federal, State, and Local partners when responding to incidents in an effort to keep all key stakeholders and the public informed.





# Mercury Spill

Louisiana

<b>Date:</b>	<b>Notified on July 23,2019</b>
<b>Type and amount of product spilled:</b>	Mercury estimated to be about 16 Fluid ounces or 14lbs
<b>Cause of spill:</b>	Children found Mercury and poured it on each other and threw it in the ceiling fan (may 2019)
<b>Key operational activities:</b>	Three children diagnosed with Mercury poisoning. Four residences, Five hospitals, and several vehicles impacted by mercury.
<b>Agencies Involved:</b>	EPA, LDEQ
<b>Major lessons learned:</b>	The average citizen has no idea what the health risk are from mercury .



*DeQuincey, La*







# GEP Well Blowout

Louisiana

<b>Date:</b>	8/30/2019- 10/08/2019
<b>Type and amount of product spilled:</b>	Natural Gas and Produced water spray 270 Million cubic feet per day
<b>Cause of spill:</b>	Well failure during flowback operations
<b>Key operational activities:</b>	19 Days to get all wells cut and discharging vertically, wells 3 and 4 were capped in 21 days, wells 1 and 2 capped on 40 <sup>th</sup> day
<b>Agencies Involved:</b>	LDEQ, DNR, LSP
<b>Major lessons learned:</b>	Over 4000 acres of pasture and trees show signs of salt stress.



*Coushatta La*



















# Metrics/Trends/Challenges

Louisiana

3/14/19 – 10/28/19

Non-Emergency Notifications	2070
Emergency Notifications	692
Complaints	1936





# Accomplishments

## Louisiana

### Training

Description	Dates
Air Monitoring for Local/State Responders	Multiple

### Exercises/Workshops

Description	Dates
Nuclear Power Plant Exercises	Multiple

### Fed/State/Local planning and coordination efforts

Description	Dates
State Emergency Operations Plan Updates	Multiple
LDEQ Catastrophic Event and Natural Disaster Response Plan and Parish Resource Book Update	Multiple





# Outlook

## Louisiana

### Training

Description	Dates
Air Monitoring Training for Local/State Responders (JESTC)	Multiple
LDEQ Internal Responder Training	Multiple

### Exercises/Workshops

Description	Dates
Nuclear Power Plant Exercises	Multiple
Louisiana Emergency Management Conference (LEMC)	Yearly

### Fed/State/Local planning and coordination efforts

Description	Dates
Parish LEPC Meetings	Multiple
State Emergency Operations Plan Updates	Multiple
LDEQ Catastrophic Event and Natural Disaster Response Plan and Parish Resource Book Update	Multiple



# State Report Outs



**RRT-6 Fall 2018 Meeting**

00 XXX 2018





# Texas



PRIMARY	TCEQ	Anthony	Buck	<a href="mailto:anthony.buck@tceq.texas.gov">anthony.buck@tceq.texas.gov</a>
ALTERNATE	TCEQ	Tom	Erny	<a href="mailto:Tom.Erny@tceq.texas.gov">Tom.Erny@tceq.texas.gov</a>





# Executive Summary

Texas

<b>Challenges-</b>	<b>Multiple high profile incidents occurred in the same timeframe</b>
<b>Lessons Learned-</b>	<b>Don't be afraid to ask for assistance</b>
<b>Best Practices-</b>	<b>Train and exercise with your Local, State, and Federal partners</b>





# Personnel Changes

Texas

Agency	Role	Incoming Name	Outgoing Name
TCEQ	Commissioner	Bobby Janecka	Toby Baker
TCEQ	DFW Regional Director	Alyssa Taylor	Tony Walker
TCEQ	Houston ER Team Lead	Kendra Bernhagen	Guadalupe Quiroz
TCEQ	DFW ERC	Gary Sinclair	Kendra Houston
TCEQ	Harlingen ERC	Lupe Garcia	Esmerelda Rodriguez
TCEQ	San Antonio ERC	Amanda Bucher	Kelly Crunk





# ITC Fire

Texas







# KMCO Fire

Texas



<b>Date:</b>	April 2, 2019
<b>Type and amount of product spilled:</b>	isobutylene
<b>Cause of spill:</b>	Pipe rupture with resulting Explosion/Fire
<b>Key operational activities:</b>	Air monitoring and Regulatory Oversight
<b>Agencies Involved:</b>	Harris County, TCEQ, and EPA
<b>Major lessons learned:</b>	Agencies were able to shift resources quickly from another incident location







# Skull Creek

Texas





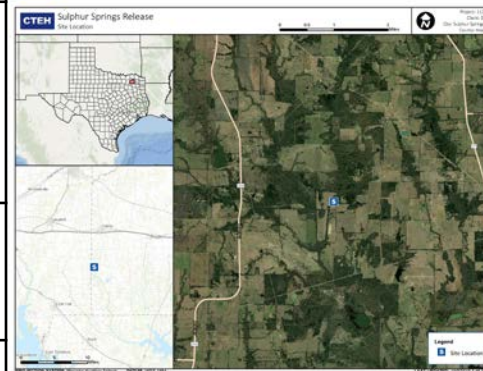


# Delek Logistics Hopkins Co.

Texas



<b>Date:</b>	<b>10/03/2019</b>
<b>Type and amount of product spilled:</b>	Pipe Line Break releasing an estimated 11,494 BBLs of Diesel fuel. The diesel went directly into the East Fork of Turkey Creek.
<b>Cause of spill:</b>	Pipeline failure.
<b>Key operational activities:</b>	Set up Unified Command. Contained and Abated diesel in East Fork of Turkey Creek. Developed and implemented plans for the long term remediation of the creek and soils.
<b>Agencies Involved:</b>	EPA, TCEQ, TDEM, TPWD, RRC, Texas Historical Commission, Sabine River Authority, Hopkins County Emergency Management and City of Dallas.
<b>Major lessons learned:</b>	Cooperative Landowners are a rare and wonderful thing. Local Emergency Management personnel are critical for a successful response. Get the Historical Commission involved ASAP



*Incident Location*



*Photo*





# Metrics/Trends/Challenges

Texas



826 ER Spill Reports entered April to November

226 of these were serious enough for an onsite investigation

85,646 Tier 2 reports

33 of them being Agriculture Ammonium Nitrate



# State Report Outs



## RRT-6 Fall 2019 Meeting

November 6, 2019



# Louisiana - LOSCO

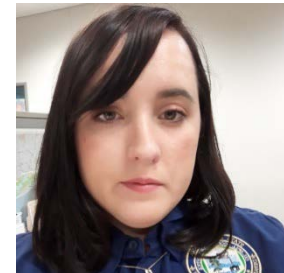


## Personnel Changes (since last meeting)

- New Responder (Jacob Thompson)



- New Wildlife Response support (Tiffani Vincent)





# LOSCO Response Line

- LOSCO's 24 hour Emergency Response Phone connects you directly to the **on-duty LOSCO responder**

(225) 200-1921



# Small Unmanned Aircraft System (sUAS) Program

## Equipment:

- Phantom 4
- Inspire 2

## Operations:

- 172 flights
- 39 missions

## FAA Certified Pilots:

- Andy Carlson
- Robin Paulos
- Tiffani Vincent





# LOSMS





# Lobo Grand Bay

Louisiana

<b>Date:</b>	4/1/2019
<b>Type and amount of product spilled:</b>	Approximately 20 barrels of crude oil
<b>Cause of spill:</b>	Failed valve on an 8" transfer line
<b>Key operational activities:</b>	Roseau cane was cut during response
<b>Agencies Involved:</b>	USCG, LOSCO, LDEQ, LDWF
<b>Major lessons learned:</b>	Need to be prepared for changing conditions (Water levels increased during response allowing oil to escape)

*Incident Location*



*Photo*





# TPIC CZ Tank Battery

Louisiana

<b>Date:</b>	4/28/2019
<b>Type and amount of product spilled:</b>	Approximately 410 barrels of crude oil
<b>Cause of spill:</b>	Storage tank developed a leak in the bottom and over filled secondary containment
<b>Key operational activities:</b>	Response actions lasted approximately two months
<b>Agencies Involved:</b>	LOSCO, LDEQ, LDWF
<b>Major lessons learned:</b>	Preparations for extreme weather events can be critical for a successful response

*Incident Location*



*Photo*





# TPIC Main Pass 69

Louisiana

<b>Date:</b>	10/7/2019
<b>Type and amount of product spilled:</b>	Approximately 30 barrels of crude oil
<b>Cause of spill:</b>	Failed seal on a 6" pipeline
<b>Key operational activities:</b>	Small Unmanned Aircraft System (sUAS) imagery revealed the extent of the spill
<b>Agencies Involved:</b>	USCG, LOSCO, LDEQ, LDWF
<b>Major lessons learned:</b>	sUAS was key in discovering extent of oiling

*Incident Location*



*Photo*





# TPIC Main Pass 69

Louisiana

- Spill as seen from facility catwalk



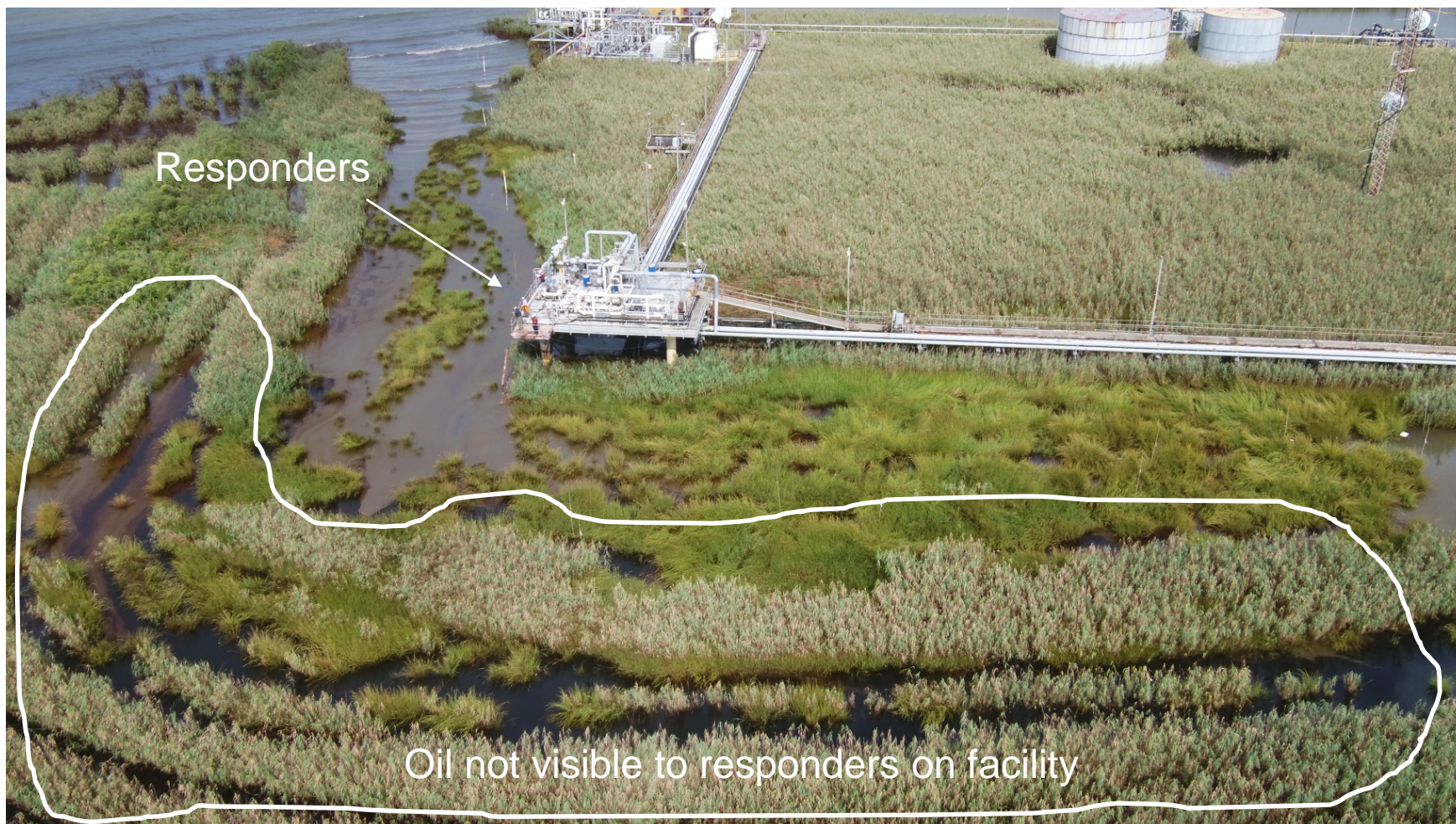




# TPIC Main Pass 69

Louisiana

- Spill as seen from sUAS







# Metrics/Trends/Challenges

Louisiana

## Reporting trends

Time Period	Total oil related reports
Calendar Year 2016	1,438
Calendar Year 2017	1,580
Calendar Year 2018	1,405
01/01/2019-10/31/2019	1,300





# Accomplishments

## Louisiana

### Training

Description	Dates
HAZWOPER	Various
USCG Oil Spill Response Course	07/22-26/2019
PIO Training	08/21-22/2019
ICS Training	Various
Inland Spill Training	09/23-27/2019
SCAT Training	10/15-17/2019

### Exercises/Workshops

Description	Dates
GOHSEP Statewide	04/03-04/2019
Colonial Pipeline Drill	04/30/2019-05/01/2019
ExxonMobil Pipeline Drill	05/02/2019
Chevron Exercise	05/22-23/2019
Marquette Tabletop Exercise	06/11/2019
LOOP Drill	07/18/2019
HCWG	07/30-31/2019
GIUE	08/14/2019
SCA-ISB Workshop	10/24/32019
ExxonMobil Pipeline Drill	11/05/2019





# Accomplishments

## Louisiana

### Fed/State/Local planning and coordination efforts

Description	Dates
Southcentral Louisiana Area Committee Meeting	05/29/2019
Louisiana Statewide Area Committee Meeting	06/05/2019
Southwest Louisiana Area Committee Meeting	06/12/2019
GOHSEP Region 6, 7, 8 Meeting	06/26/2019
Southeast Louisiana Area Committee Meeting	09/05/2019
LMRCC Annual Meeting	09/16-18/2019
Southwest Louisiana Area Committee Meeting	10/17/2019
Coastal & Marine Pipeline Safety and Emerg. Resp. Meeting with Oil & Gas Pipeline Companies	11/06/2019
Clean Gulf	10/28-10/31/19





# Outlook

## Louisiana

### Training

Description	Dates
PIO Training	11/18-22/2019
OSC Crisis Management	12/02-13/2019

### Exercises/Workshops

Description	Dates
Shell Drill	11/14/2019

### Fed/State/Local planning and coordination efforts

Description	Dates
Southcentral Louisiana Area Committee Meeting	11/21/2019
<b>Statewide Area Committee Meeting</b>	<b>02/06/2019</b>



# State Report Outs



## RRT-6 Fall 2019 Meeting

November 5-7, 2019



# Oklahoma



PRIMARY	OEM	Bonnie	McKelvey	bonnie.mckelvey@oem.ok.gov
PRIMARY	ODEQ	Jennifer	Handley	jennifer.handley@deq.ok.gov
ALTERNATE	ODEQ	Loree	Boyanton	loree.boyanton@deq.ok.gov
ALTERNATE	ODEQ	Clifton	Hoyle	clifton.hoyle@deq.ok.gov
PRIMARY	OSDH	Rocky	McElvany	rockym@health.ok.gov
ALTERNATE	OSDH	Scott	Sproat	scotts@health.ok.gov
PRIMARY	OPCC	Scott	Schaeffer	scott-schaeffer@ouhsc.edu





# Personnel Changes

Oklahoma

Agency	Role	Incoming Name	Outgoing Name





# BF Goodrich

Oklahoma







# BF Goodrich

## Oklahoma

**BF Goodrich Map**  
Estimated asbestos sampling locations

**Legend**  
Feature 1







# BF Goodrich

Oklahoma



03.07.2019





# BF Goodrich

Oklahoma







# BF Goodrich

Oklahoma



10.31.2019 11:37



10.31.2019 11:37





# BF Goodrich







# LEPC

## Oklahoma

### Tier II Reporting

**Total - 52,669 Tier II Reports**

Oil and Gas - 45,745

RMP - 237

EHS - 1298

Non-EHS - 2572

Wind Turbines - 2817

LQG - 147

EHS - Extremely Hazardous Substances on site

Non-EHS - Non-Extremely Hazardous Substances on site

RMP - Sites also complying with EPA's Risk Management Plan

LQG - Large Quantity Generators of Hazardous Waste

### Industry Compliance Assistance

Chemical Reporting and Preparedness staff provided Tier II and TRI reporting assistance and information throughout fiscal year 2019.

**Emails: 5,368**

**Phone Calls: 1,281**

**Classes: 47**

**LEPC Meetings: 40**







# Metrics/Trends/Challenges

Oklahoma

Since the last meeting...

DEQ complaints

2,129

DEQ spills

202

DEQ fishkills

35

Referred complaints & spills

328







# DEQ Dashboard

Oklahoma



Web Mapping Application

Oklahoma DEQ  
Superfund Program



Web Mapping Application

Superfund Cleanups



Web Mapping Application

Oklahoma Brownfields



Web Mapping Application

Site Cleanup Assistance  
Program - Orphan Sites  
Cleaned Up



Web Mapping Application

LEPC Equipment  
Reimbursement Program



Web Mapping Application

Repurposed National  
Guard Armories in  
Oklahoma



Web Mapping Application

The Environmental Legacy  
of Oil Refining in  
Oklahoma



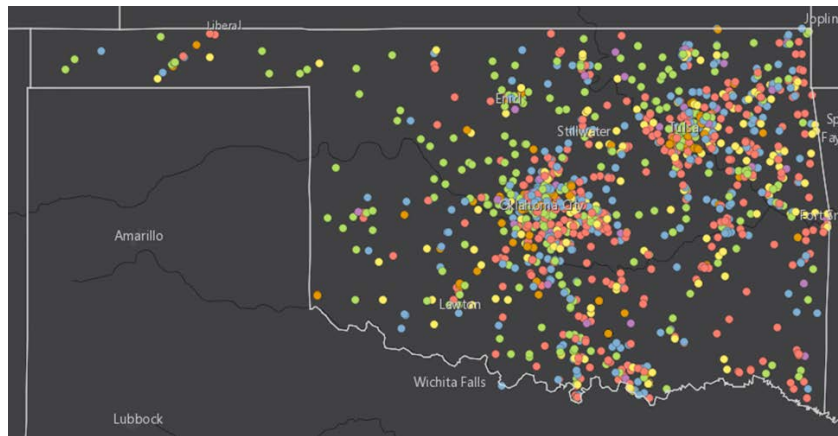
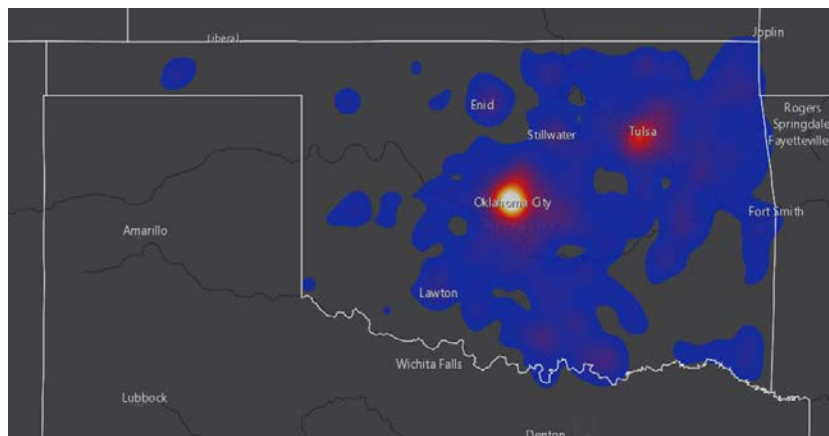
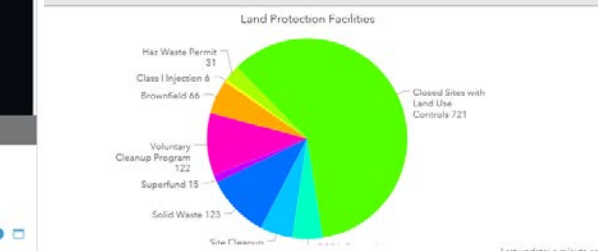
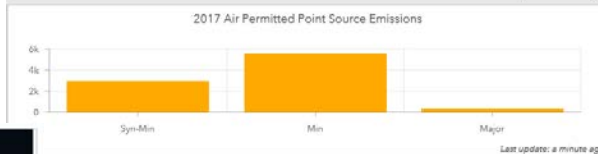
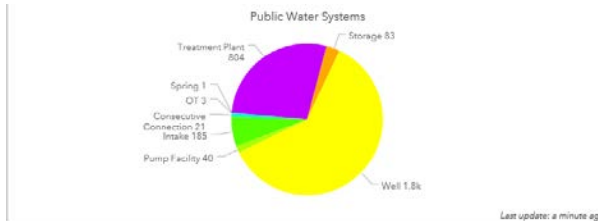
Web Mapping Application

Introducing Water Loss  
Auditing to Oklahoma Water Systems  
DEQ's Water Loss  
Auditing and Control  
Program



Web Mapping Application

Drinking Water State  
Revolving Fund







# OKRMT

Oklahoma







# Laws/Regulations/Policies

## Oklahoma

- Open Burning
- Manufacturing of Fiberglass Reinforced Plastic Products
- Highway Spill Remediation
- Individual & Small Public On-Site Sewage Treatment Systems
- Waterworks & Wastewater Works Operator Certification
- Radiation Management
- Incorporations by reference (CFR updates)
  - Air
  - Hazardous Waste





# Accomplishments

## Oklahoma

### Training

Description	Dates
Disaster Law & Policy Summit	April 18-19, 2019
ITEC Conference	July 25, 2019
OEM Conference	August 13-15, 2019

### Exercises/Workshops

Description	Dates
Express Services Exercise	April 12, 2019
Phillips 66 Refinery Exercise	April 30-May 1, 2019
SEOC Communications Exercise	August 22, 2019
Foss Dam Functional Exercise	September 12, 2019
OSDH Radiation Workshop	September 12, 2019

### Fed/State/Local planning and coordination efforts

Description	Dates
LEPC Outreach, Training, & Assistance	On-going
RISC Meeting	July 23-25, 2019
State Hazard Mitigation	October 3, 2019
Multi-Agency & Tribes Collaborative Training	October 23, 2019
Public Health Radiation Planning Meeting	October 28, 2019





# Outlook

## Oklahoma

### Training

Description	Dates
IAEM Conference	November 17-21, 2019
Emergency Response Training	Winter 2019-2020

### Exercises/Workshops

Description	Dates

### Fed/State/Local planning and coordination efforts

Description	Dates
State Radiation Response Plan (ESF #8 & ESF #10, Appendix 1)	Completion by 2020 FYE



# Arkansas River Flood Event - 2019

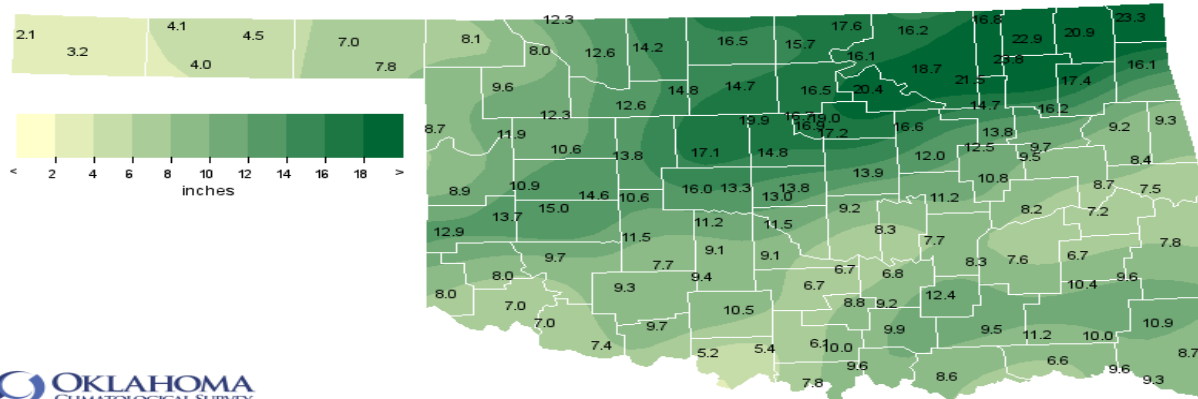
**Jennifer Handley – ODEQ ER Coordinator**  
**Stephen Ratley – E&E ER Coordinator**

**ARKANSAS**  
ENERGY & ENVIRONMENT





# Why?

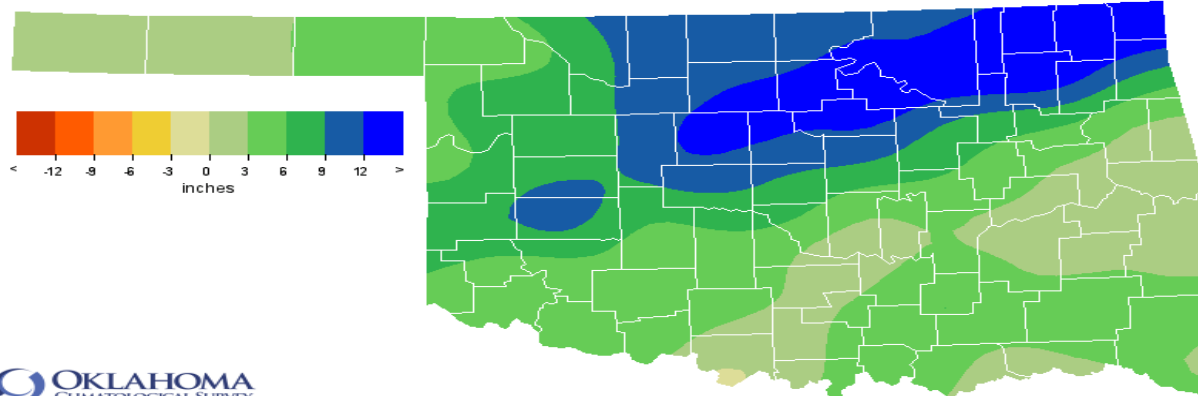


OKLAHOMA  
CLIMATOLOGICAL SURVEY

**Observed Rainfall**  
Last 30 Days

**Apr 28, 2019 through May 27, 2019**

Created 2019-05-28 10:01:41 UTC. Copyright © 2019



OKLAHOMA  
CLIMATOLOGICAL SURVEY

**Departure from 1981-2010 Normal Rainfall**  
Last 30 Days

**Apr 28, 2019 through May 27, 2019**

Created 2019-05-28 10:01:45 UTC. Copyright © 2019



# Oklahoma

- 41-day response event
  - Tornadoes
  - Severe storms
  - Rain
  - Flooding





# El Reno





# Keystone Lake

## FLOOD CONTROL STATUS

Keystone Lake

06Nov2019

00:00 CST

Elevation: 726.4 ft NGVD29

Drainage Area: 22351 sq. miles

Ungaged Area: 0 sq. miles

### KEY

Current Pool

Inactive Pool

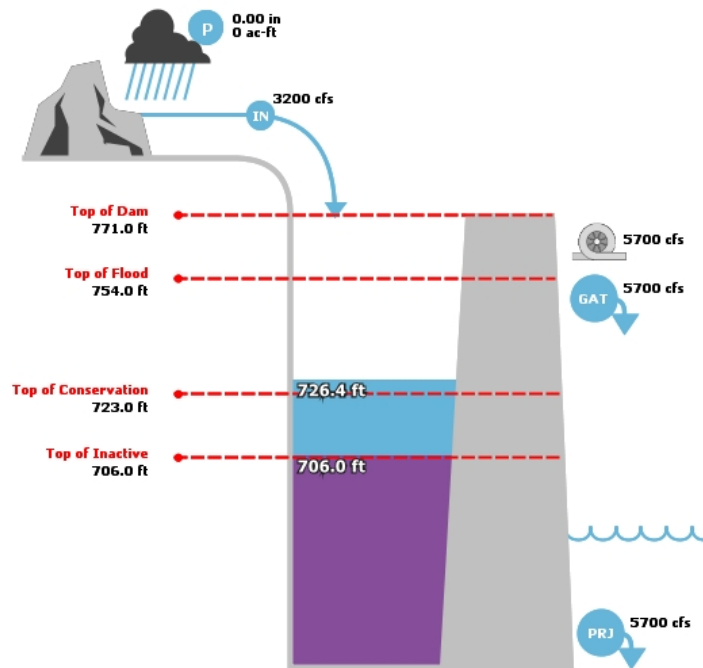
IN Inflow

P Precip

Turbine Total

PRJ Project Total

GAT Gated Total



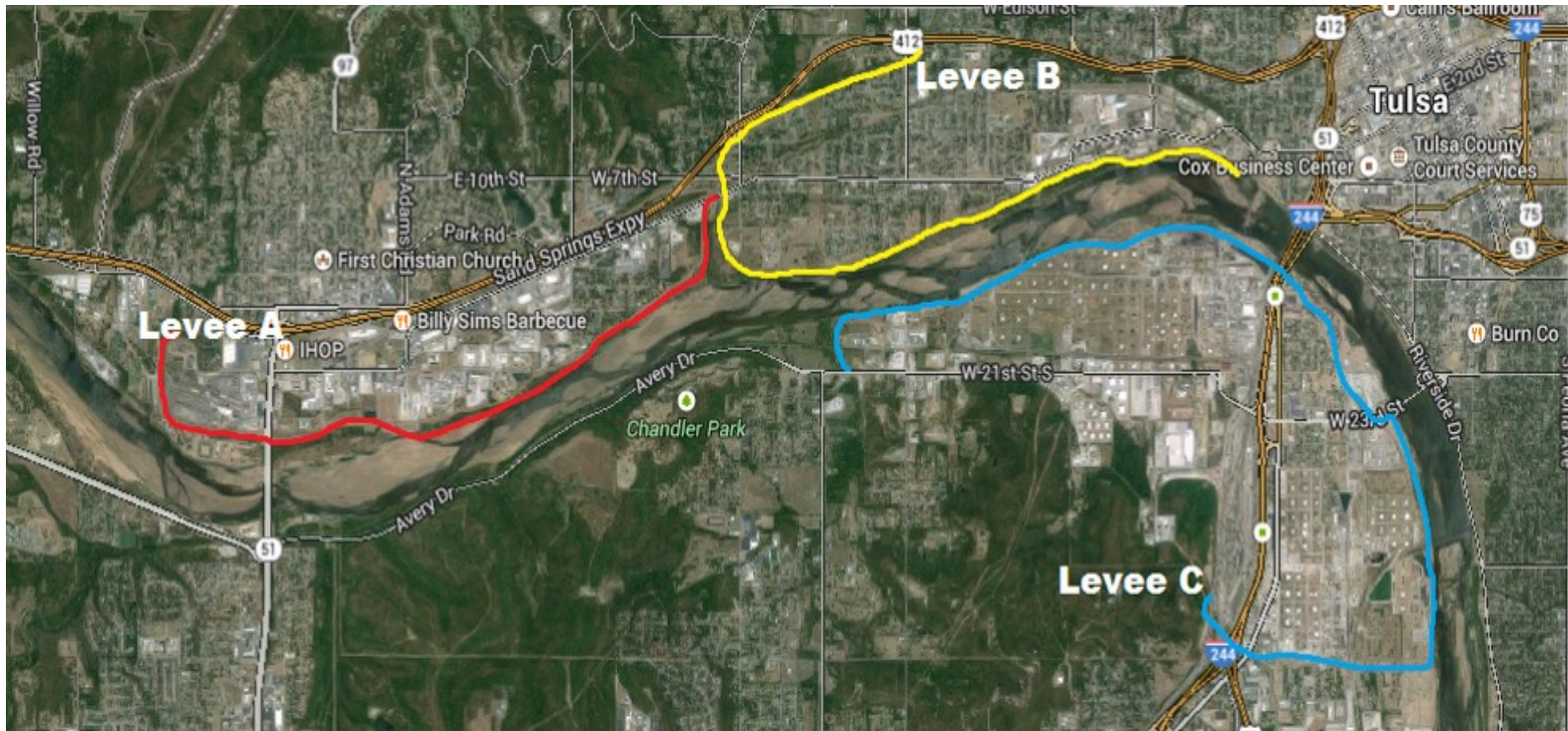


# Keystone Lake





# Tulsa Levee System





# Evacuations





# Release





# OK National Guard





# Riverspirit Casino





# Neighborhoods





# Twin Lakes



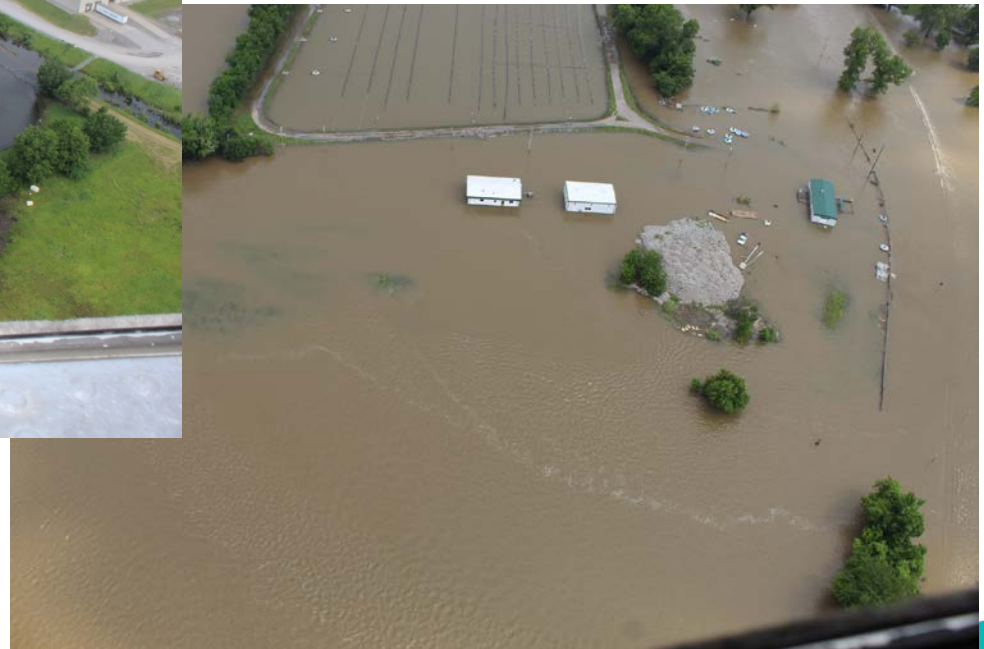


# Infrastructure





# WWTPs





# Industrial





# Oil & Gas





# OGE – Muskogee PP





# Oakley Terminal





# Lock & Dam #16

- <https://kfor.com/2019/05/23/watch-two-barges-sink-after-hitting-dam-at-webbers-falls/>









# Oxley Nature Center





# USS Batfish





# Barge Recovery

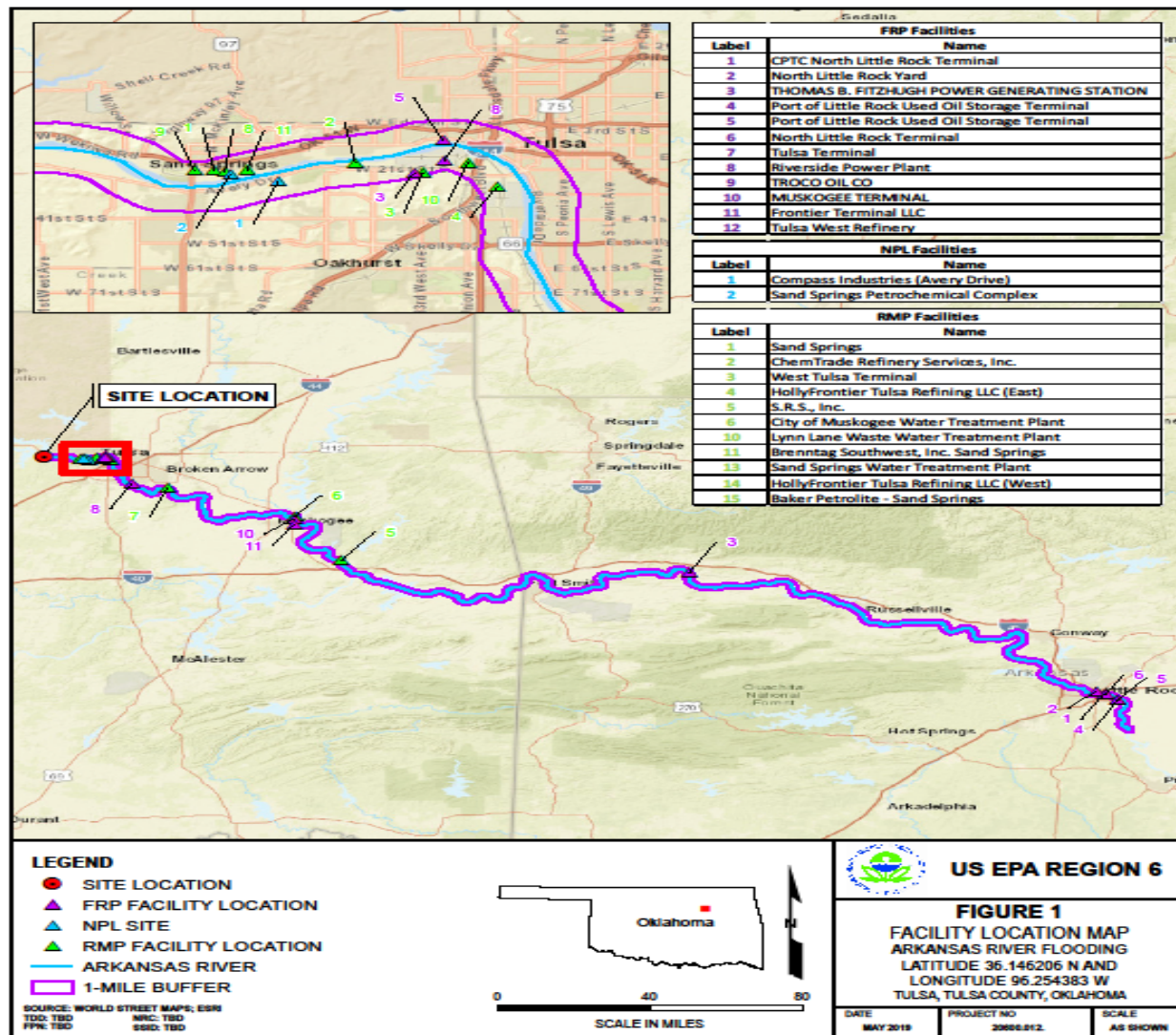




# 2019 Arkansas River Flood Event

- First time Arkansas State Emergency Operations Center was fully staffed with ESF since its adoption in 2008
- Historical Flooding - highest water levels ever experienced with current L & D system
- Inundation Mapping and GIS tools
- UPAD Products







# Inundation Mapping Benefits

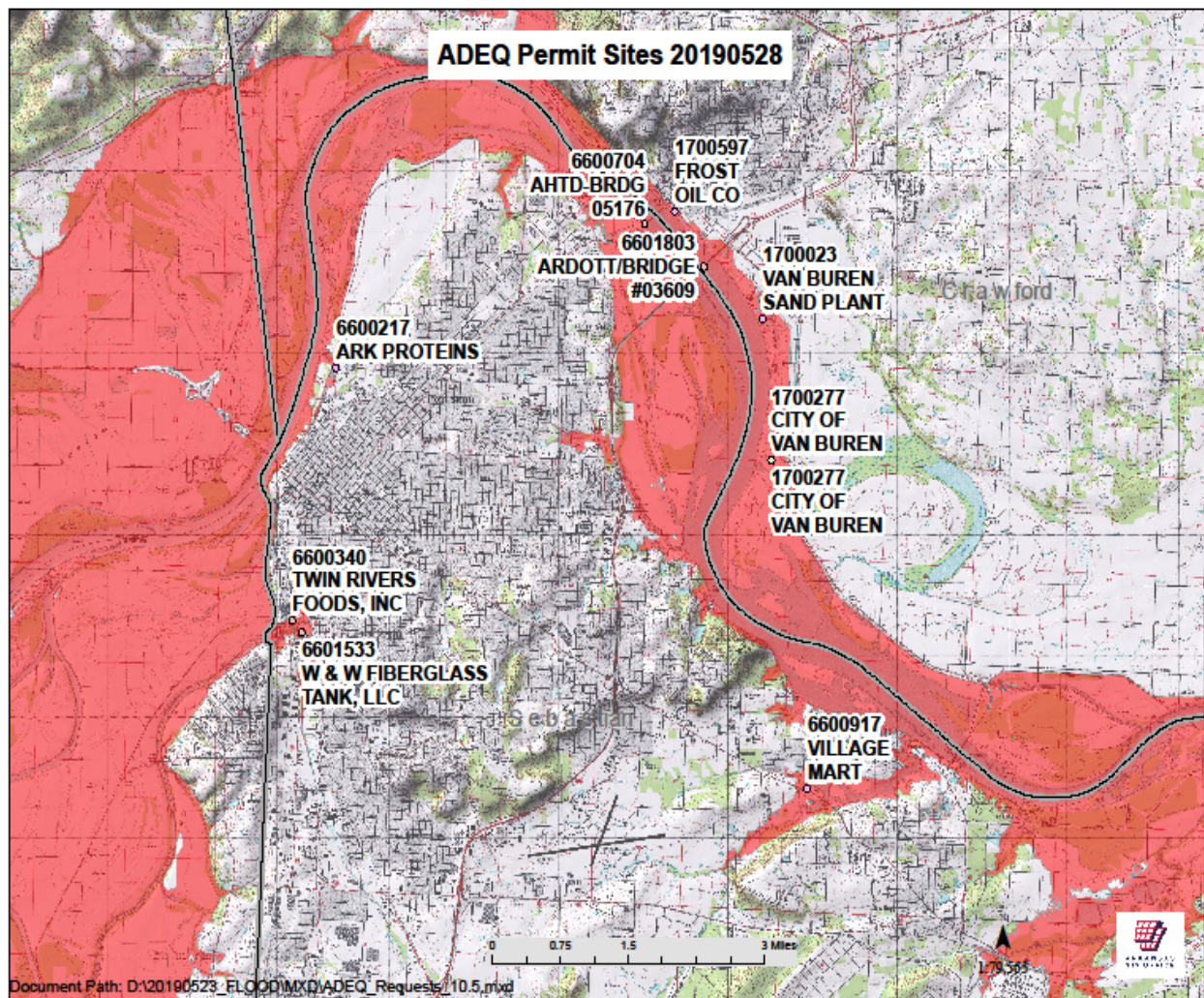
- [ArGIS Office and USACOE developed cooperative interactive website](#)
- Identifying Facilities: ~ 680 contacted
- Tier II, Permitted (including RCRA permits, SW, IGP, WWTP) but *not* HW generators
- GIS Product produced specifically for DEQ from inundation forecast map



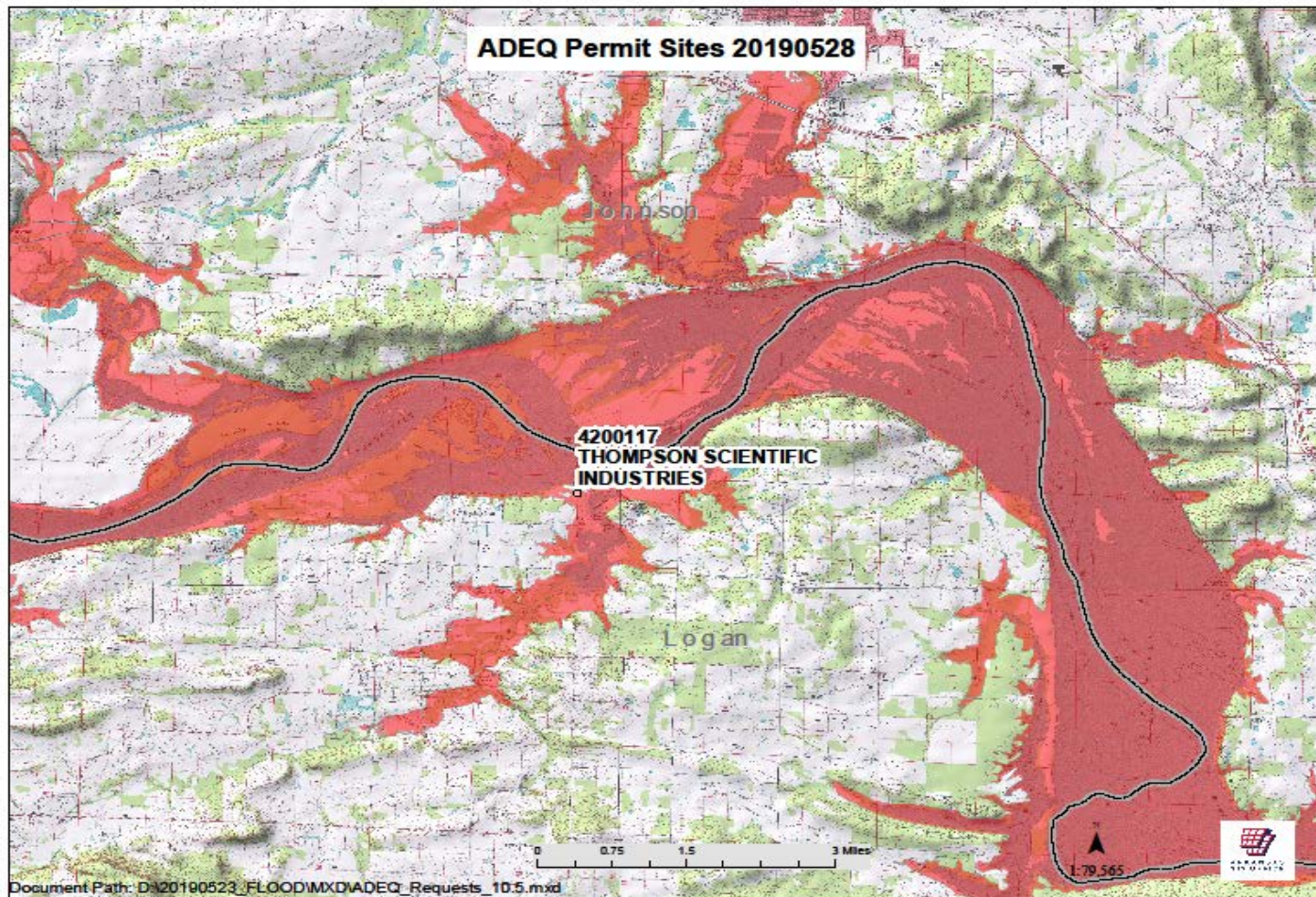


**ARKANSAS**  
ENERGY & ENVIRONMENT











# UPAD Products

- Unclassified Processing Assessment and Dissemination
- Arkansas National Guard 188th Air Wing and Civil Air Patrol
- Benefits of UPAD products
- Several examples





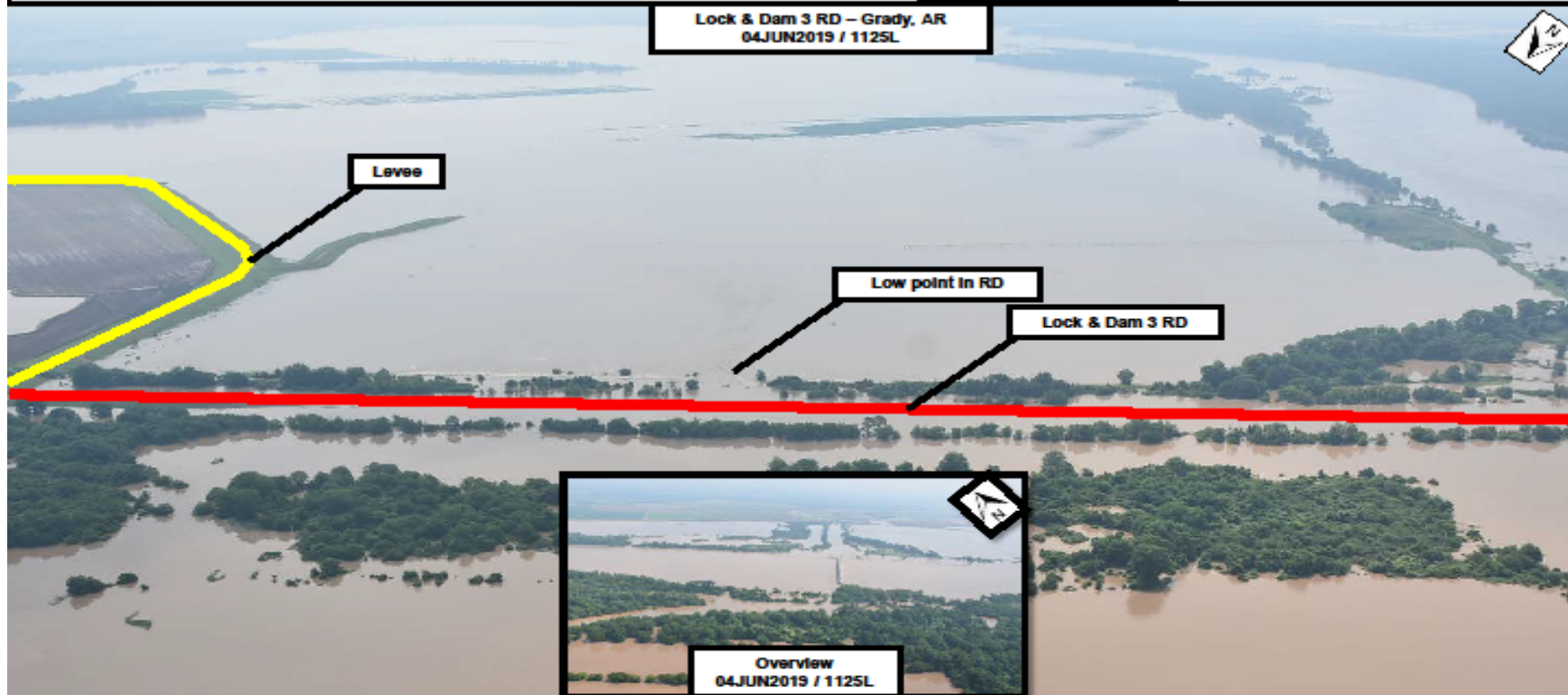
Grady, AR  
Lock & Dam 3 RD-Arkansas River Water Level /  
Imagery Reference

MGRS: 15SXT2223781818



UNCLASSIFIED

ATTENTION: This document contains U.S.  
persons information which has been  
included consistent with all applicable  
laws, directives, and policies.



**Analyst Comment:** Review of CAP imagery from 04 June 19 revealed flooding near the Lock & Dam 3 near Grady, AR. Previously reported breach is a low-point on Lock & Dam 3 RD. Flooded area is agricultural. Flood water is approximately 3m from overtopping levee. Historical data on health of this levee indicates breach is NOT LIKELY.

SOURCE: CAP / NLD

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479-573-5635

UNCLASSIFIED





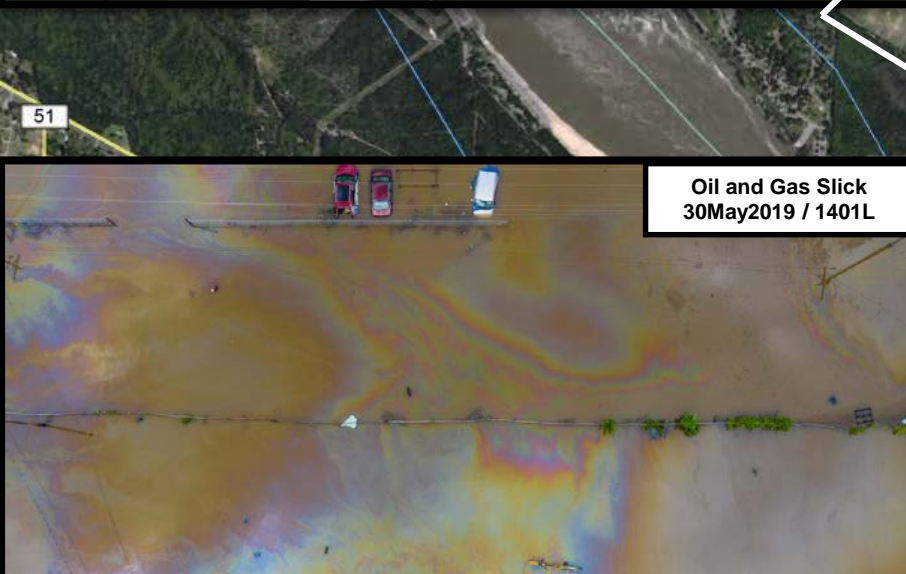
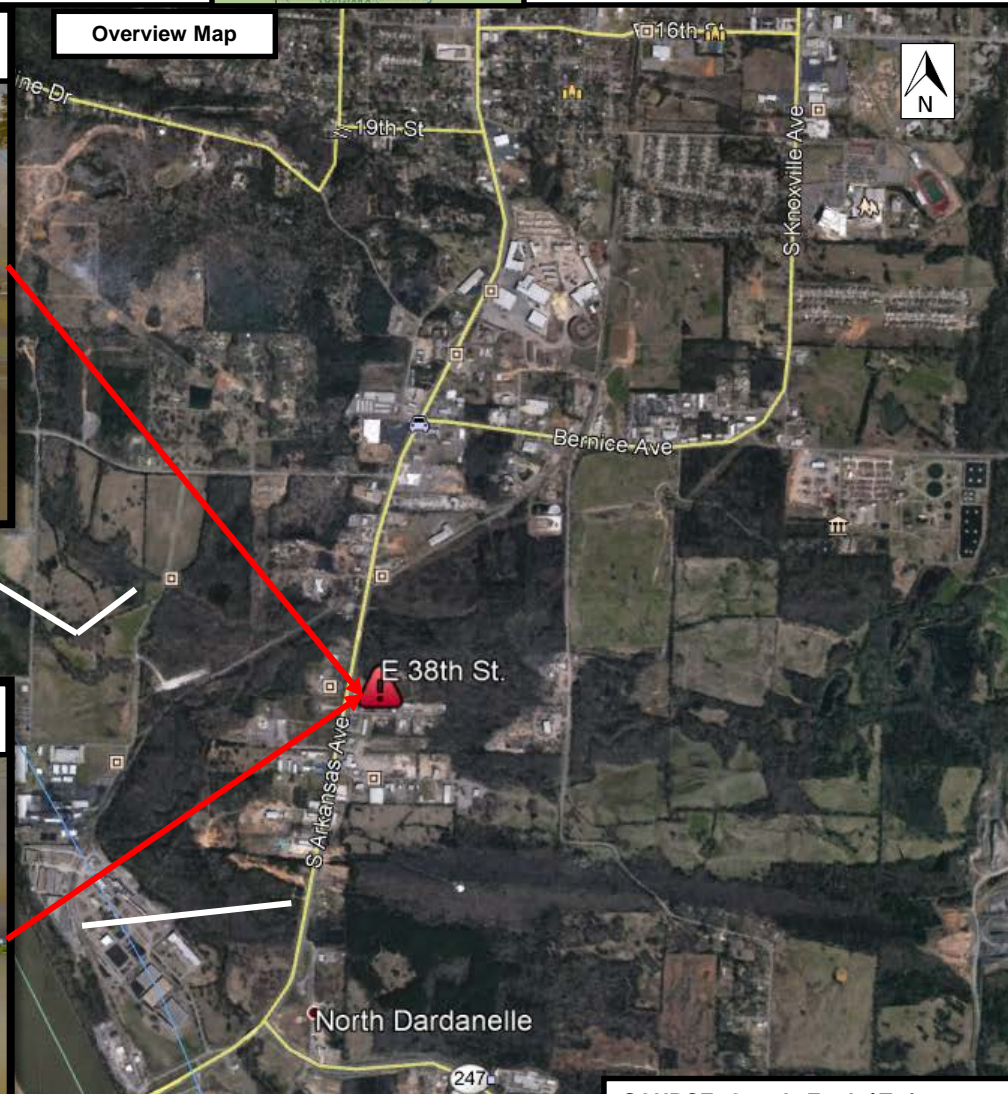
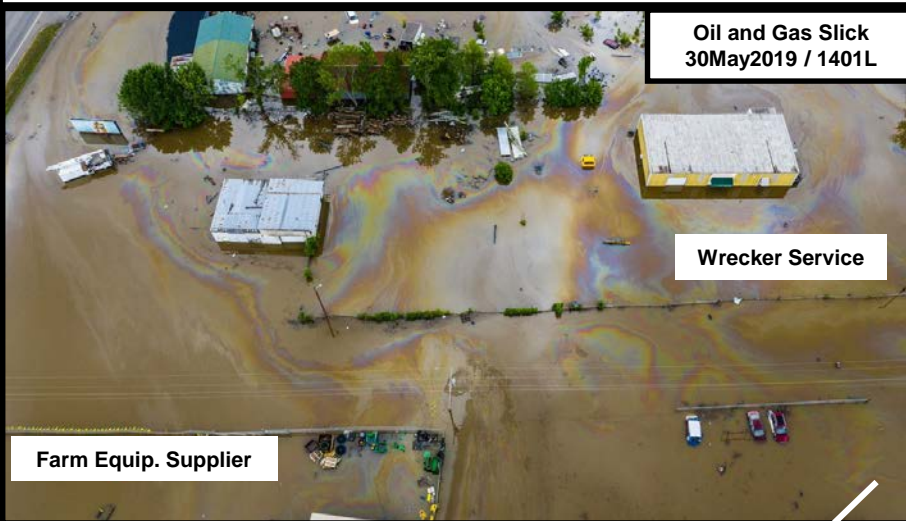
Russellville, AR  
Chemical Hazards; Hwy 7 & E 38<sup>th</sup> St.

MGRS: 15SVU8732199646



UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.



Analyst Comment: Oil and gas slick coming from a Wrecker Service and/or Farm Equipment Supplier near Hwy 7 in Russellville is approaching roadway. Unlikely to reach Hwy 7, but is still a hazard concern for the personnel and civilians in the area near E 38<sup>th</sup> St.

SOURCE: Google Earth / Twitter

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635

UNCLASSIFIED





Russellville, AR  
Dow Chemical Update-Arkansas River Water Level  
/ Imagery Reference

MGRS: 15SVU8617199349



UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

Dow Chemical  
02JUN2019 0926L



Overview

Affected Buildings (In Red)

Google Earth

UNCLASSIFIED

Analyst Comment: Review of CAP imagery from 02 June 19 revealed minor flooding of the Dow Chemical Facility. Overall 3 Buildings, and 2 Storage Pavilions have been impacted by floodwaters. It is **UNLIKELY** that this facility will see any further damage as the river at this location has crested.

SOURCE: Google Earth/CAP

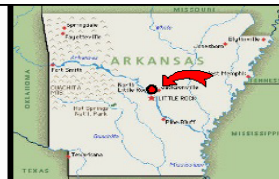
188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635





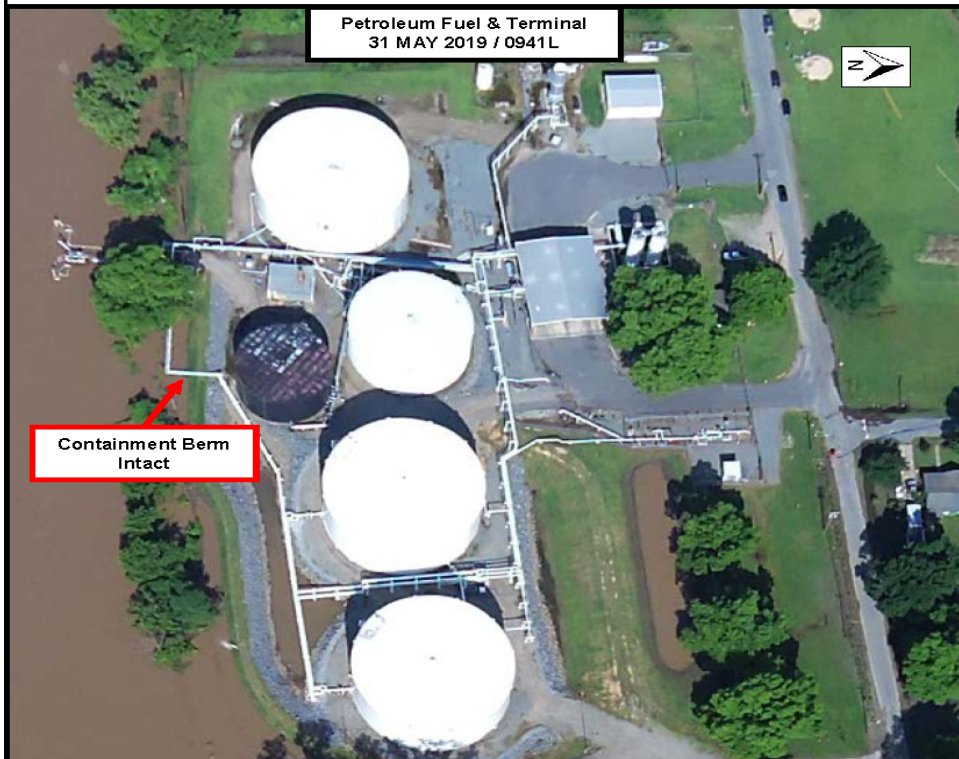
North Little Rock, AR  
Petroleum Fuel & Terminal, Co. –Containment  
Berm Breach -Arkansas River Water Level /  
Imagery Reference

MGRS: 15SWU7044445447



UNCLASSIFIED

ATTENTION: This document contains U.S.  
persons information which has been  
included consistent with all applicable  
laws, directives, and policies.



Analyst Comment: Review of PAI mentioned a possible breach at a Petroleum facility in North Little Rock. Analysis of CAP imagery from 31 May 2019 - 01 Jun 2019 confirmed that the containment berm had failed. At this time, no sign of petroleum pollution can be detected in the water surrounding the facility. It is likely that all petroleum storage tanks are intact, and risk of downstream pollution is minimal.

UNCLASSIFIED

SOURCE: Google Earth/PAI/CAP

189th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635





# Conway Water Treatment Facility Flooding Arkansas River Water Level / Imagery Reference

MGRS:15SWU4223379197



UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.



Water Level: Elevation 282ft

Levee: Elevation 288ft

Analyst Comment: Current water level around Conway's water treatment facility is approximately 282ft elevation. Water levels are expected to rise another three feet. With the current projections and height of the levee, it is unlikely that this facility will be submerged at crest.

SOURCE: Google Earth / CAP Imagery

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635

UNCLASSIFIED





**Little Rock, AR  
Riverdale Private Levee, Westside of Levee**

MGRS: 15SWU6341448030



**UNCLASSIFIED**

**ATTENTION:** This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

**Damaged Apartment  
02June2019 / 1000L**



**Damaged Foundation  
02June2019 / 1000L**



**-NOTE:** Little Rock officials say flooding has weakened the foundation of a building at the Riverwalk Apartments in the Riverdale area. The people who live in the building have been evacuated. Source: LITTLE ROCK (KATV)

**UNCLASSIFIED**

**Analyst Comment** It is being reported that floodwaters have caused foundational issues with a nearby apartment building (pictured above). No significant signs of major damage to storm drain joints or pump station were observed. Will continue to monitor.

White line represents the top of the Riverdale Levee

**Pump Station  
02June2019 / 1133L**



**SOURCE:** Google Earth / Twitter

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635





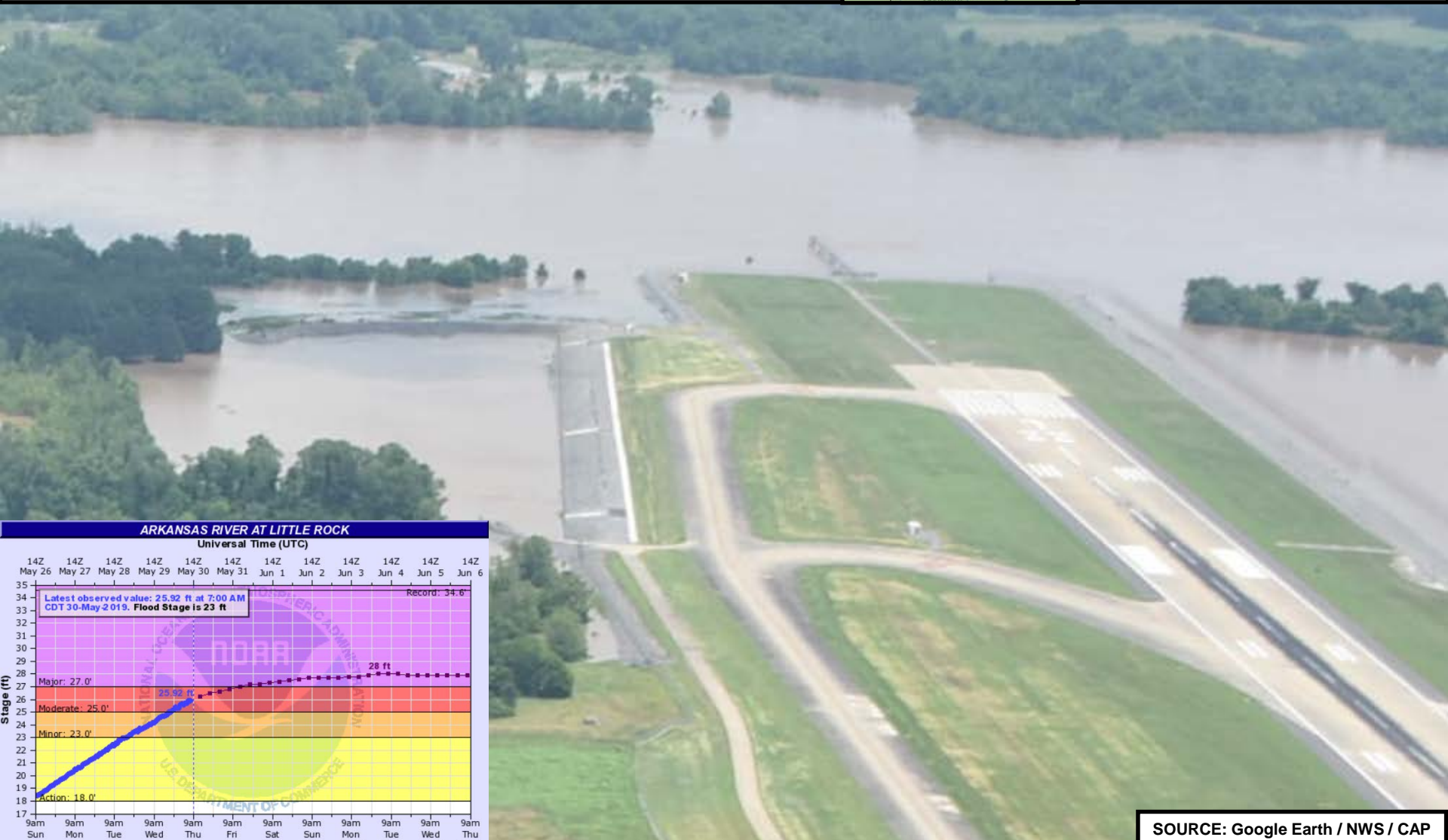
# Little Rock, AR Little Rock Airport Runway Flood Risk

MGRS: 15SWU7322044055



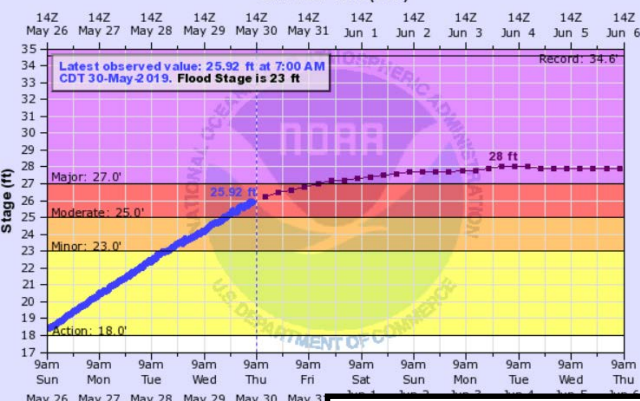
UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.



## ARKANSAS RIVER AT LITTLE ROCK

Universal Time (UTC)



Analyst Comment: With an increase of 3ft of flood water expected, it is unlikely that the runways will be affected at crest.

SOURCE: Google Earth / NWS / CAP

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635

UNCLASSIFIED





# Dardanelle, AR Current Flooding Concerns for Dardanelle Dardanelle Lock & Dam

MGRS: 15SVV8446500657



UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

Current Image  
31 May 2019 / 1914L



Google Earth



UNCLASSIFIED

Analyst Comment: Flood water at the Dardanelle Lock & Dam Power House have already crested with no observed damage to the electrical components. It is **LIKELY** this structure will remain structurally sound.

SOURCE: CAP / NWS / Google Earth

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635





# East of Dardanelle, AR Holla Bend Levee Breach

MGRS: 15SVU9138987910



**UNCLASSIFIED**

**ATTENTION:** This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

Approx. 31May2019/0608L

Approx. 31May2019/0608L



**UNCLASSIFIED**

**Analyst Comment:** Massive levee breach on west end of Holla Bend Levee system that broke at approximately 0045L on May 31, 2019. It is assessed with **high confidence** that the Levee system breach will **likely** affect the following areas: Hwy 155, Hwy 154, Hwy 65, Hwy 7, Hwy 79, Hwy 28, Hwy 53, and the towns of New Neely, Pontoon, Dardanelle, Centerville, and other surrounding areas South of the River.

**SOURCE:** Twitter

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635





# East of Dardanelle, AR Predictive Analysis: Holla Bend Levee

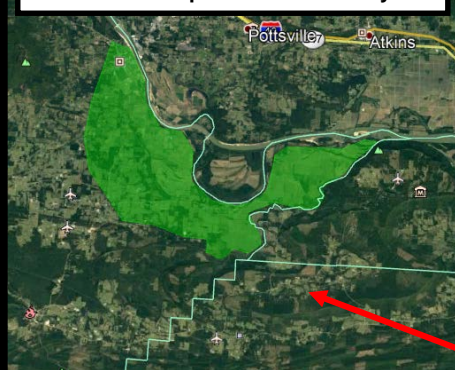
MGRS: 15SVU9138987910



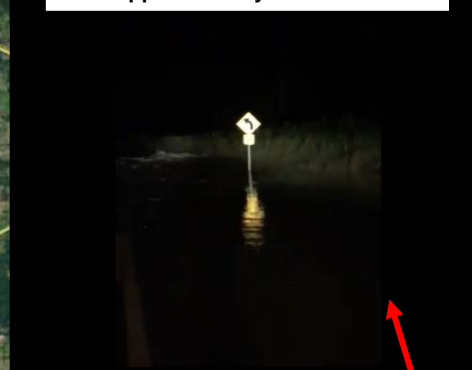
UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

Inundation Map – Predictive Analysis



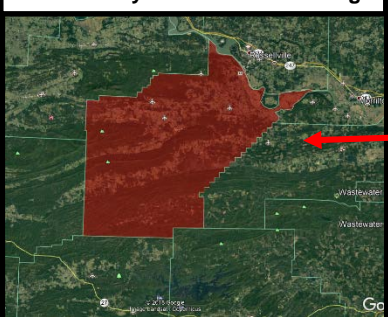
Approx. 31May2019/0045L



Approx. 31May2019/0614L



Yell County Flash Flood Warning



Analyst Comment: Massive levee breach on west end of Holla Bend Levee system that broke at approximately 0045L on May 31, 2019. It is assessed with high confidence that the Levee system breach will likely affect the following areas: Hwy 155, Hwy 154, Hwy 65, Hwy 7, Hwy 79, Hwy 28, Hwy 53, and the towns of New Neely, Pontoon, Dardanelle, Centerville, and other surrounding areas South of the River.

SOURCE: Google Earth / Twitter

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635

UNCLASSIFIED





# Galla Rock Township, AR Holla Bend Levee Breach Update

MGRS: 15SVU9138987910



**UNCLASSIFIED**

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.



**Friday May 31st**

Holla Bend Levee  
Posted: 06June2019 / 0539L



210ft

Day of Breach



**Sunday, June 2nd**

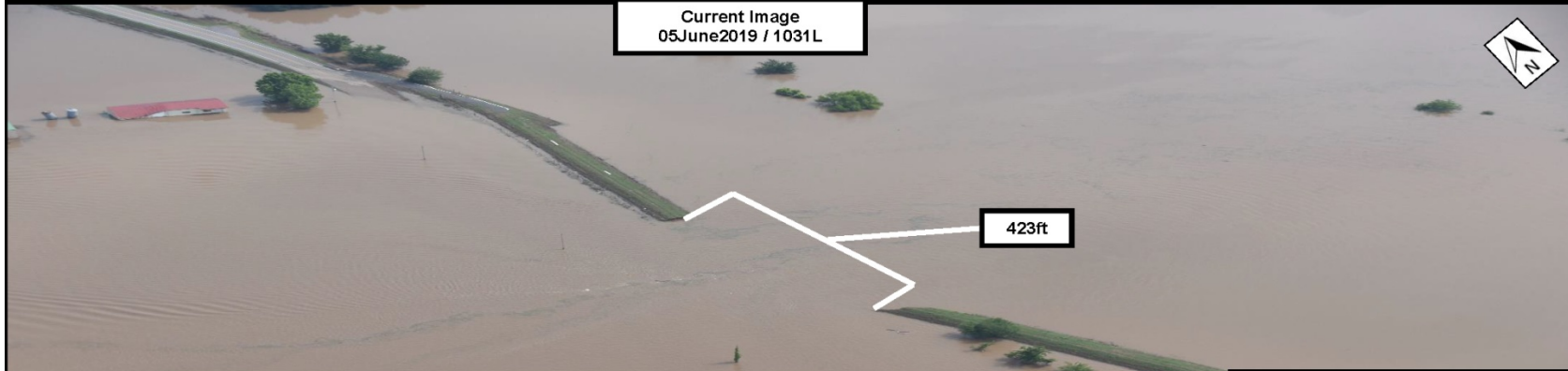


413ft

Erosion Difference after 2 Days



Current Image  
05June2019 / 1031L



423ft

Analyst Comment: When the levee was initially breached, the erosion encompassed approximately 210ft and by the 5<sup>th</sup> of June the erosion has more than doubled to 423ft. Since June 2<sup>nd</sup>, the levee erosion has nearly ceased and is assessed **LIKELY** to continue this slow, gradual erosion as the water levels recede. It is also **LIKELY**, due to terrain, that large pockets of water will remain.

SOURCE: Google Earth/Babel  
Street/CAP

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635

**UNCLASSIFIED**





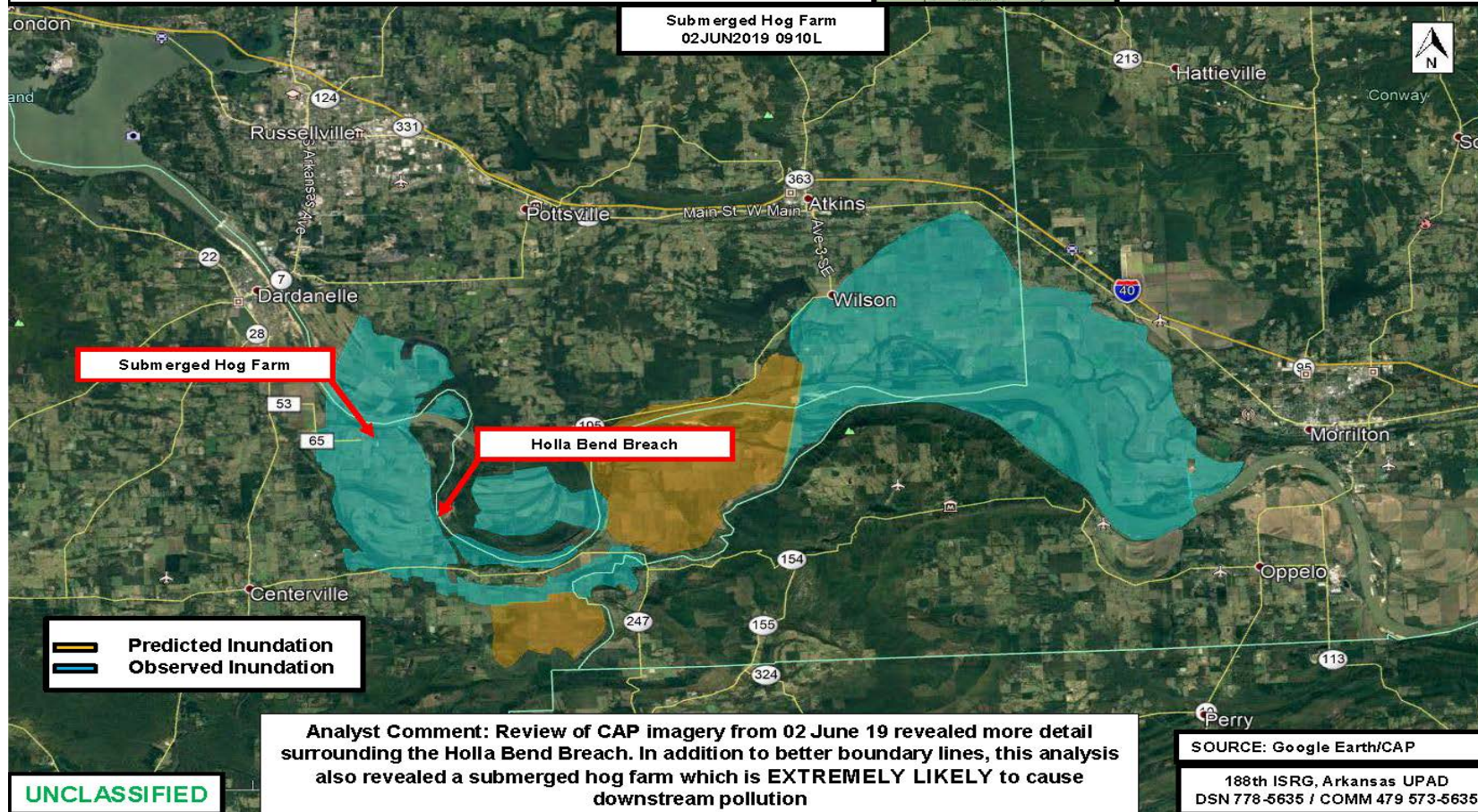
# Holla Bend, AR Breach Area Inundation Update-Arkansas River Water Level / Imagery Reference

MGRS: 15SVU9136587926



UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.







Holla Bend, AR  
Submerged Hog Farm-Arkansas River Water Level /  
Imagery Reference

MGRS: 15SVU8958091320



UNCLASSIFIED

ATTENTION: This document contains U.S.  
person's information which has been  
included consistent with all applicable  
laws, directives, and policies.

Submerged Hog Farm  
02JUN2019 0910L



Hog Farm

Analyst Comment: Review of CAP imagery from 02 June 19 revealed a submerged hog farm 2.29 miles NW of the Holla Bend levee breach location. Hog farms use ponds to manage waste from the hogs. Four waste management ponds have been submerged at this location. Downstream fecal contamination is EXTREMELY LIKELY.

SOURCE: Google Earth/CAP

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635

UNCLASSIFIED





# Holla Bend Trapped Livestock Imagery Flood / Risk Analysis

MGRS: 15SVU8929388814



UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

Stranded Cattle  
02 June 2019 / 1041L

~73 Cattle

Fence Line

UNCLASSIFIED

**Analyst Comment:** Civil Air Patrol (CAP) imagery reveals approximately 73 stranded cattle near Holla Bend Levee. The river has crested at this location, however the breached levee inhibits accurate prediction. Any further rising water is **LIKELY** to result in a lack of food and dry ground for the cattle.

SOURCE: Google Earth/CAP

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635





Little Rock, AR  
Little Rock Water Treatment Facility

MGRS: 15SWU7664139766

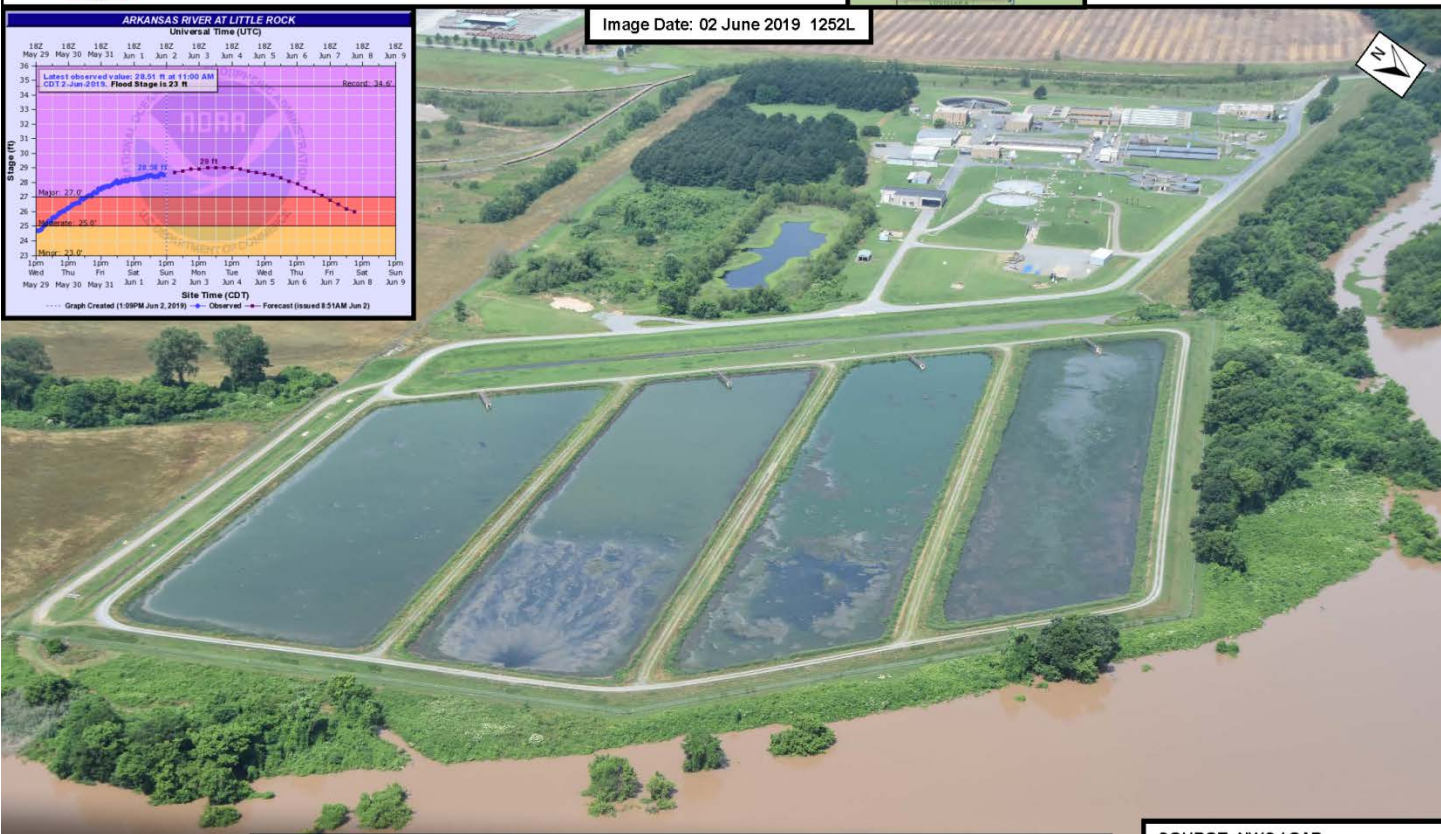


UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.



Image Date: 02 June 2019 1252L



UNCLASSIFIED

Analyst Comment: Imagery shows water levels below top of holding ponds. National Weather Service indicates Arkansas River expected to crest 0.5-1ft above current water levels with Little Rock Water Treatment Facility **LIKELY** not affected.

SOURCE: NWS / CAP

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635





# Mayflower Wastewater Treatment Facility Arkansas River Water Level / Imagery Reference

MGRS:15SWU4968567785



**UNCLASSIFIED**

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.



Inundation Map

Wastewater Treatment Ponds

Elevation: 267ft

510 ft

**Analyst Comment.** Topographic maps show this facility at 267ft. 7 Miles upriver, imagery shows water levels covering elevations of 277ft. Inundation maps as well as terrain and river data suggests this facility is likely to flood.

SOURCE: Google Earth / CAP Imagery

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635

**UNCLASSIFIED**





Little Rock, AR  
White Oak Bayou Sewage Treatment Plant-  
Arkansas River Water Level / Imagery Reference

MGRS: 15SWU6087150992



UNCLASSIFIED

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

White Oak Bayou Treatment Plant  
03JUN2019 0950L

Possible Leak

Overview

Possible Leak

Analyst Comment: Review of CAP imagery from 03 June 19 revealed a pool of discolored water at the White Oak Bayou Sewage Treatment Plant in North Little Rock. This pool is visually similar to the wastewater in the treatment ponds indicating a **LIKELY** leak at this facility. No other areas of concern were visible at this time.

UNCLASSIFIED

SOURCE: Google Earth / CAP

188th ISRG, Arkansas UPAD  
DSN 778-5635 / COMM 479 573-5635



# Conway Lollie Levee

- Significant amount of work and preparation from local, state and federal officials to reinforce levee.
- However, additional rains and river rise created an imminent breach situation















# DEQ Media Roles

- Tasked with identifying facilities that were possibly impacted.
- Contacted identified facilities to check conditions and see if any assistance was needed.
- Provide proper contact information to facilities that may need assistance.



# DEQ Media Roles

Media	# contacted	# reporting impacts	# not operational	# returned to normal operations
Regulated Storage Tanks	88	14	3**	85
Solid Waste	28	4	0	4
Tire Accountability Program	33	3	0	3
Hazardous Waste*	440	30	5***	405
Wastewater Treatment Plants	68	24	6	44
Industrial General Permits	134	14	6	120

\* Includes SARA Tier II facilities and facilities with EPA ID#s.

\*\* One (1) facility closed prior to flood event – unrelated to flood.

\*\*\* Two (2) facilities closed prior to flood event – unrelated to flood.

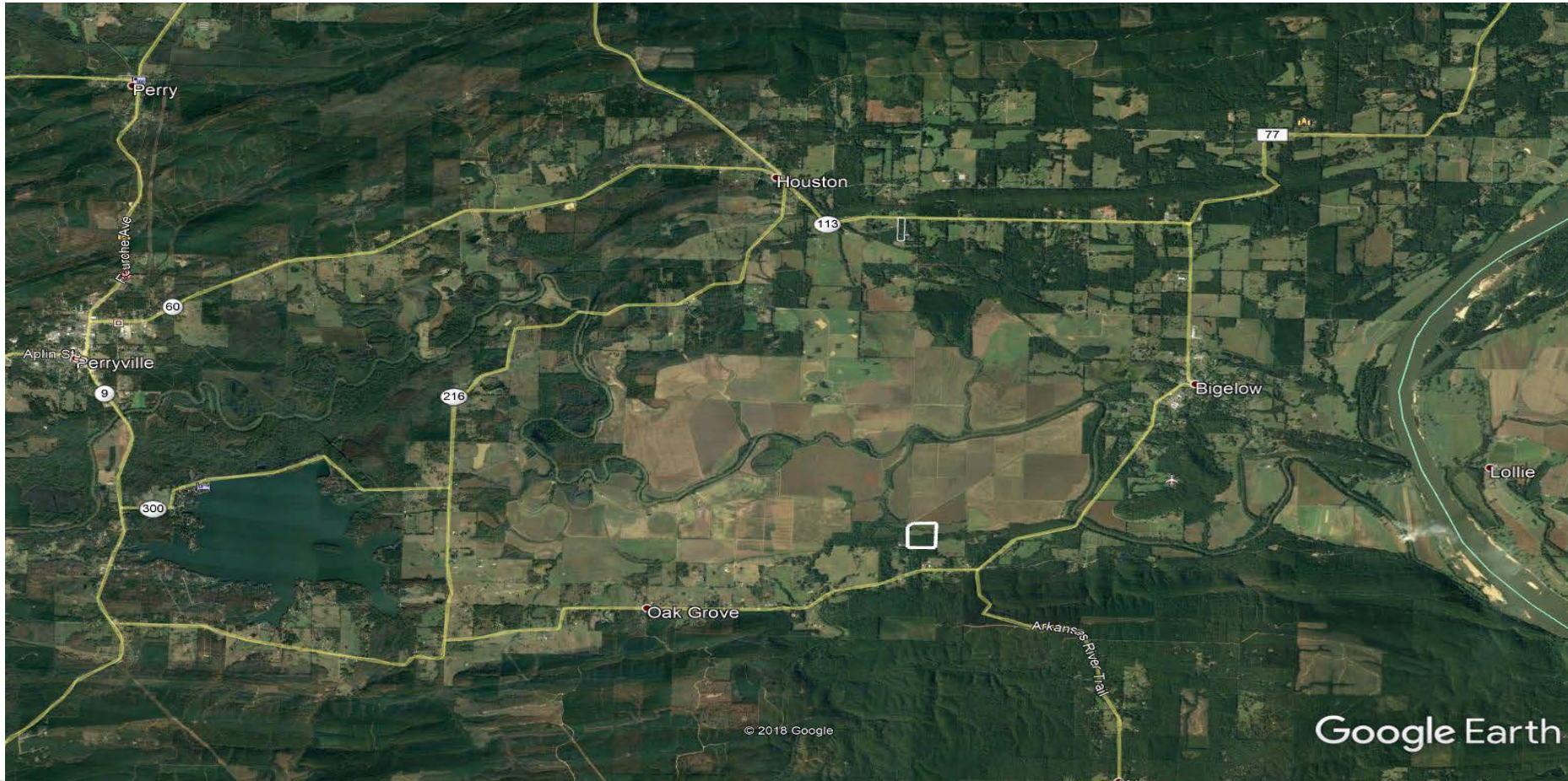


# Be Prepared

- City of Perryville is approximately ~11 miles as the crow flies and ~25 river miles from the Arkansas River.
- Fourche La Fave River tributary flooded affecting their system.
- Some of their equipment was under 2ft of water.



# Be Prepared





# Be Prepared





# Additional Flooding Events

- [Tropical Storm Berry](#)
- Nashville, AR received significant impacts to downtown and infrastructure
- Potentially catastrophic flash flood emergency
- 16.59 inches was recorded near Dierks, AR making Barry the wettest tropical cyclone in state history.



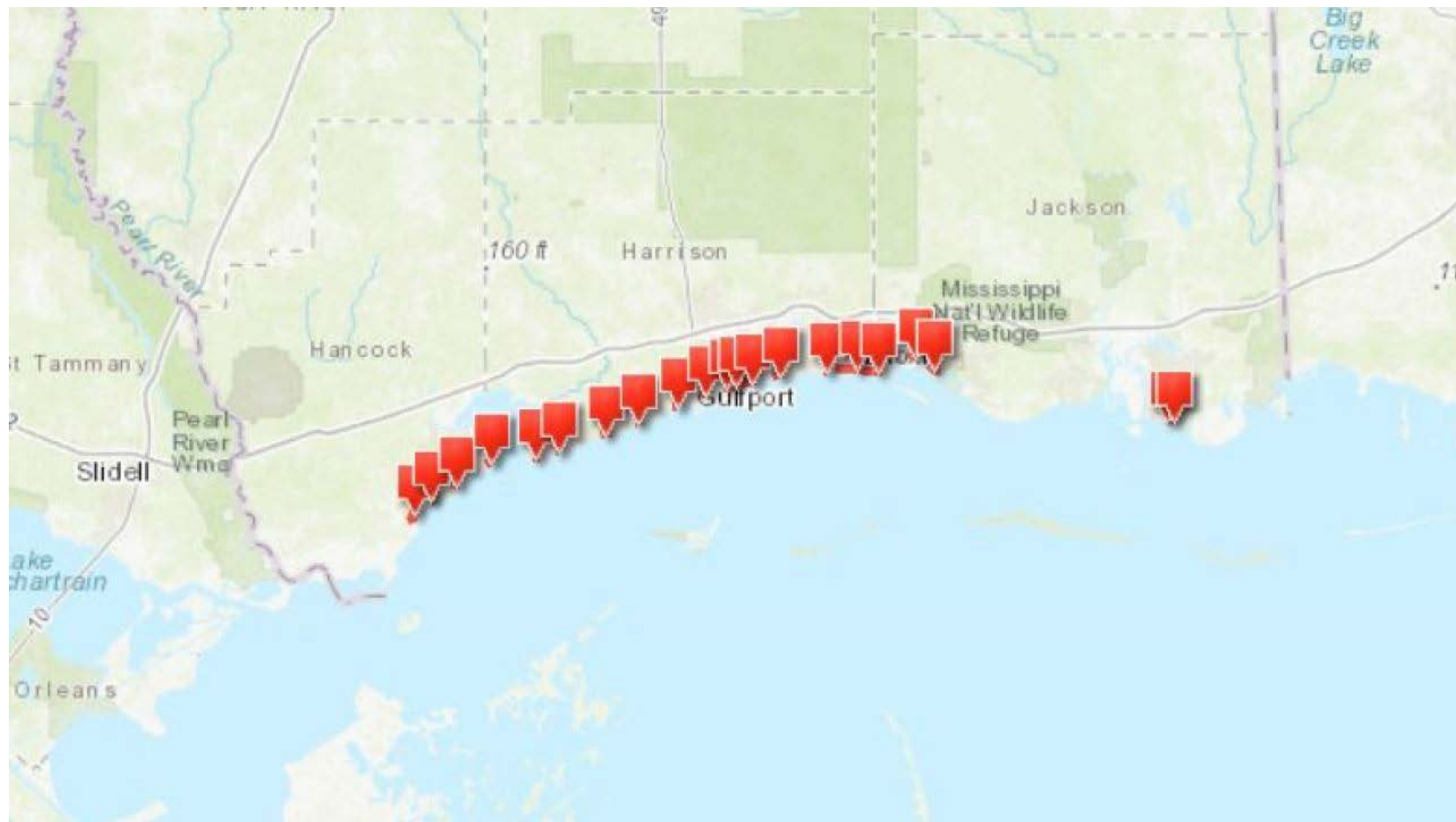




# Regional Impacts

- **June 3<sup>th</sup>** DEQ began contacting permitted facilities
- **June 8<sup>th</sup>** Mississippi River crested in St. Louis and was the second ever highest crest level.
- **June 26<sup>th</sup>** Mississippi had to close swimming access to numerous beaches.
- **July 8<sup>th</sup>** Swimming was banned at all Mississippi Beaches due to HABs.















# Regional Impacts

- Upper Mississippi River flooding was 10 days out of phase with Arkansas River flooding at the confluence
- NOAA scientists had forecasted this summer's anoxic "dead zone" to be approximately **7,829** square miles.
- This equates to an area 126 times larger than Lake Ouachita in Garland County, Arkansas



# Questions?

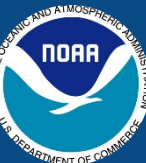






# Flower Garden Banks National Marine Sanctuary Exercise

*RRT 6 Fall Meeting 2019*





# ABOUT THIS EXERCISE

Scope: Tabletop exercise planned for 1 hour

Mission Areas: Response

Threat: Oil Spill



# EXPECTATIONS DURING GAME PLAY

- This exercise will be held in an open, low-stress, no-fault environment. Varying viewpoints, even disagreements, are expected.
- Respond to the scenario using your knowledge of current plans, capabilities, and insights derived from your training.
- Decisions are not precedent and may not reflect your office's final position on a given issue. This exercise is an opportunity to discuss and present multiple options and possible solutions.
- Issue identification is not as valuable as suggestions and recommended actions that could improve efforts. Problem-solving should be the focus.
- During this exercise, participants should accept that assumptions and artificialities are inherent and should not allow these to negatively impact their participation.



# BACKGROUND



# INITIAL INFORMATION: NRC REPORT

- Pipeline release in the Gulf of Mexico
- Source: pipeline located in Green Canyon at 19.6 miles (~17 nautical miles) east of the Flower Garden Banks National Marine Sanctuaries
- Volume is currently unknown
- Source has been shut in, but pipeline is still releasing oil
- Initial overflight reports a slick of dark oil 3 miles long and growing
- Slick is moving west toward the Flower Garden Banks National Marine Sanctuary



# QUESTIONS?

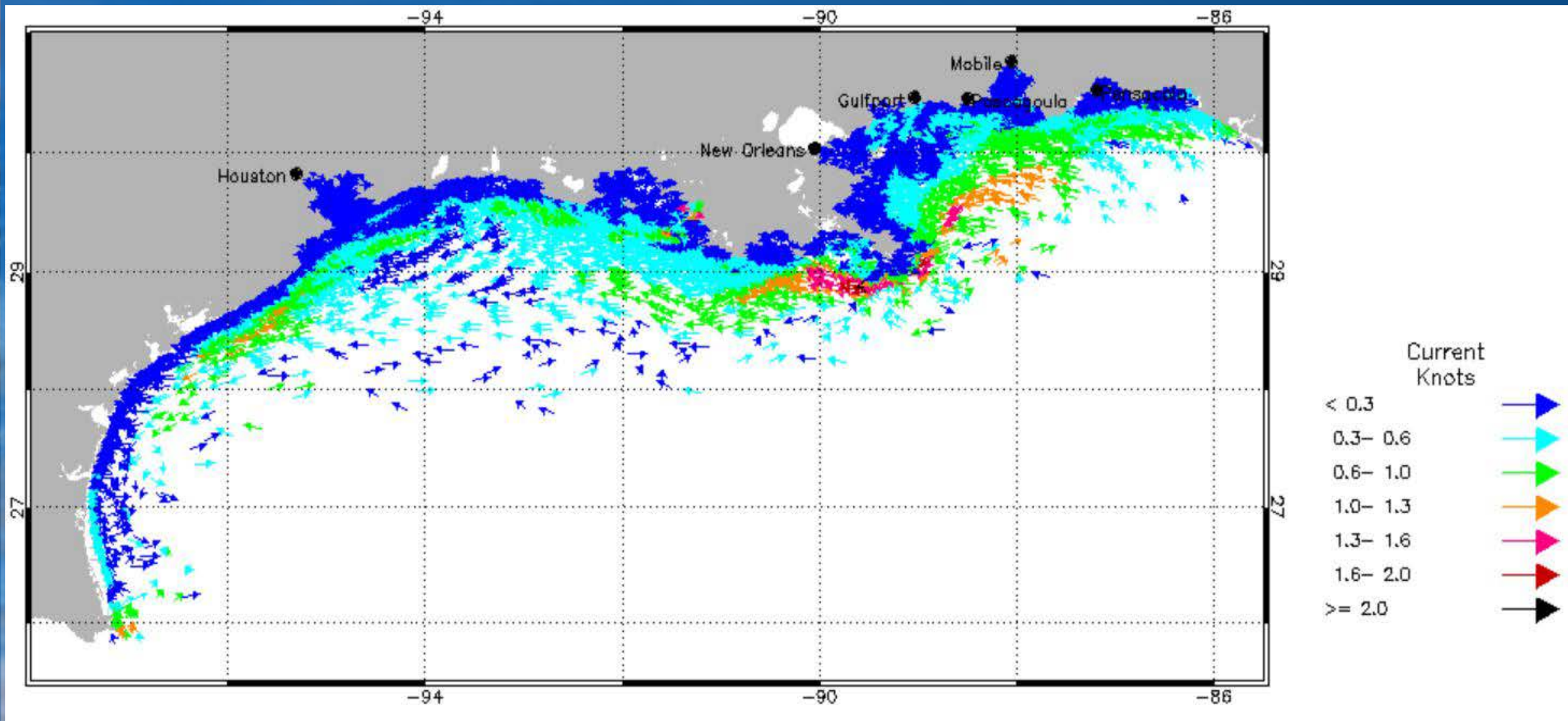














NOAA/National Ocean Service

Northern Gulf of Mexico

Operational Forecast System (NGOFS)

Observation:

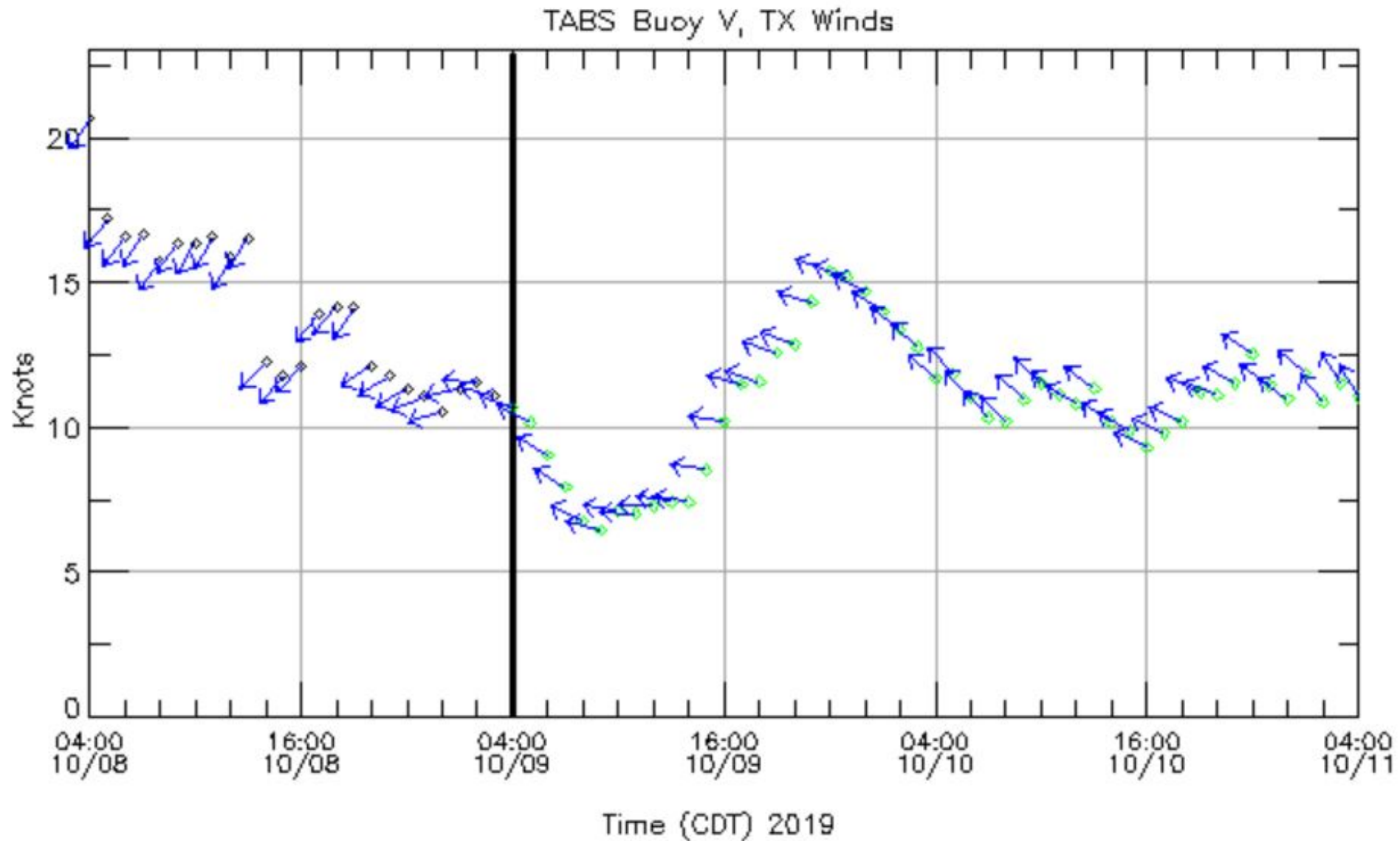
Nowcast:

Forecast Guidance:

xxxxxxx

-----

-----





AMERICA'S UNDERWATER TREASURES



# Flower Garden Banks National Marine Sanctuary

RRT Meeting

Emma Hickerson – Research Coordinator  
November 6, 2019





14 National Marine Sanctuaries  
2 Marine National Monuments  
2 Proposed Sanctuaries

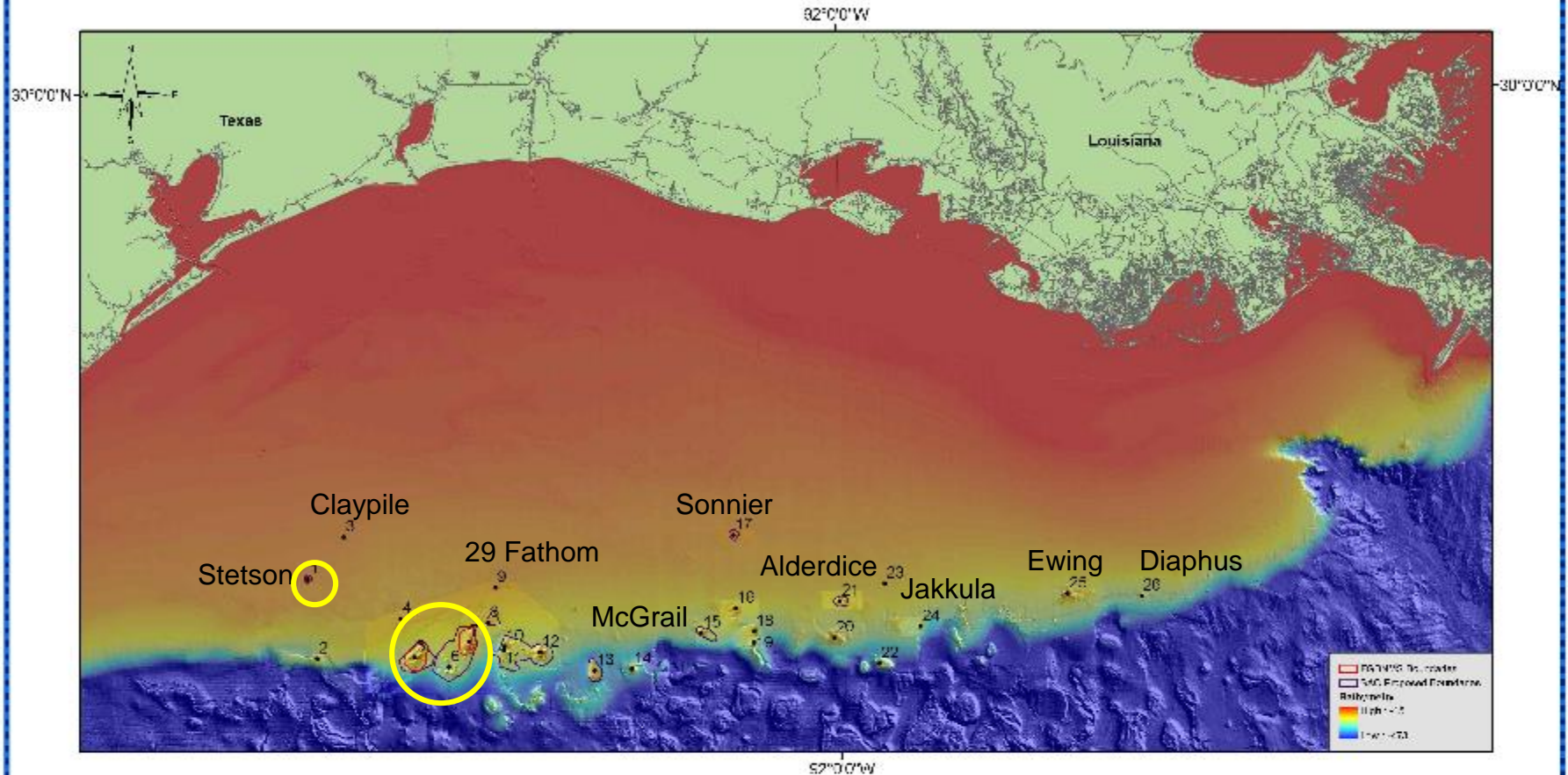




14 National Marine Sanctuaries  
2 Marine National Monuments  
2 Proposed Sanctuaries



## Reefs and Banks in the Northwestern Gulf Of Mexico



1. Stetson Bank, 2. Applebaum Bank, 3. Claypile Bank, 4. Coffee Lump Bank, 5. West Flower Garden Bank, 6. Horseshoe Bank, 7. East Flower Garden Bank, 8. MacNeil Bank, 9. 29 Fathom Bank, 10. Rankin Bank, 11. 28 Fathom Bank, 12. Bright Bank, 13. Geyer Bank, 14. Elvers Bank, 15. McGrail Bank, 16. Bouma Bank, 17. Sonnier Bank, 18. Rezac Bank, 19. Sidner Bank, 20. Parker Bank, 21. Alderdice Bank, 22. Sweet Bank, 23. Fishnet Bank, 24. Jakkula Bank, 25. Ewing Bank, 26. Diaphus Bank,



0 30 60 90 120 150 Kilometers

Bathymetry courtesy of USGS, UNH, Gardner and NOAA

M. Nuttall, FGBNMS, July 2010



# Reefs and Banks of the Northwestern Gulf of Mexico





## Flower Garden Banks National Marine Sanctuary

- Northernmost coral reef in the continental United States
- Includes: East and West Flower Garden and Stetson Banks
- Located 93 to 104 nautical miles offshore in the Gulf of Mexico
- Area: 145 square kilometers (56 square statute miles)
- Water Depth: 17 – 152 meters



# Remarkable Reefs of the Flower Garden Banks





# Flower Garden Banks National Marine Sanctuary

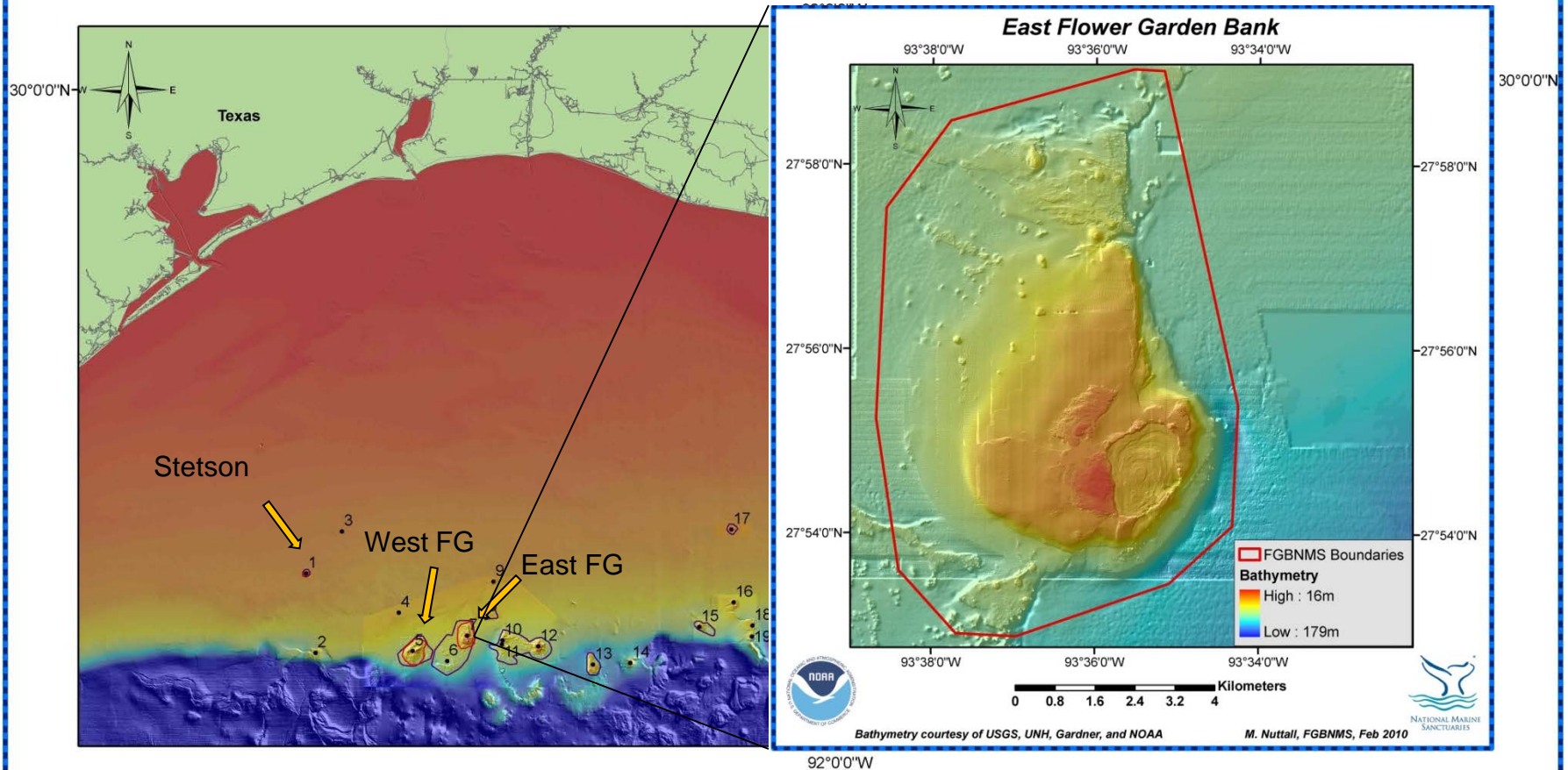




# Flower Garden Banks National Marine Sanctuary



## Reefs and Banks in the Northwestern Gulf Of Mexico



1. Stetson Bank, 2. Applebaum Bank, 3. Claypile Bank, 4. Coffee Lump Bank, 5. West Flower Garden Bank, 6. Horseshoe Bank, 7. East Flower Garden Bank, 8. MacNeil Bank, 9. 29 Fathom Bank, 10. Rankin Bank, 11. 28 Fathom Bank, 12. Bright Bank, 13. Geyer Bank, 14. Elvers Bank, 15. McGrail Bank, 16. Bouma Bank, 17. Sonnier Bank, 18. Rezak Bank, 19. Sidner Bank, 20. Parker Bank, 21. Alderdice Bank, 22. Sweet Bank, 23. Fishnet Bank, 24. Jakkula Bank, 25. Ewing Bank, 26. Diaphus Bank,

0 30 60 90 120 150 Kilometers

Bathymetry courtesy of USGS, UNH, Gardner and NOAA

M. Nuttall, FGBNMS, July 2010

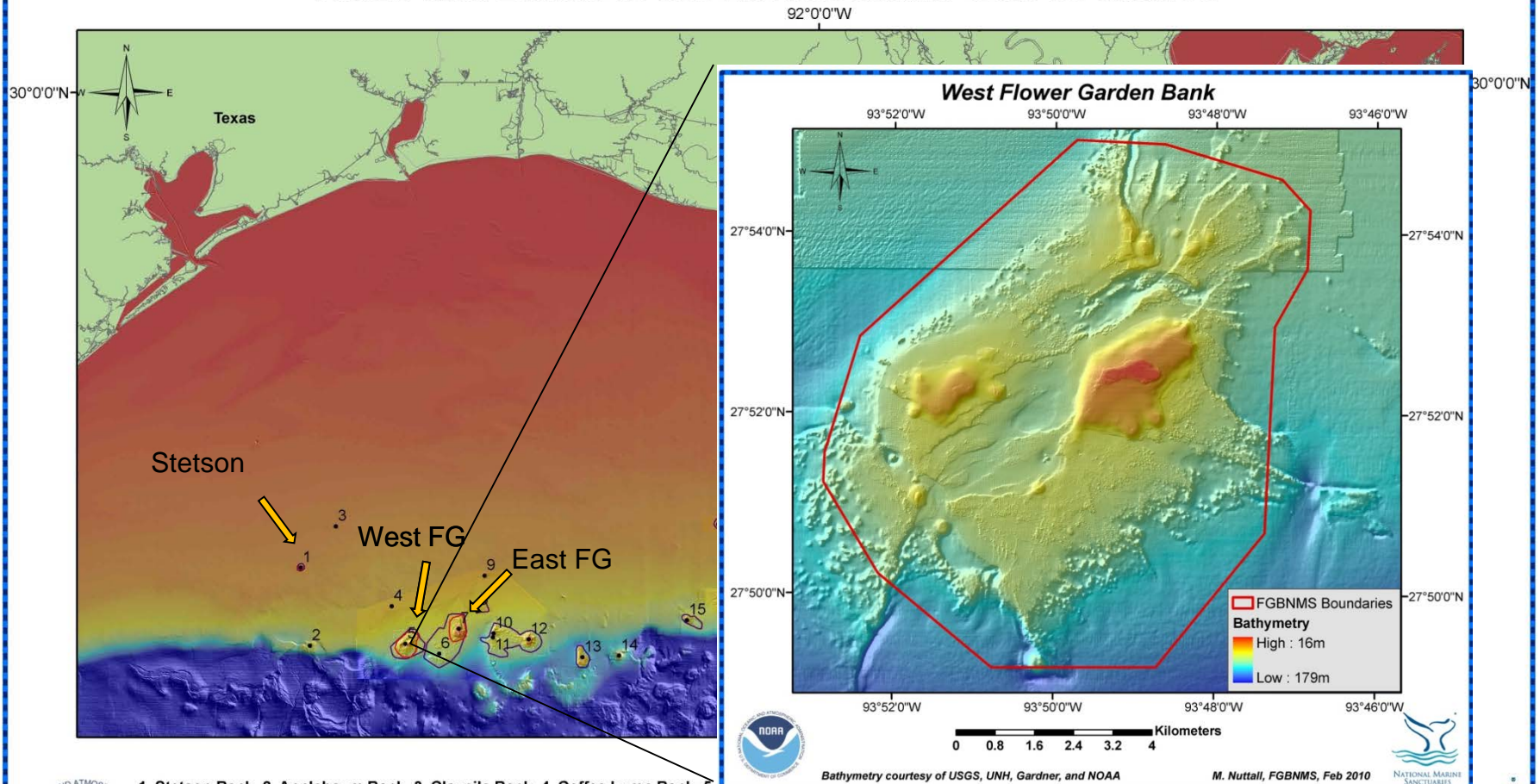




# Flower Garden Banks National Marine Sanctuary



## Reefs and Banks in the Northwestern Gulf Of Mexico



1. Stetson Bank, 2. Applebaum Bank, 3. Claypile Bank, 4. Coffee Lump Bank, 5. 29 Fathom Bank, 6. Rankin Bank, 7. 28 Fathom Bank, 8. Bright Bank, 9. Geyer Bank, 10. Elvers Bank, 11. McGrail Bank, 12. Bouma Bank, 13. Sonnier Bank, 14. Rezak Bank, 15. Sidner Bank, 16. Parker Bank, 17. Alderdice Bank, 18. Sweet Bank, 19. Fishnet Bank, 20. Jakkula Bank, 21. Ewing Bank, 22. Diaphus Bank,

0 30 60 90 120 150 Kilometers

Bathymetry courtesy of USGS, UNH, Gardner and NOAA

M. Nuttall, FGBNMS, July 2010

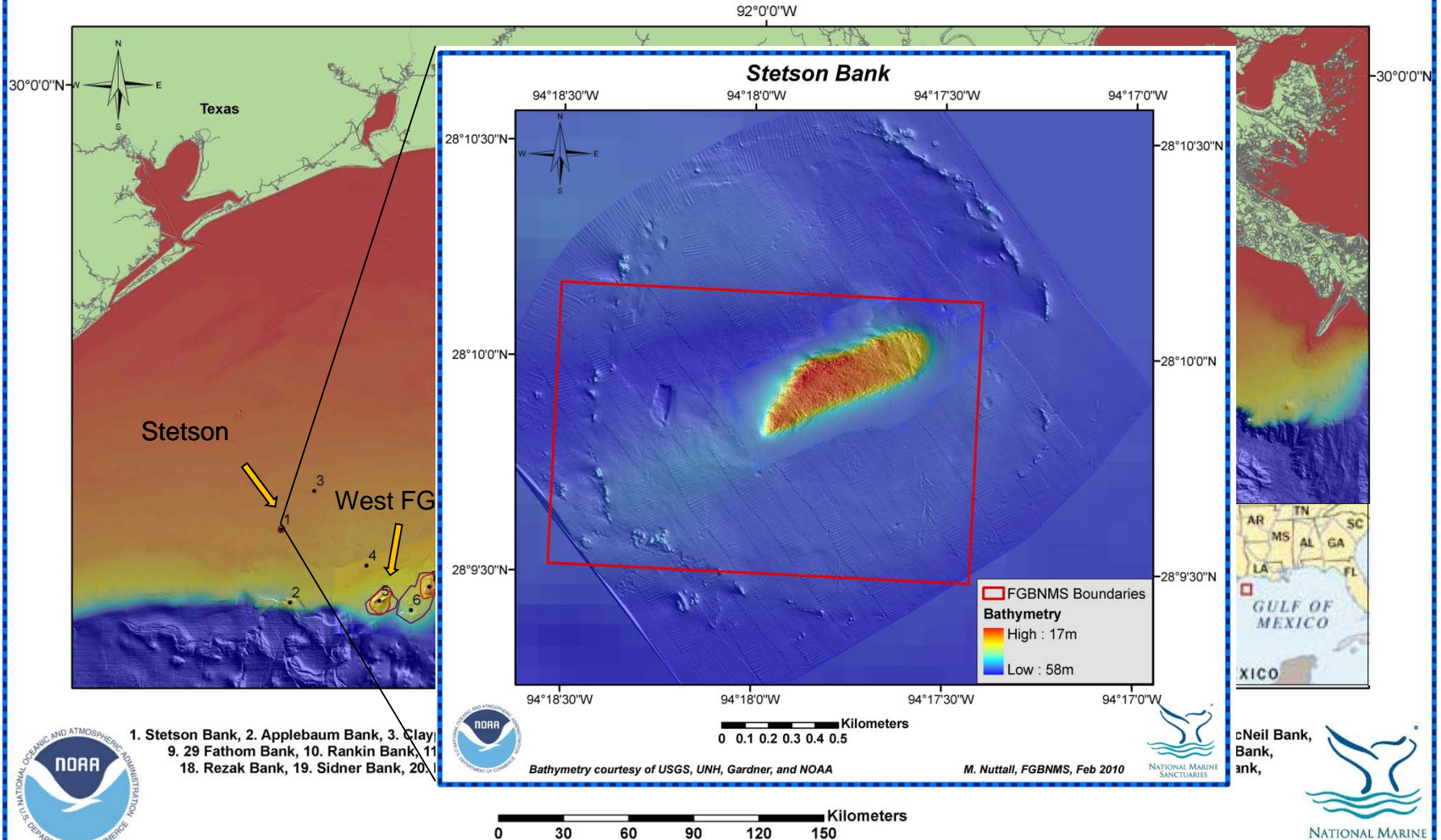




# Flower Garden Banks National Marine Sanctuary



## Reefs and Banks in the Northwestern Gulf Of Mexico



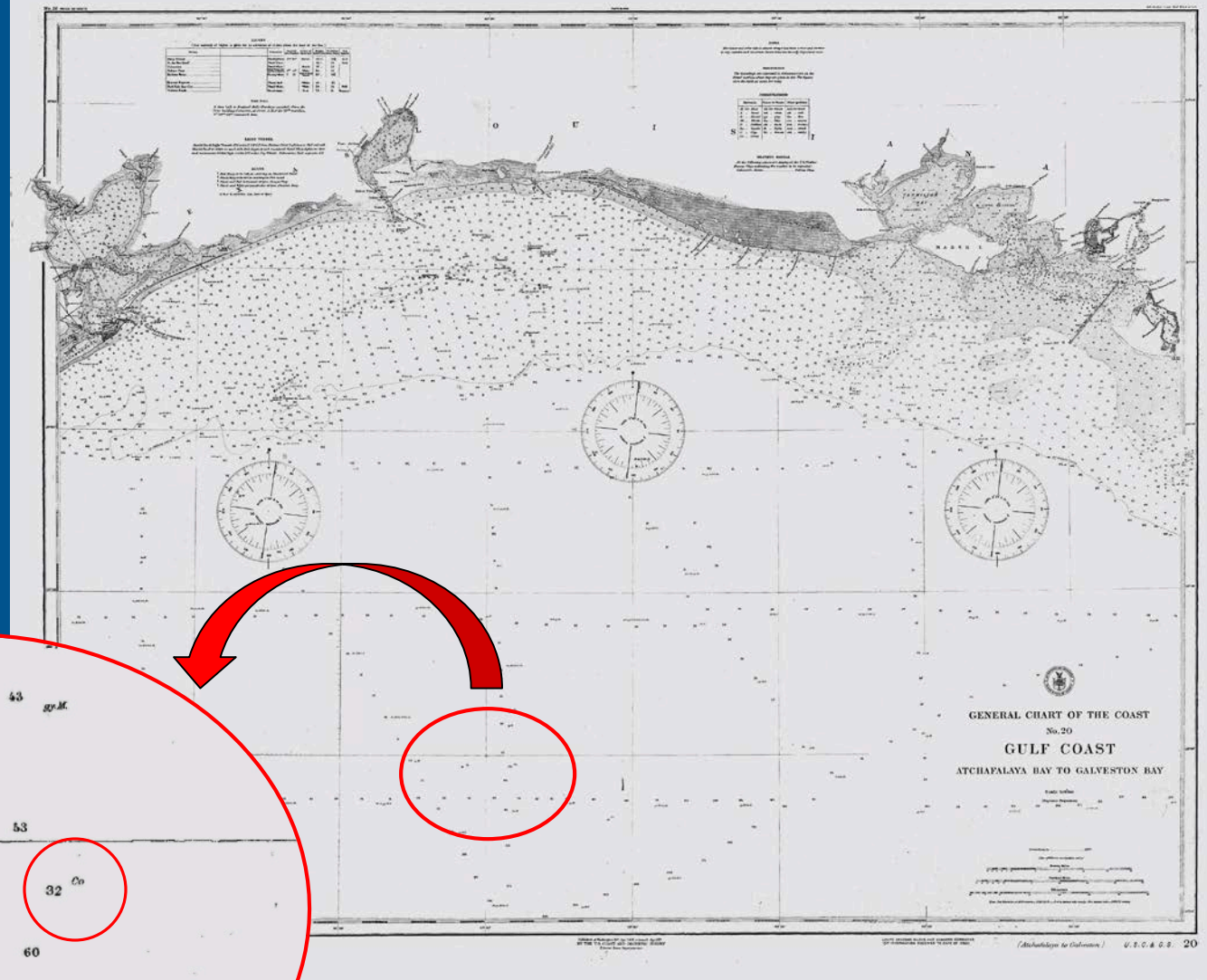
Bathymetry courtesy of USGS, UNH, Gardner and NOAA

M. Nuttall, FGBNMS, July 2010



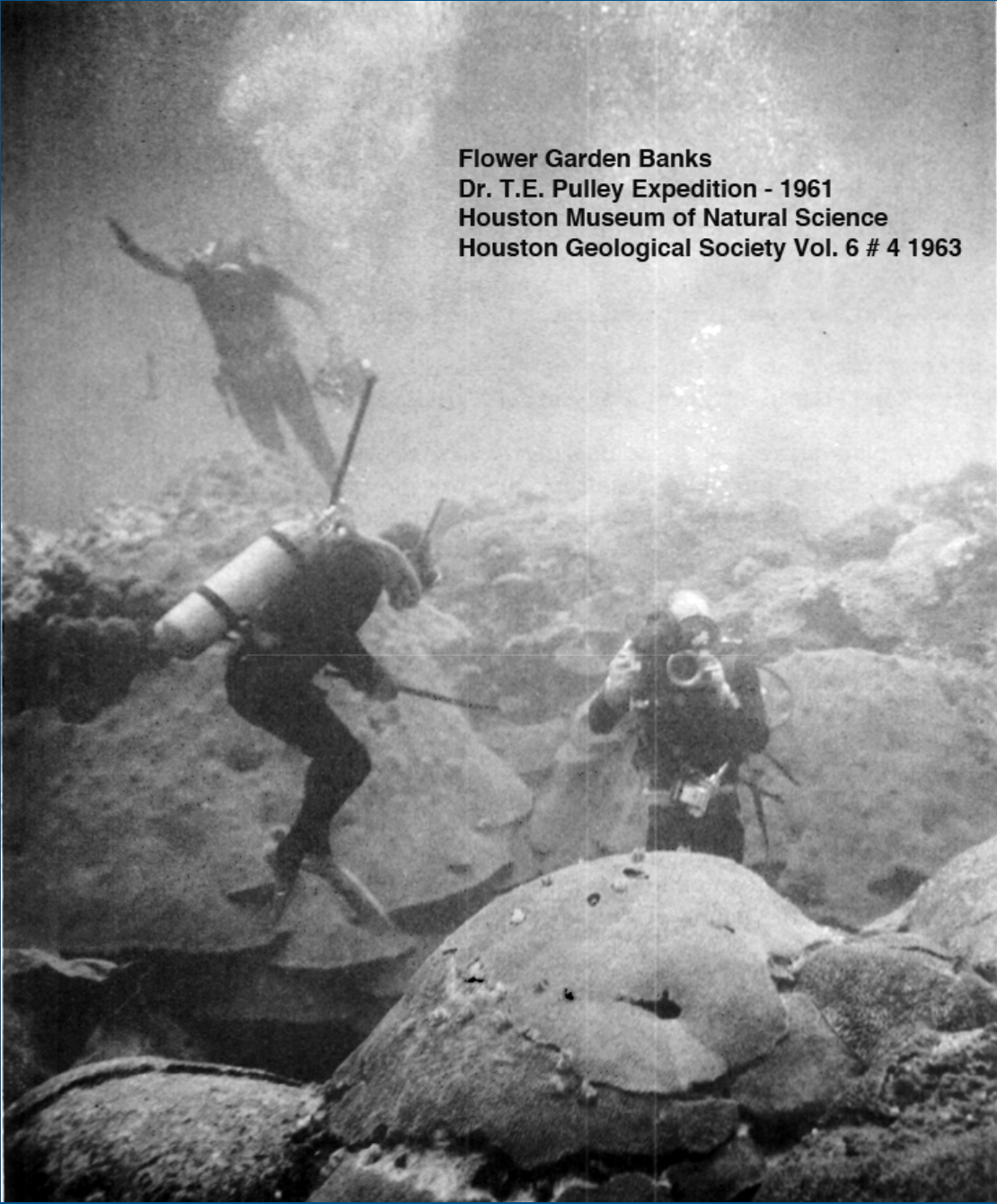
“Co” does not  
appear on  
versions from  
1892, 1878 or  
previous years

“Co” = Coral



General Chart of the Gulf Coast  
1910



A black and white photograph showing three divers underwater. One diver is in the foreground, slightly to the left, wearing a dark wetsuit and a large cylindrical tank, and is reaching down towards a large, rounded rock. Another diver is in the center, also reaching down. A third diver is in the background, further up and to the left, appearing to be floating or swimming. The water is somewhat murky, and the rocks are large and rounded, typical of a coral reef environment.

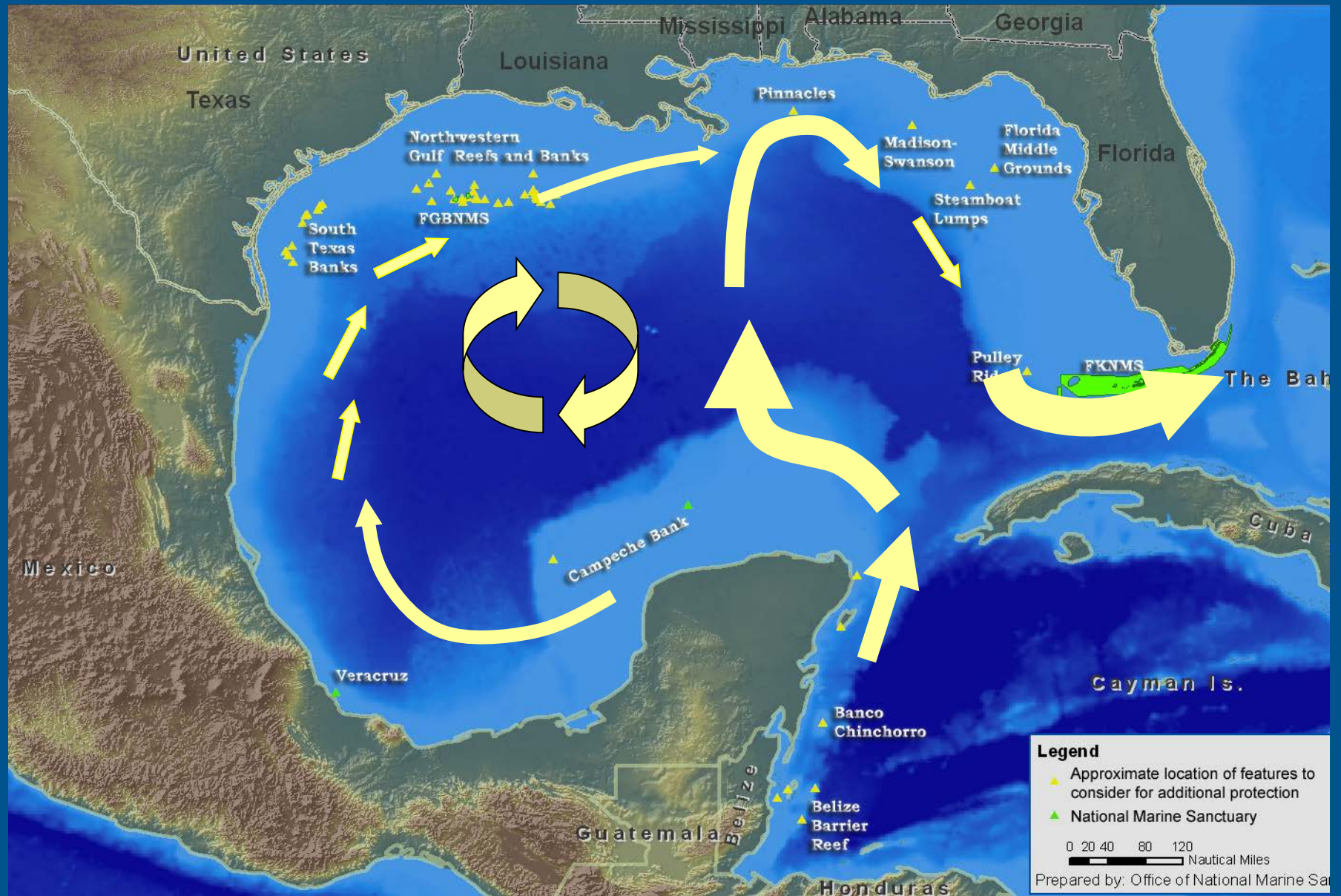
Flower Garden Banks  
Dr. T.E. Pulley Expedition - 1961  
Houston Museum of Natural Science  
Houston Geological Society Vol. 6 # 4 1963

## Texas to the Tropics

“125 miles SSE of Galveston, and in the same latitude as Aransas Pass, are two tropical West Indian coral reefs. These reefs have been known for half a century as Flower Garden Banks to the snapper fishermen because of the colorful specimens they occasionally brought up when their lines snagged the bottom.” Dr. Thomas Pulley, - 1963



# Gulf of Mexico “Loop Current” and Reef Features



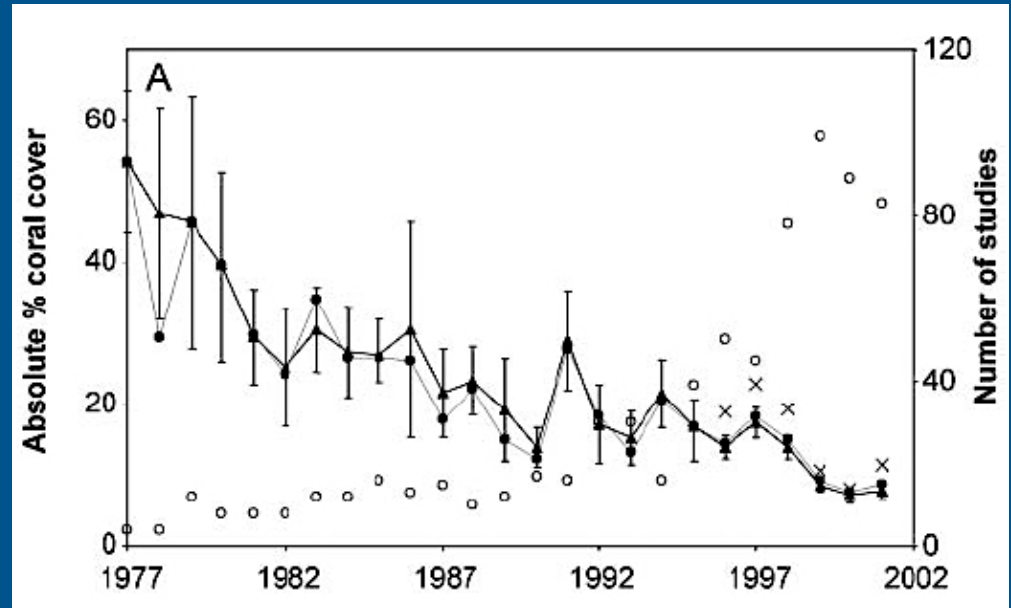
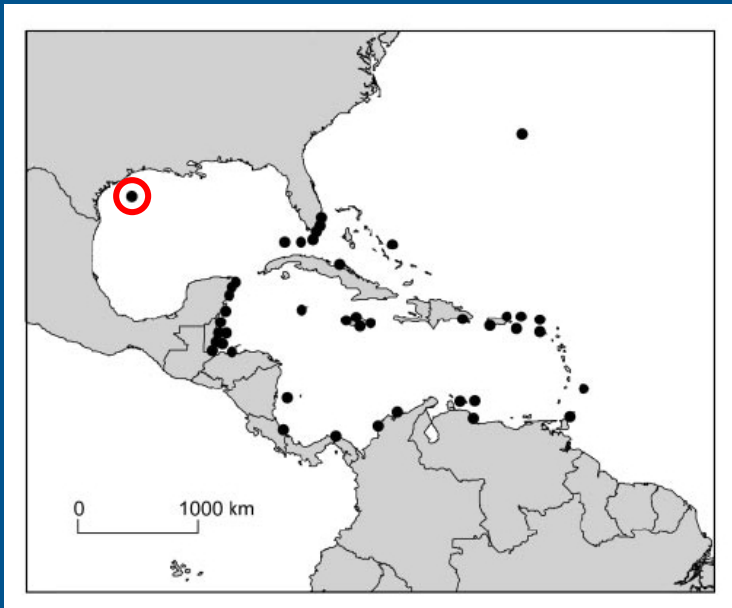






# Long-term region-wide declines in Caribbean Corals

Gardner, T.A. et al., 2003. Science 301:958



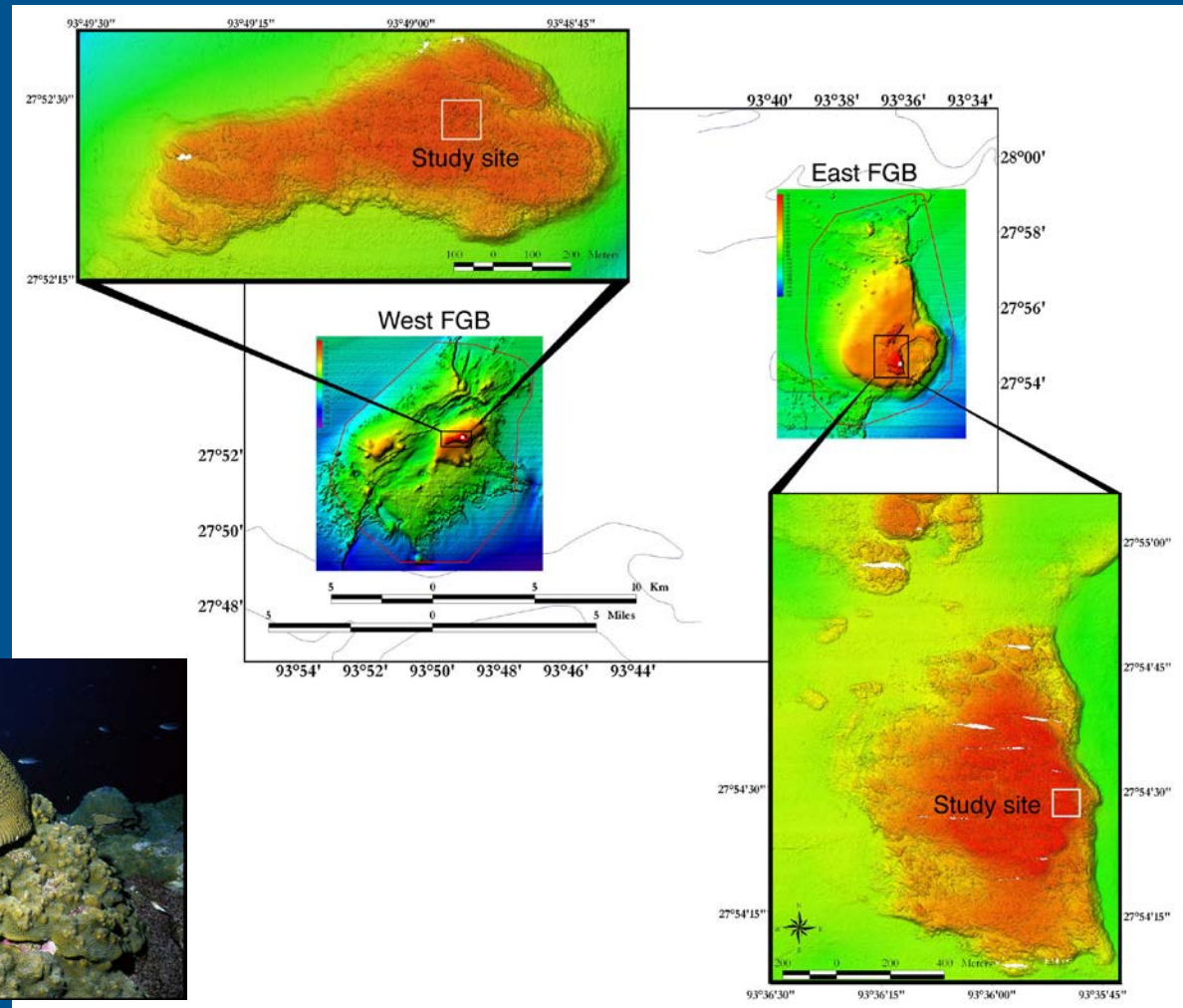
Average hard coral cover reduced by 80%  
(from 50% to 10%) in 30 years



# Flower Garden Banks Long-term Coral Reef Monitoring

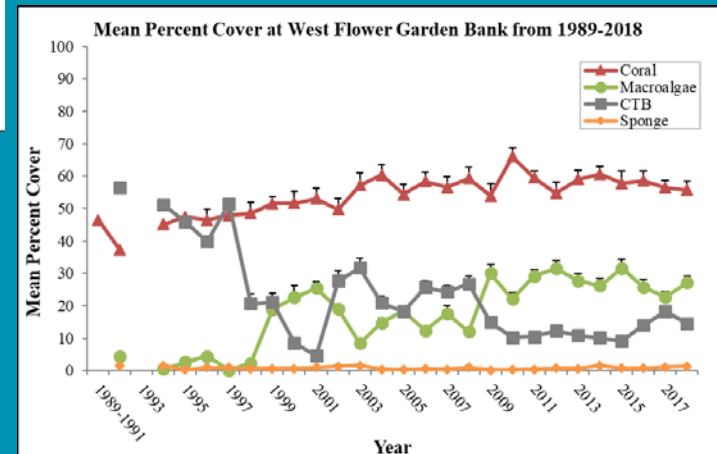
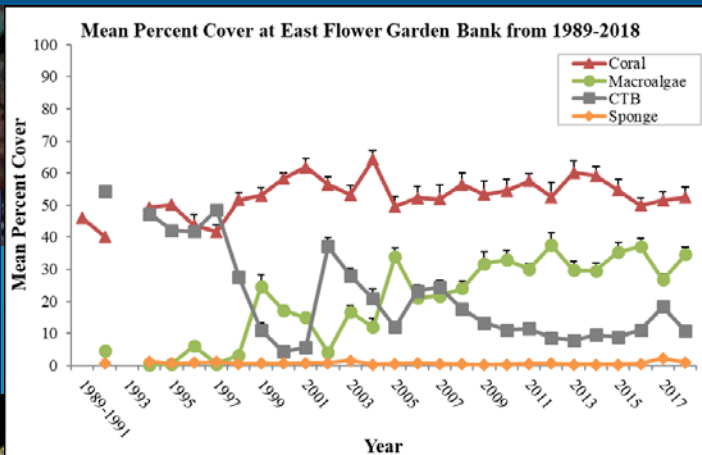


Photo: G.P. Schmahl





# Long-Term Monitoring at East and West Flower Garden Banks National Marine Sanctuary, 1989-2019

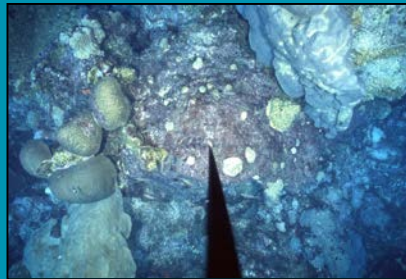




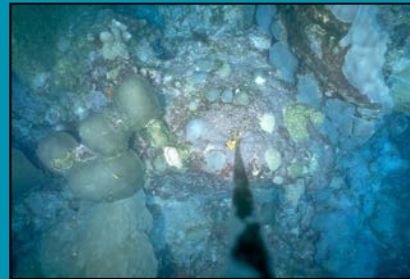
# Long-Term Monitoring at East and West Flower Garden Banks National Marine Sanctuary, 1989-2019



1989



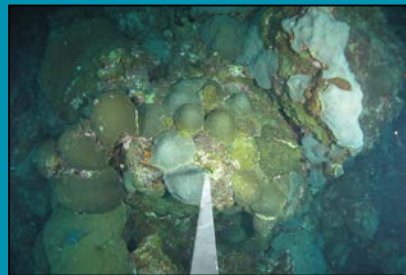
1996



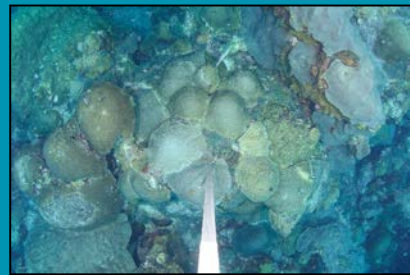
2006



2010



2015



2019





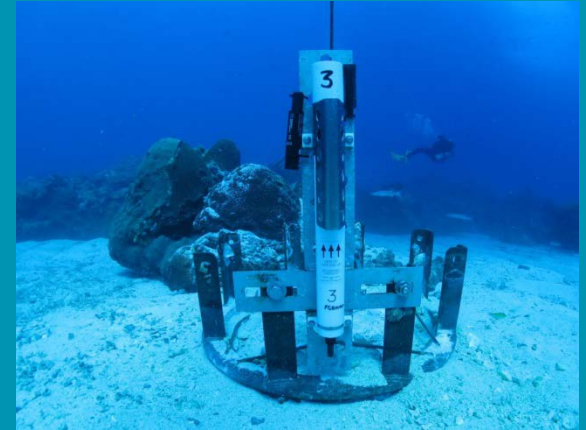
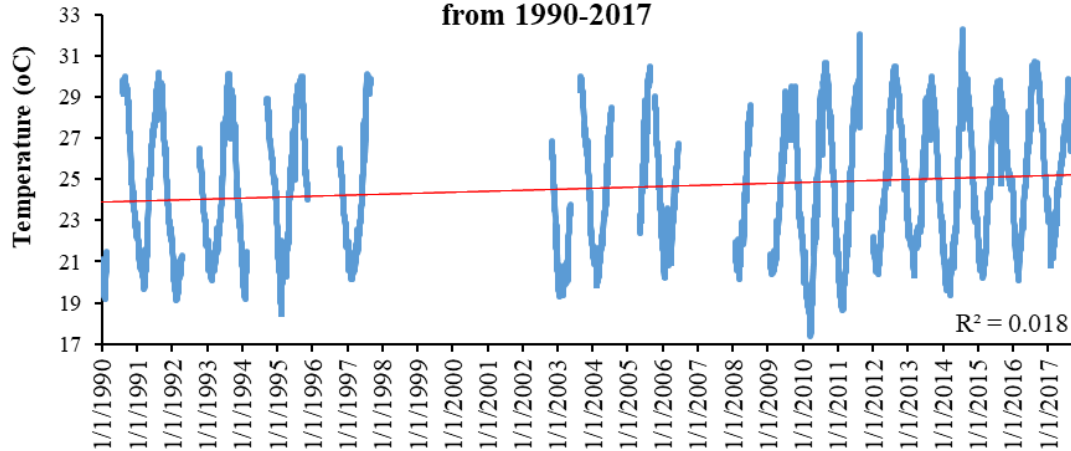
# Major Reefs Living Coral Cover

Location	Percent Coral Cover	Source
Flower Garden Banks	50-60	Johnston et al. 2017
Bonaire	10-38	Steneck et al. 2011
Bermuda	35	Jackson et al. 2014
Puerto Rico	7-36	Waddell and Clark 2008
Navassa Island	10-25	Waddell and Clark 2008
Florida Keys NMS	3–20	ONMS 2011
Jardin de la Reina, Cuba	7–19	Pina Amargós et al. 2008
Pedro Bank, Jamaica	5-19	Bruckner 2013
Cay Sal Bank, Bahamas	7-9	Bruckner 2011

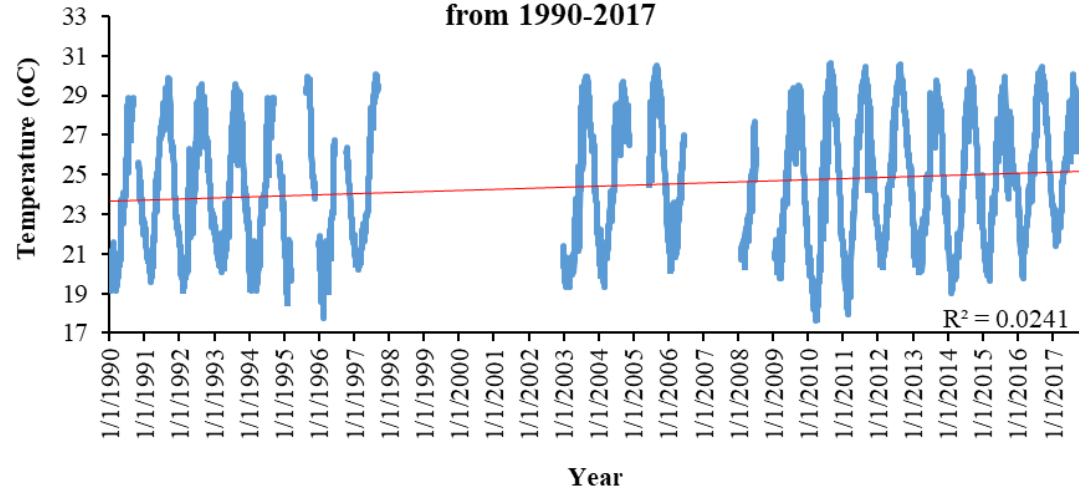


# Water Quality Analysis

**Daily Mean Seawater Temperature at East Flower Garden Bank  
from 1990-2017**



**Daily Mean Seawater Temperature at West Flower Garden Bank  
from 1990-2017**





# 2016 Bleaching Event





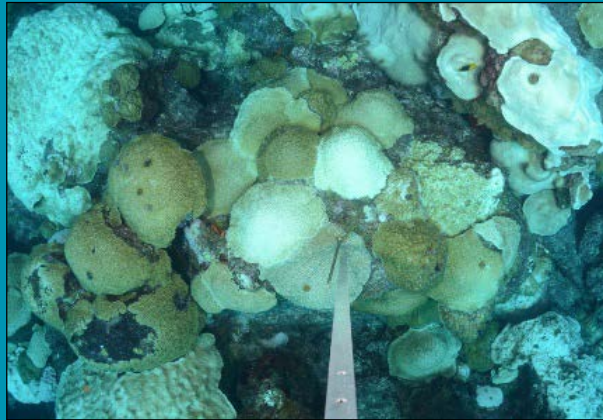
# 2016 Bleaching Event

July 2016



EFGB Photostation #102

October 2016



January 2017



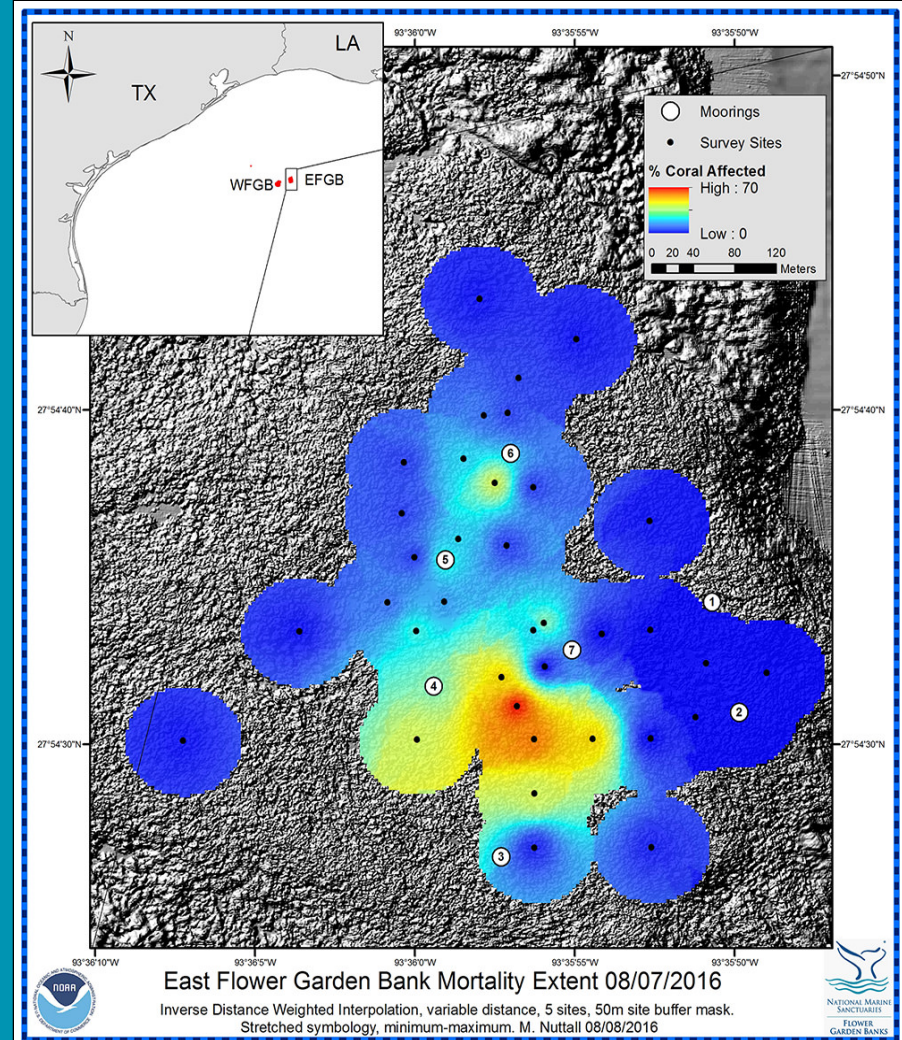
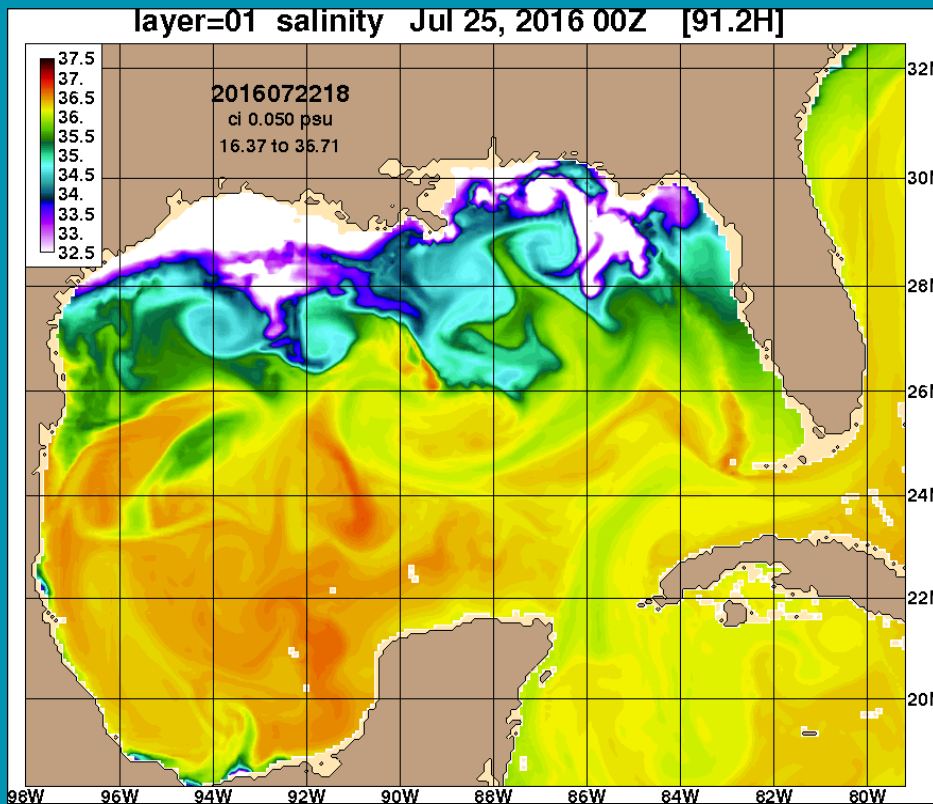


# 2016 EFGB Mortality Event

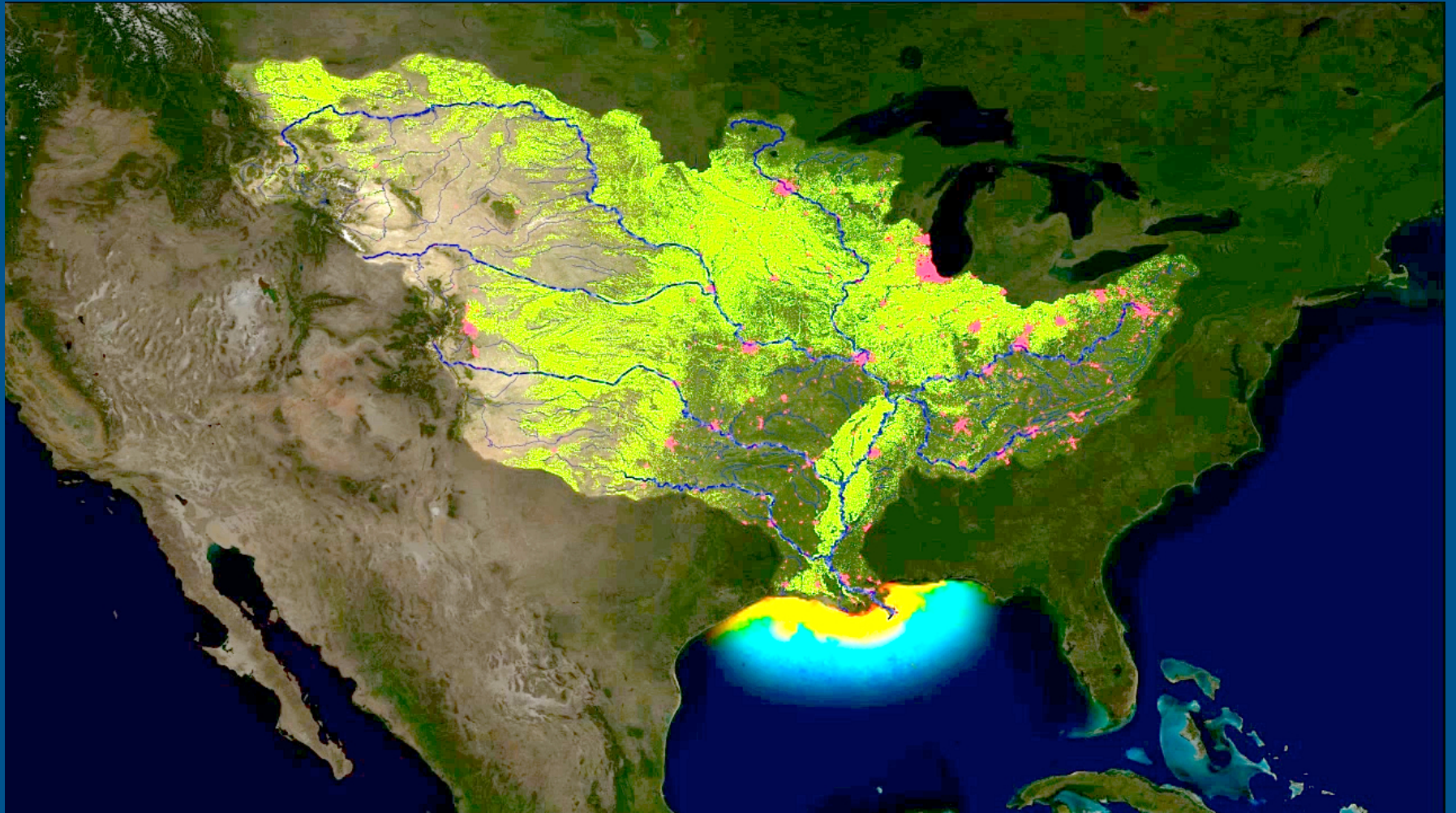




# 2016 EFGB Mortality Event







Gulf of Mexico Watershed / “Dead Zone”





## Texas / Louisiana Shelf – 3/14/2009

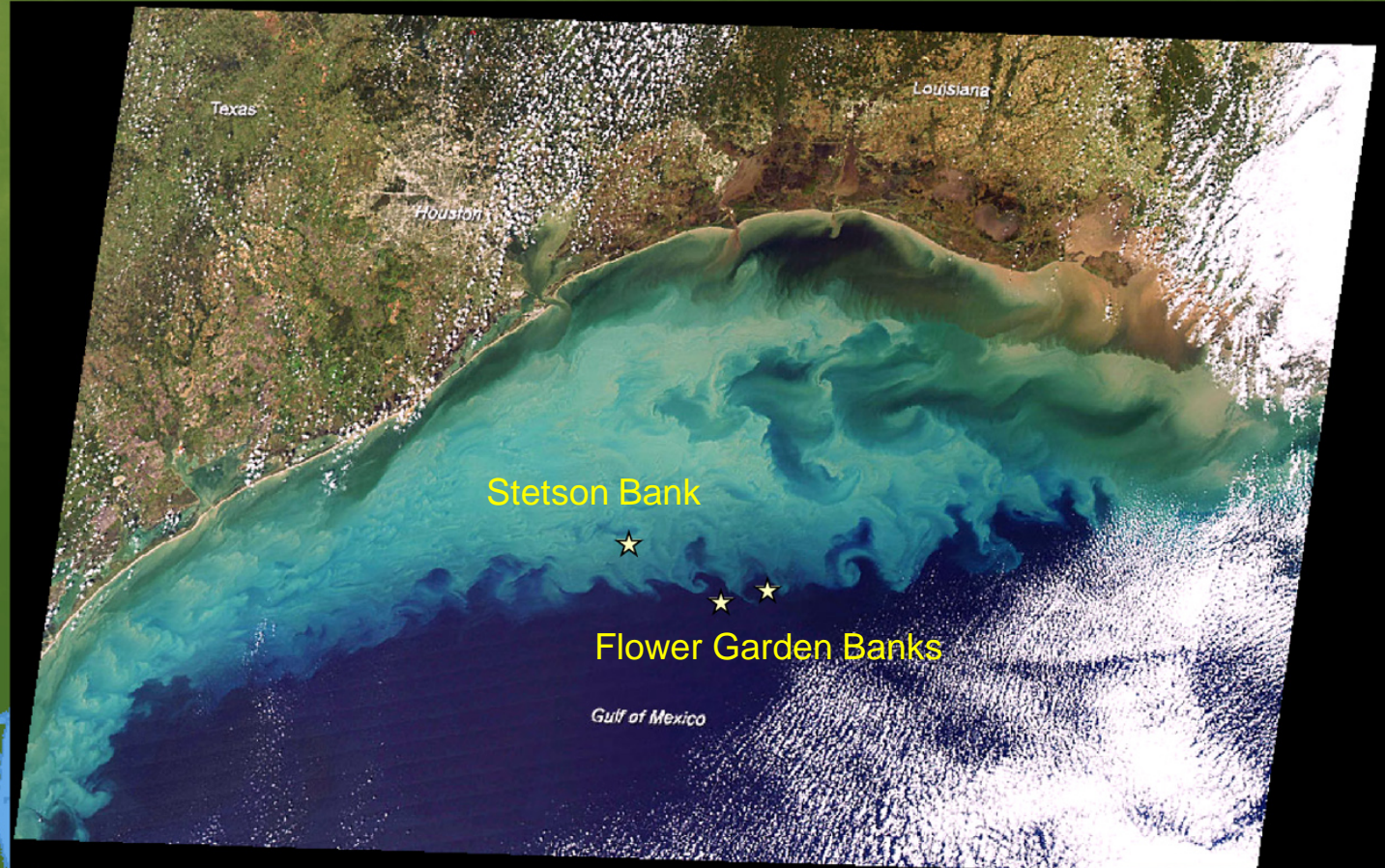
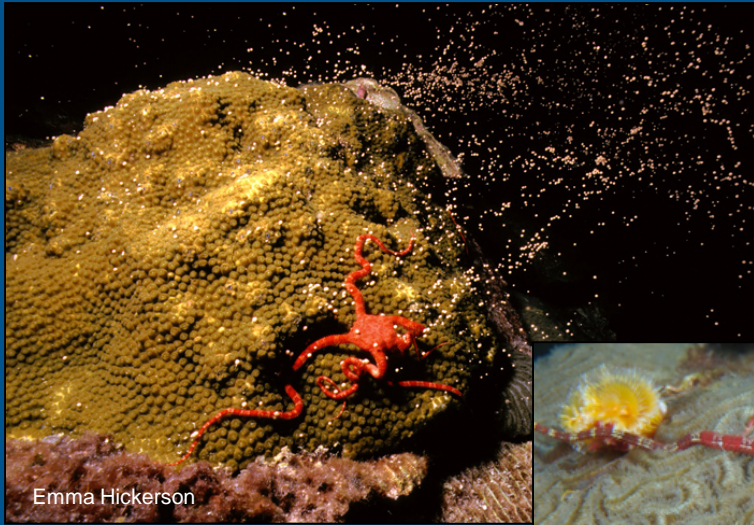


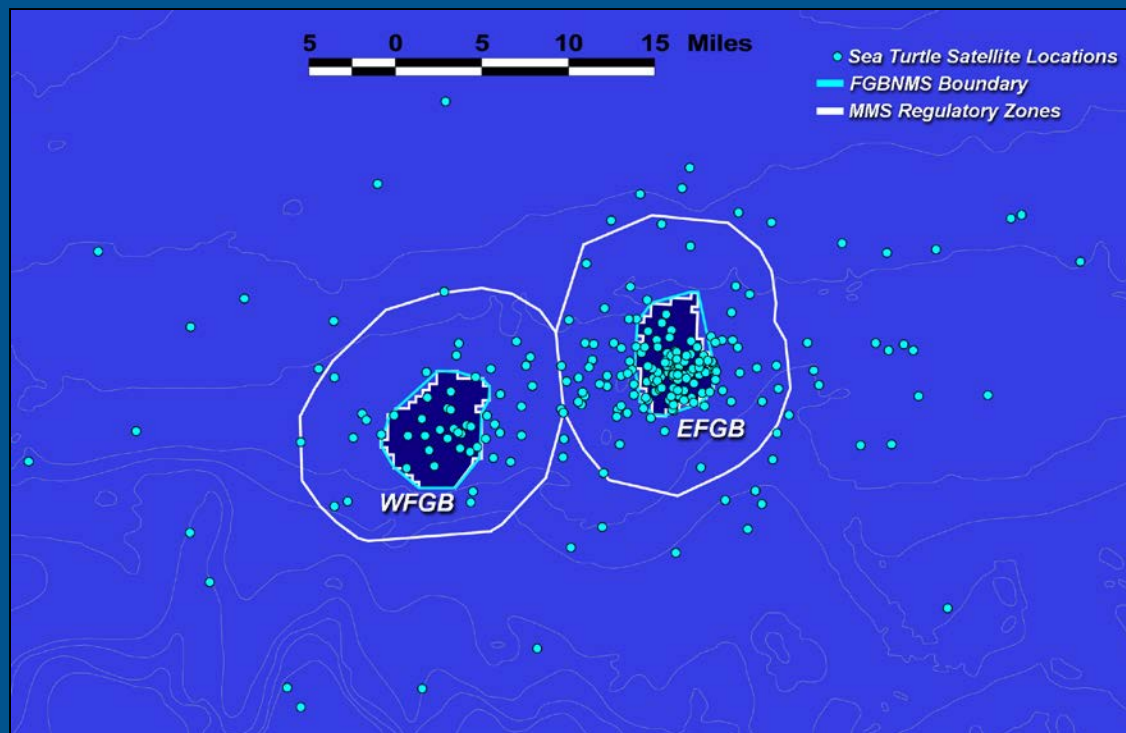
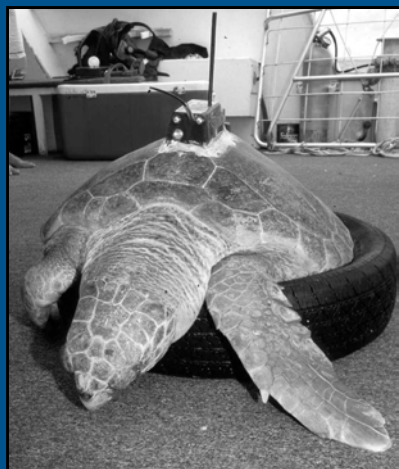
Image courtesy of NASA



# Mass spawning events











“Mardi Gras Wrasse” – described from  
Flower Garden Banks





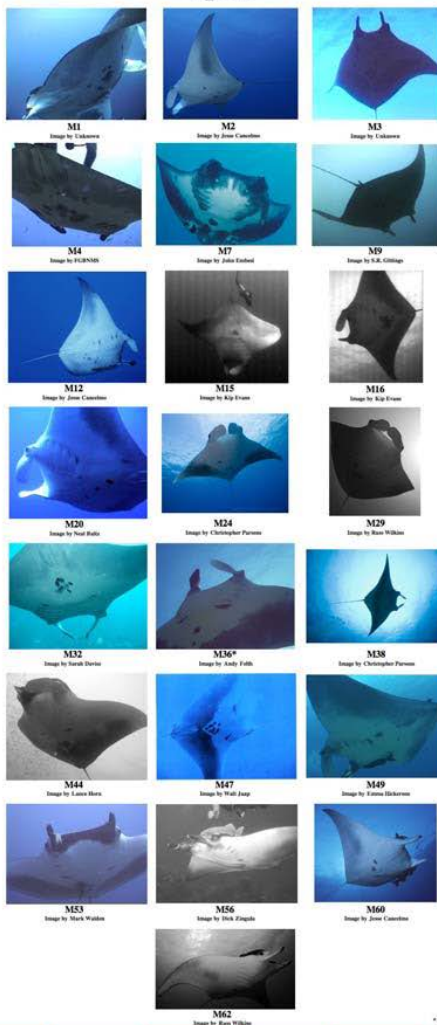




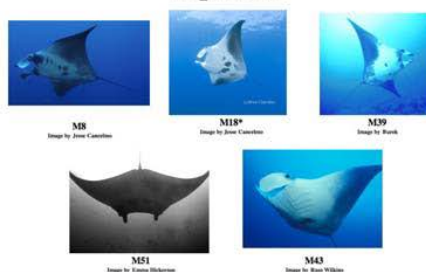
# Manta Rays of the Flower Garden Banks National Marine Sanctuary

Emma L. Hickerson and Marissa F. Nuttall

## Spots



## Squares



**We need your help! Please report Manta Ray Sightings from the Flower Garden Banks:**

We continue to update the Manta Rays of the Flower Garden Banks Catalog with your assistance.

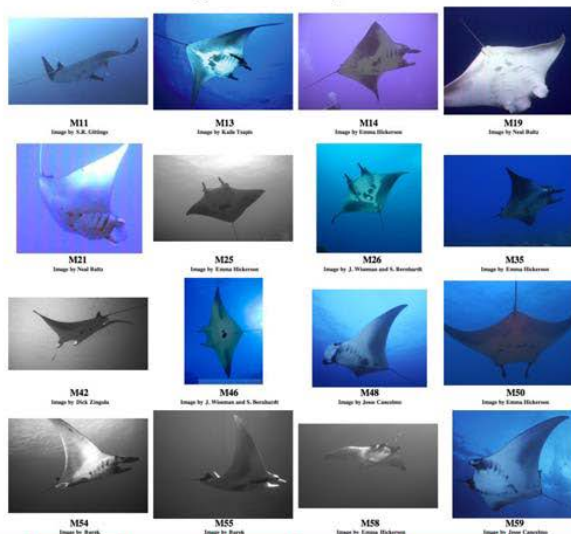
To positively identify an individual, a photograph or video would be the most accurate method of providing information to the researchers.

**UNDERBELLY** - Most informative images are of the underbelly, where we are able to see their unique markings.

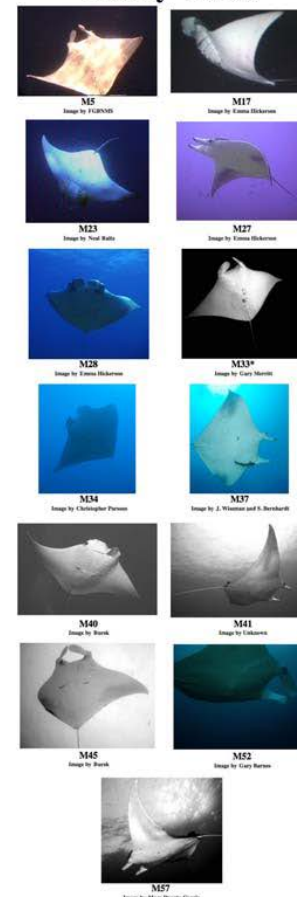
**TAGS** - please note if the individual has a tag located on its back.

If you have sighted a manta ray, please report the date and location to the Sanctuary by contacting Emma Hickerson: [emma.hickerson@noaa.gov](mailto:emma.hickerson@noaa.gov) or 409-621-5151 Ext 111

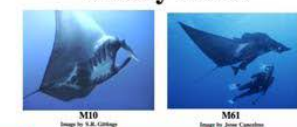
## Spots and Squares



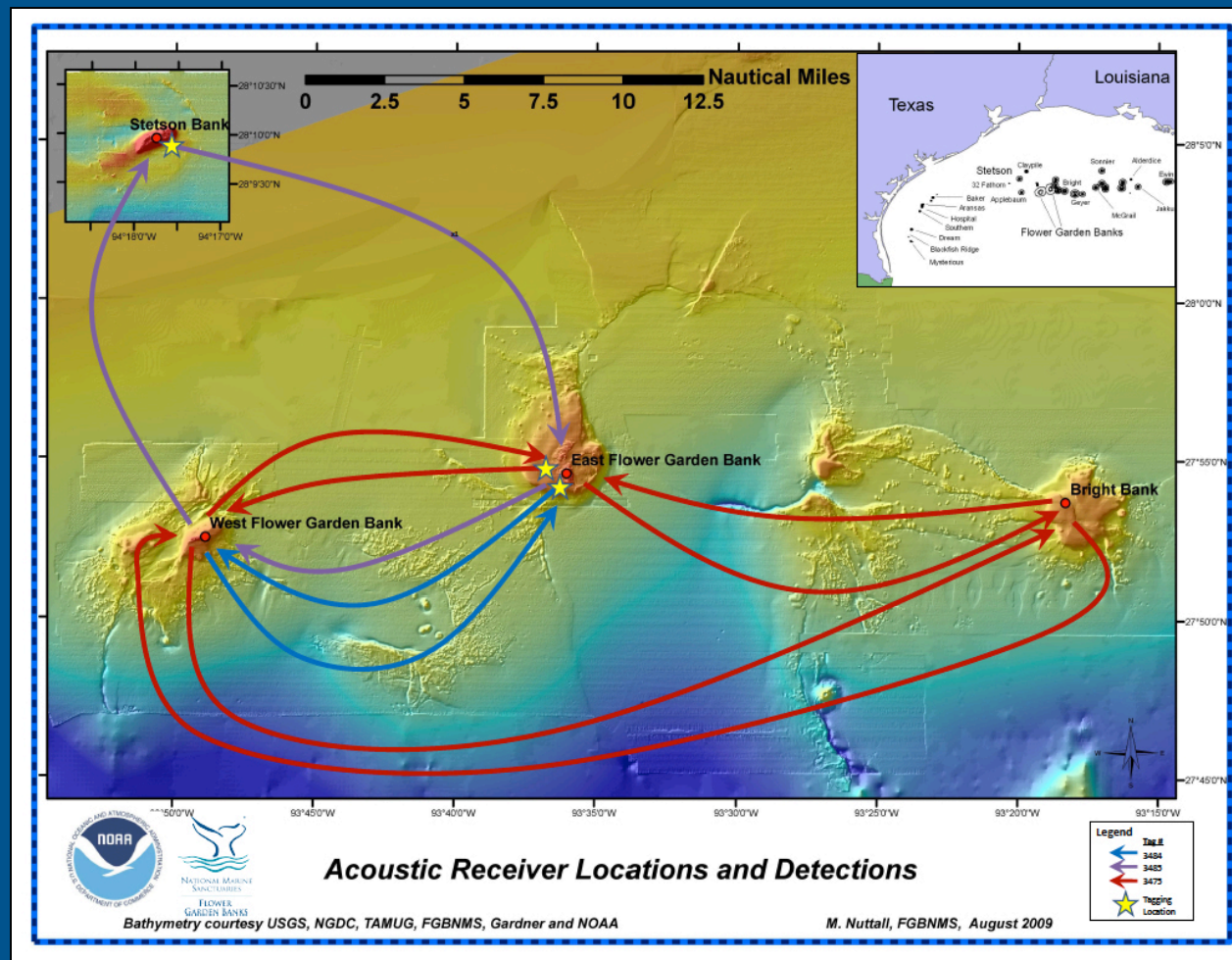
## Mostly White



## Mostly Black







## Manta Ray movement - FGBNMS



## Whale shark migrations

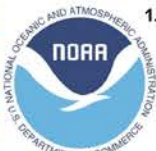
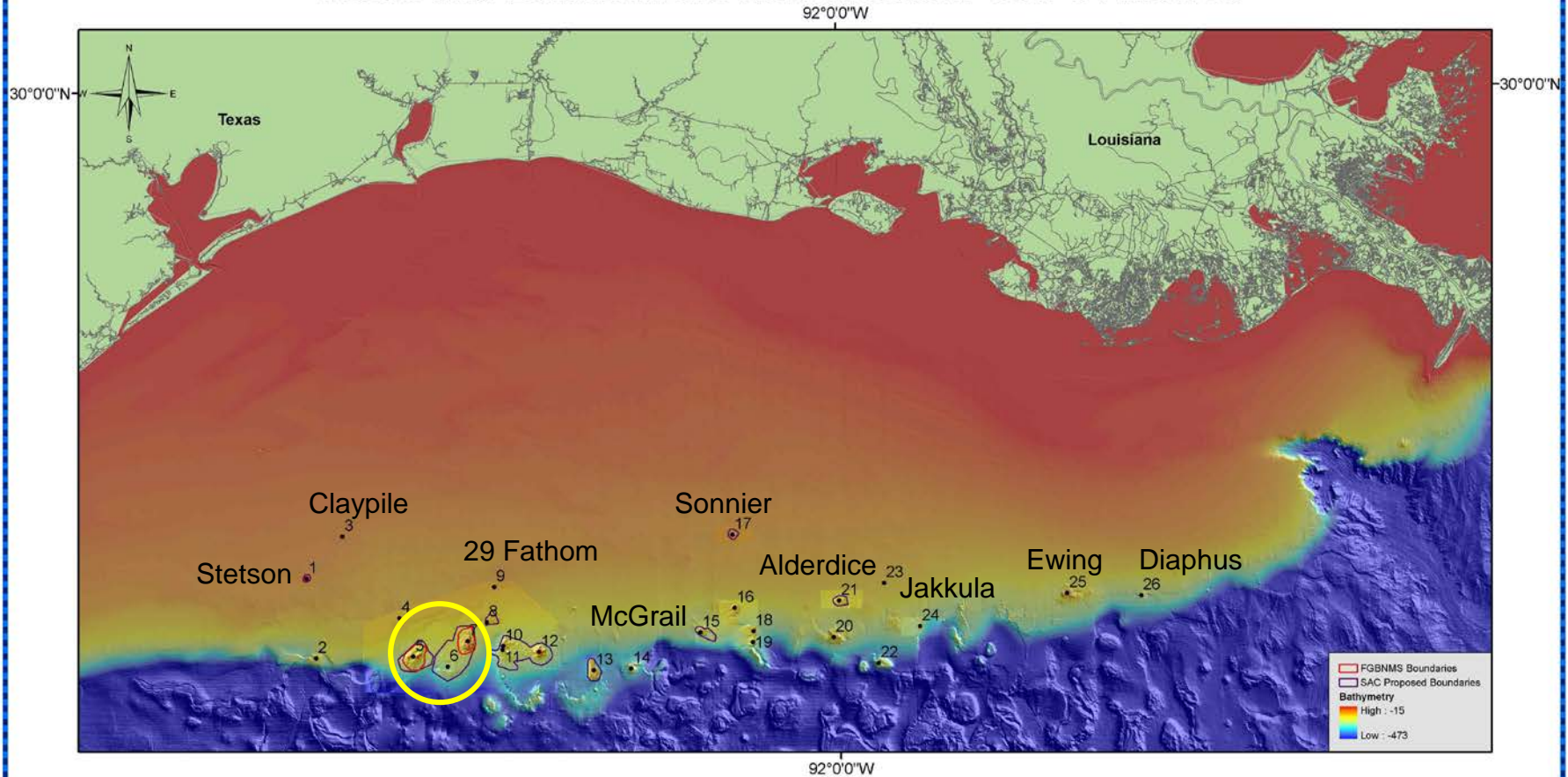
- Holbox, Mexico (July 2008) to Bright Bank, NW GOM (October, 2008)
- Gladden Spit, Belize to Tampa, FL
- Honduras to Tampa, FL

Source:  
Dr. Rachel Graham,  
Wildlife  
Conservation  
Society





## Reefs and Banks in the Northwestern Gulf Of Mexico



1. Stetson Bank, 2. Applebaum Bank, 3. Claypile Bank, 4. Coffee Lump Bank, 5. West Flower Garden Bank, 6. Horseshoe Bank, 7. East Flower Garden Bank, 8. MacNeil Bank, 9. 29 Fathom Bank, 10. Rankin Bank, 11. 28 Fathom Bank, 12. Bright Bank, 13. Geyer Bank, 14. Elvers Bank, 15. McGrail Bank, 16. Bouma Bank, 17. Sonnier Bank, 18. Rezak Bank, 19. Sidner Bank, 20. Parker Bank, 21. Alderdice Bank, 22. Sweet Bank, 23. Fishnet Bank, 24. Jakkula Bank, 25. Ewing Bank, 26. Diaphus Bank,

0 30 60 90 120 150 Kilometers

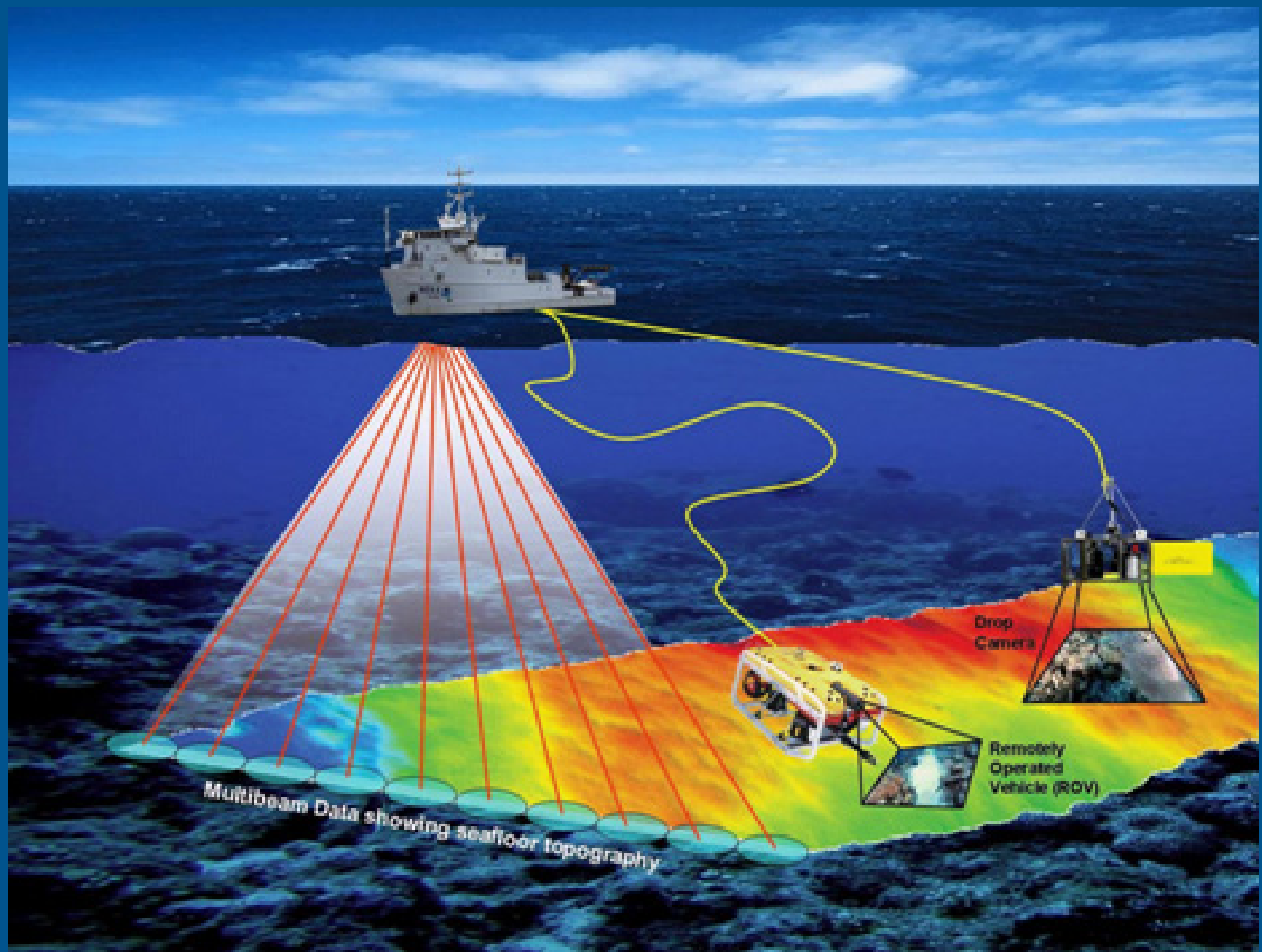
Bathymetry courtesy of USGS, UNH, Gardner and NOAA

M. Nuttall, FGBNMS, July 2010



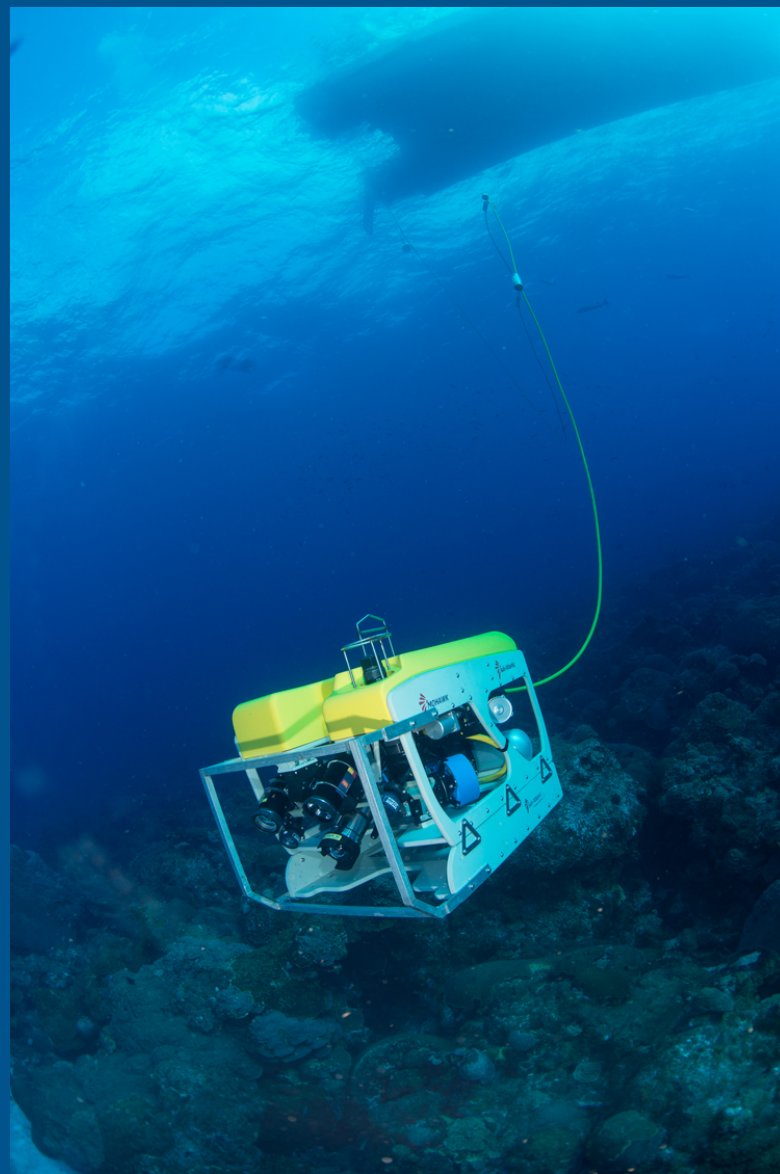
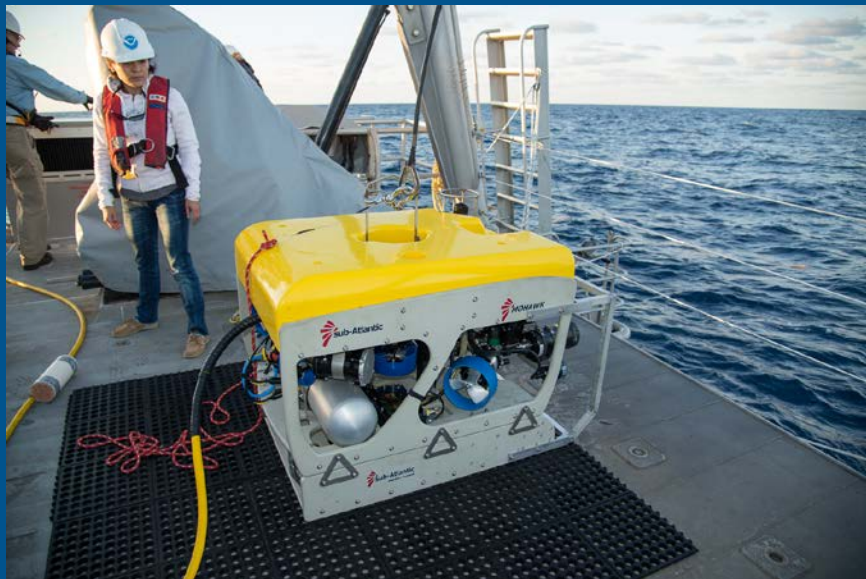
# Reefs and Banks of the Northwestern Gulf of Mexico





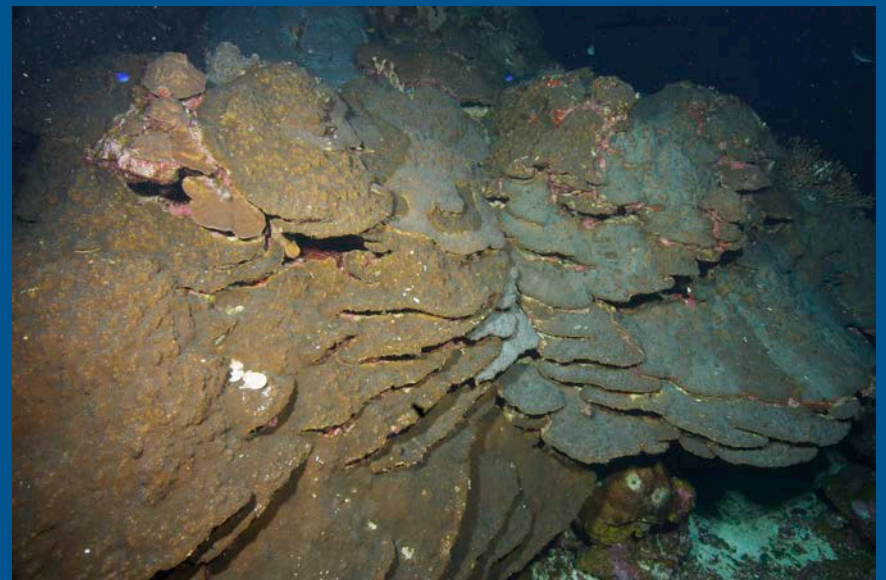
Seafloor Mapping and Characterization



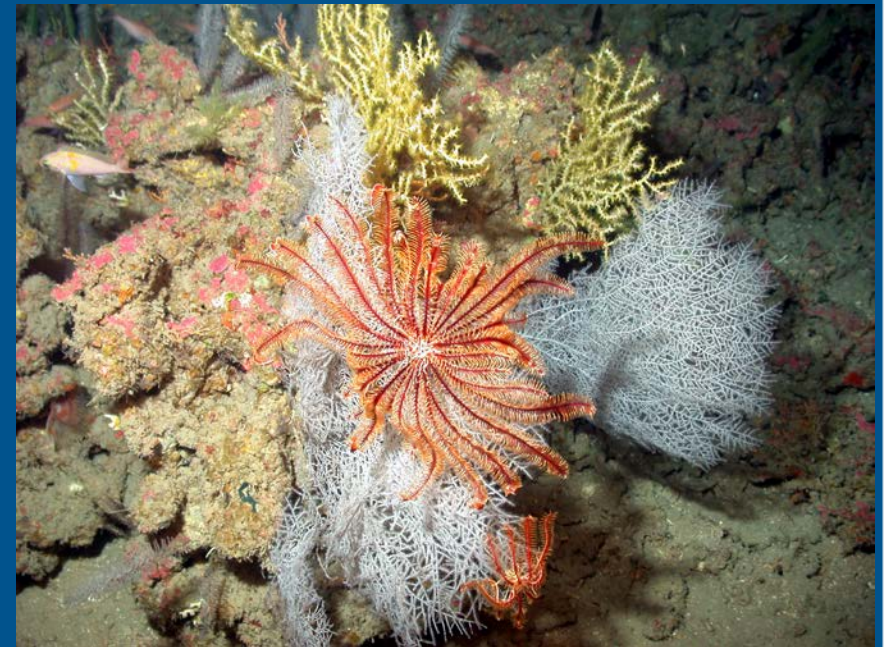


Mohawk ROV at East Flower Garden Bank, November 2013

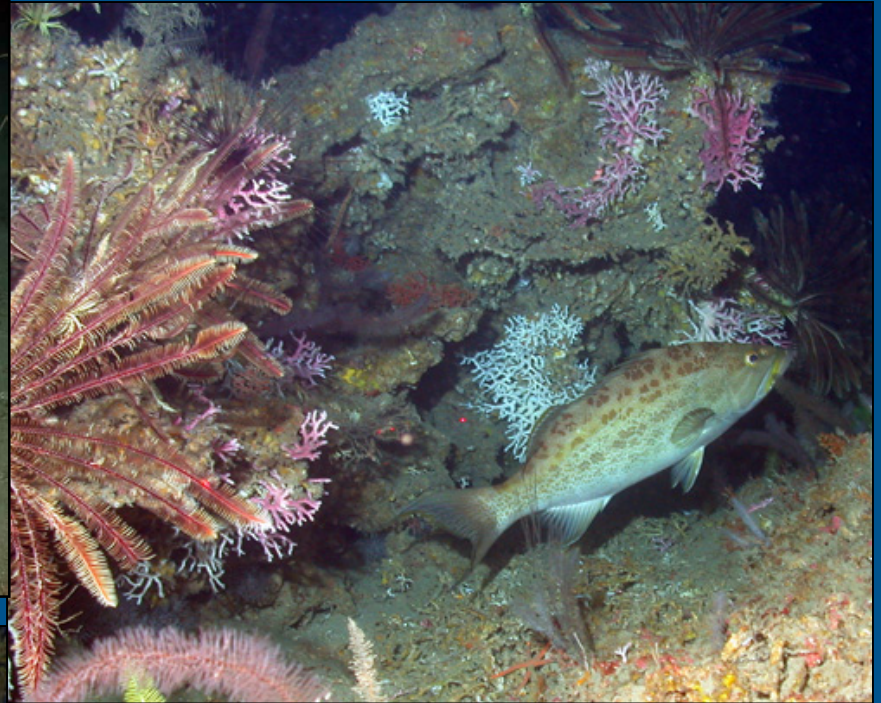








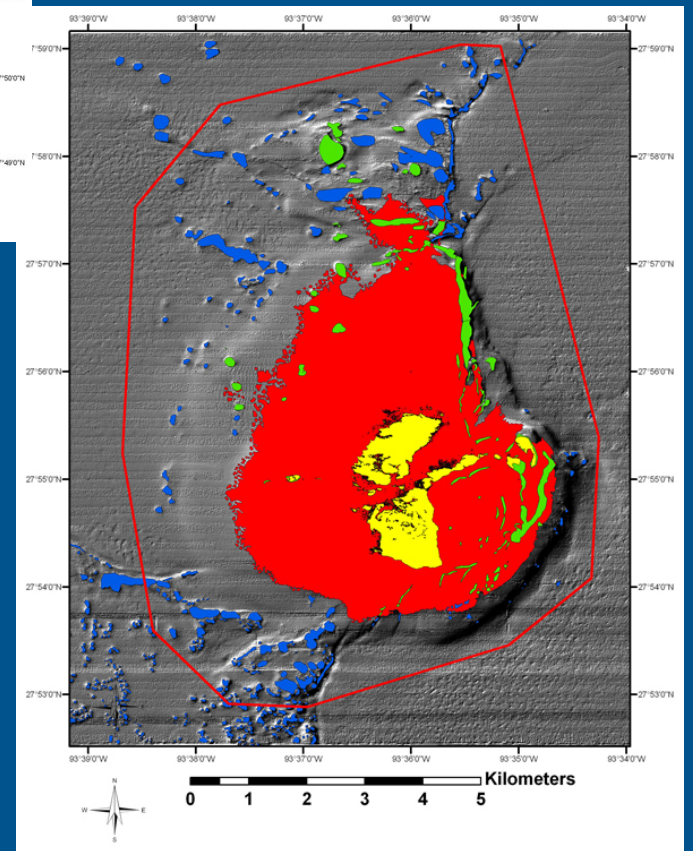
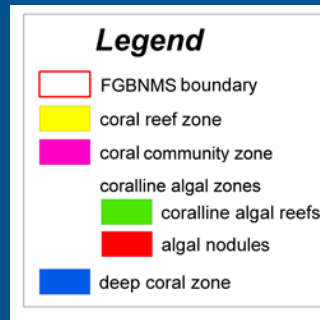
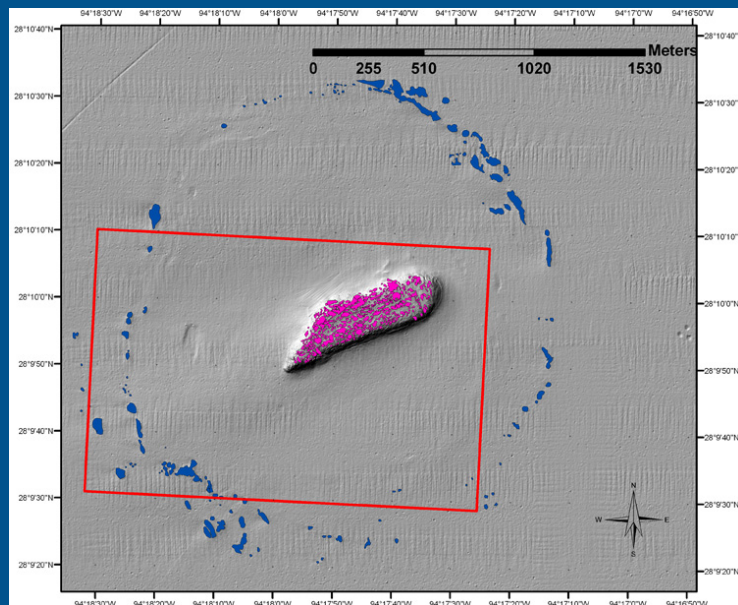
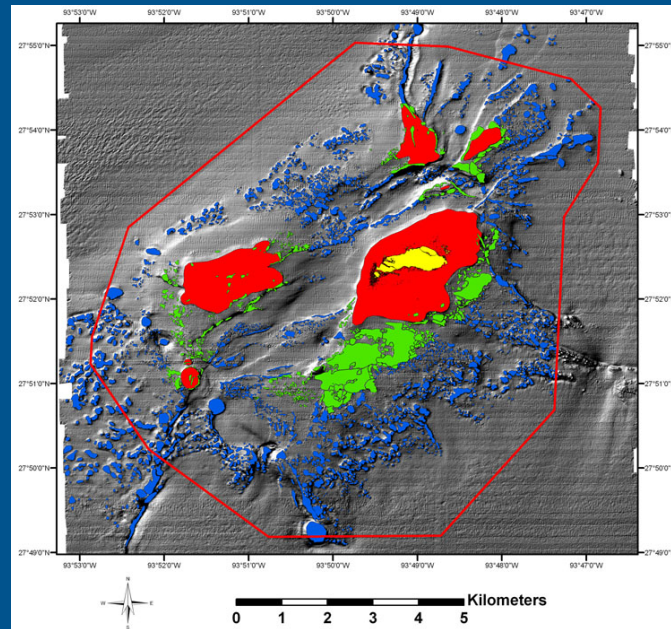




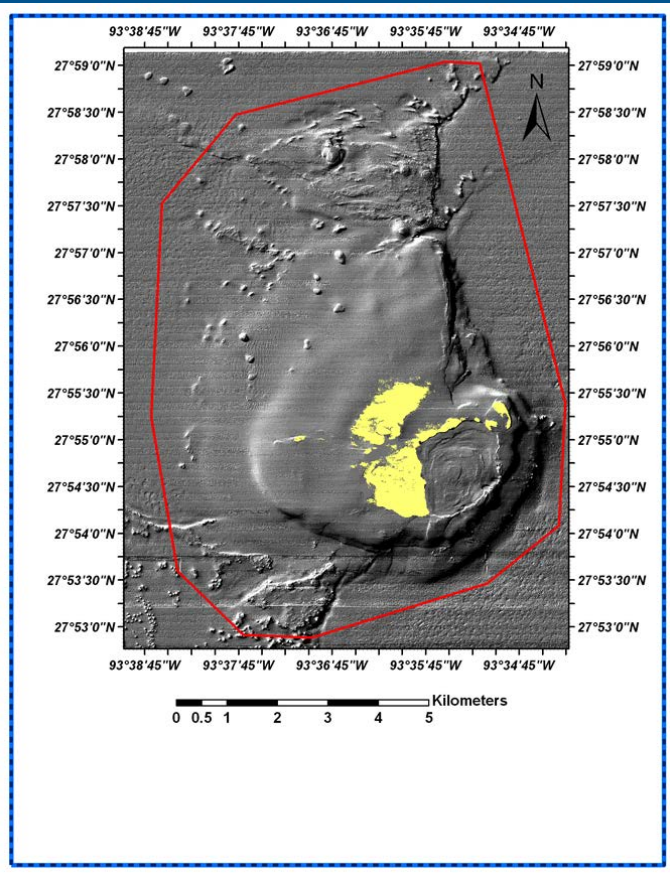
Mesophotic Coral  
Communities of the  
northwestern Gulf of  
Mexico



# Biological Habitat Classification Scheme - FGBNMS

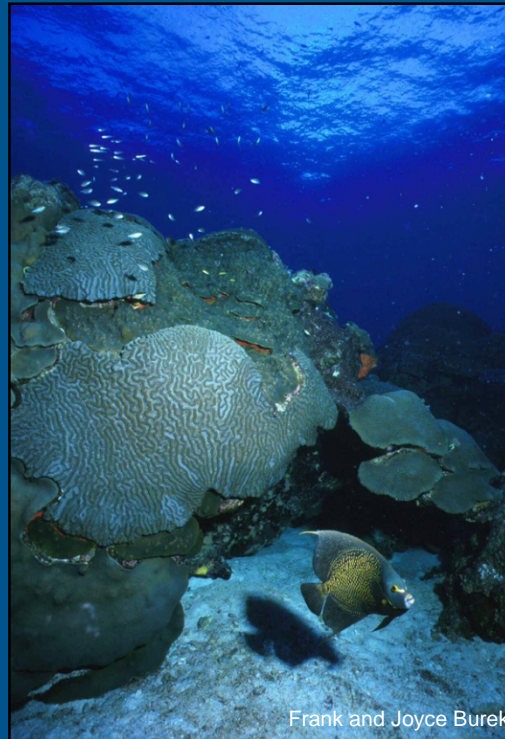




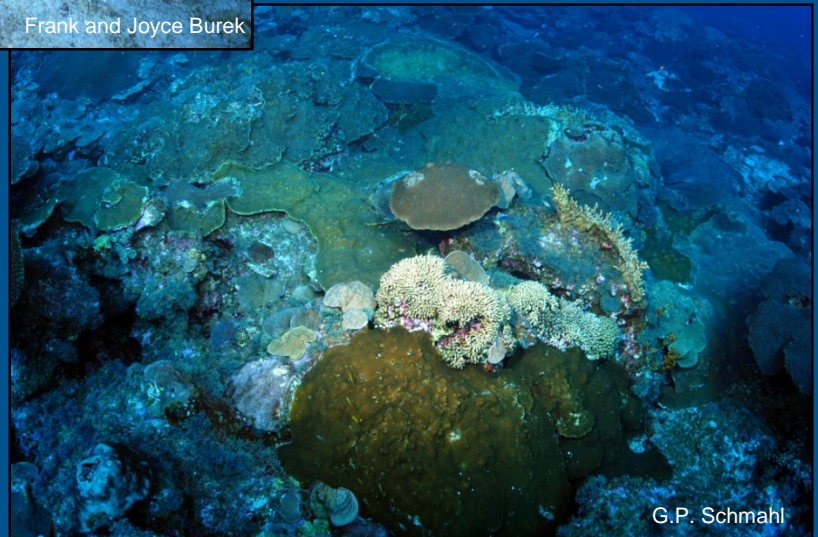


**Coral Reef/Coral Community Zone** includes the following habitats:

*Montastraea*, *Stephanocoenia*, *Madracis*, sand community, mixed coral.



85'



110'

Dominated by brain and star coral boulders:

*Montastraea franksi*

*M. faveolata*

*M. annularis*

*M. cavernosa*

*Diploria strigosa*

*Colpophyllia natans*

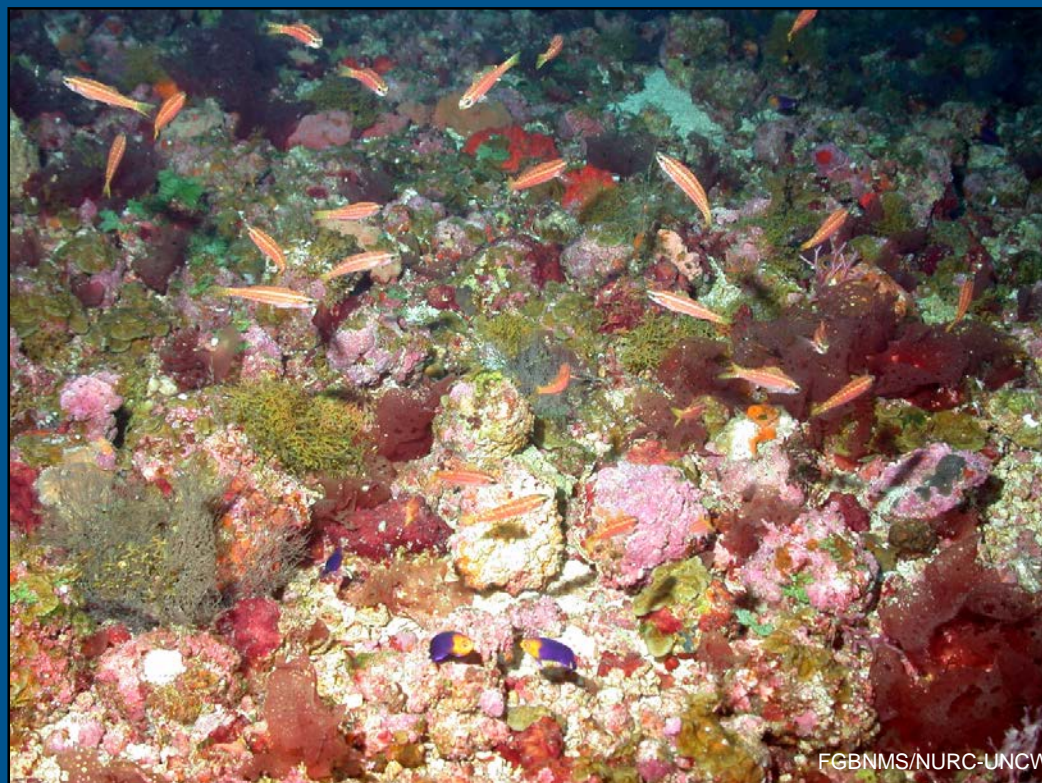
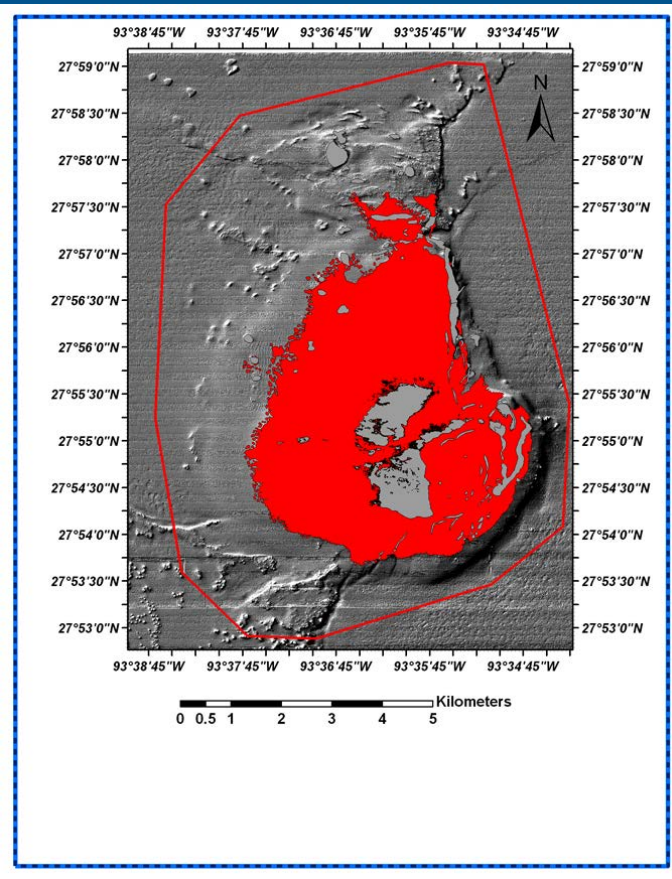
*Siderastrea siderea*

*Porites astreoides*

Frank and Joyce Burek

G.P. Schmahl





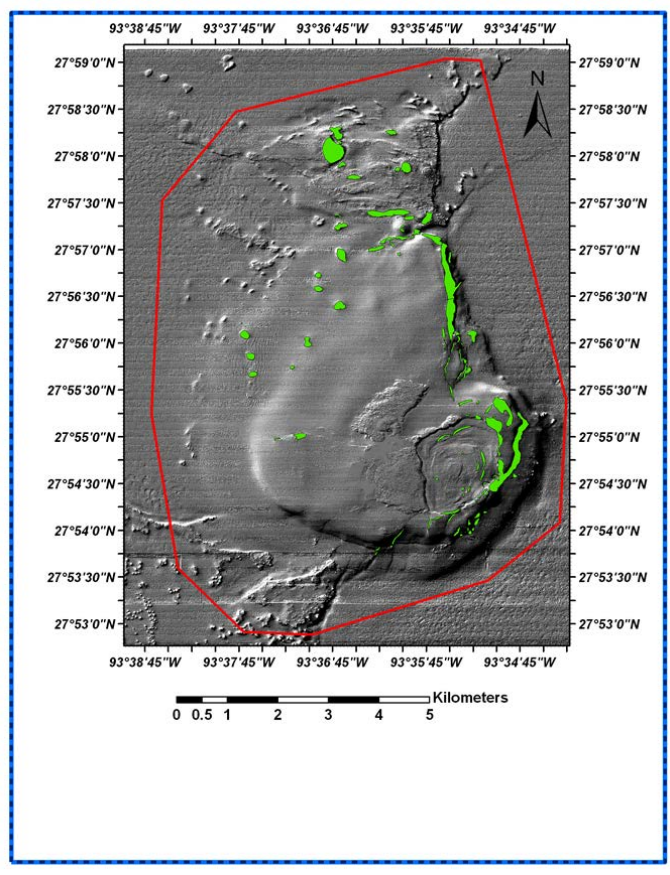
FGBNMS/NURC-UNCW

160'

**Algal Nodule Habitat**, within the **Coralline Algae Zone** includes these habitats:

Sand communities, leafy algae/sponge, octocoral, algal pavements, mixed coral



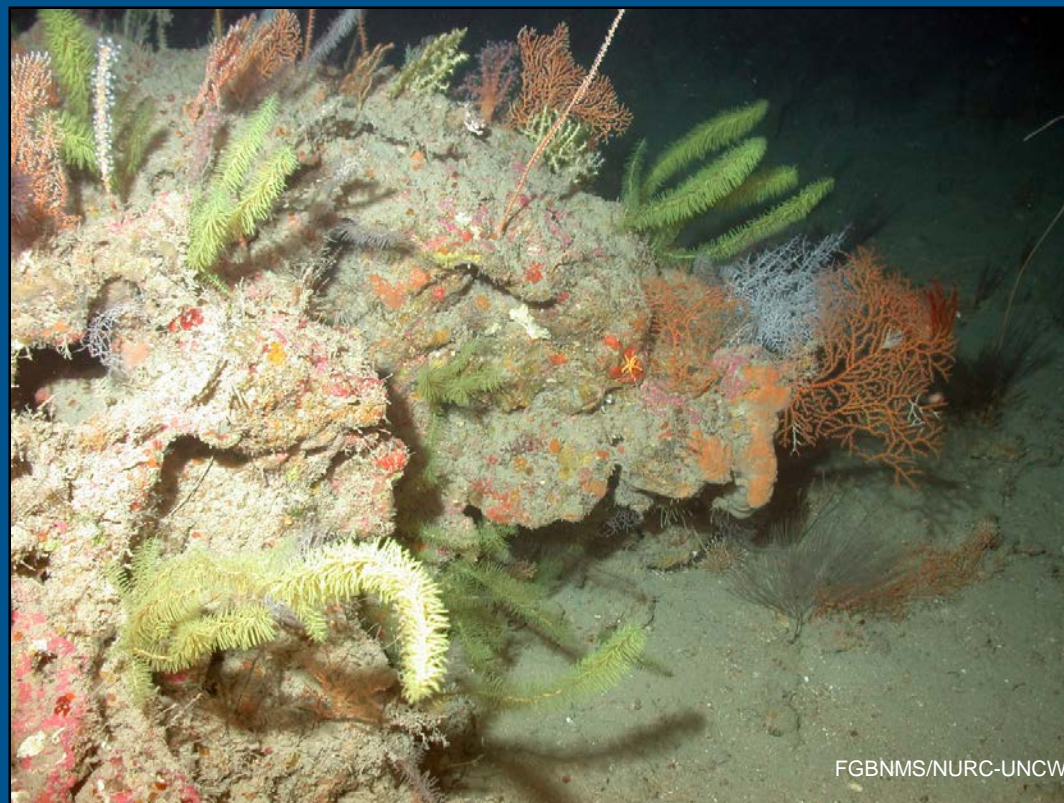
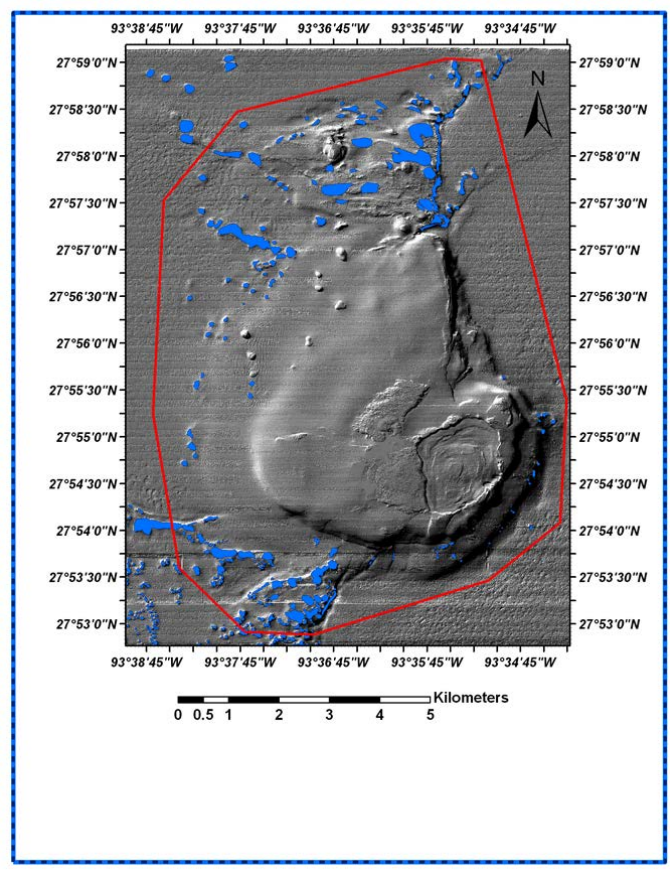


**Coralline Algae Reefs** within the **Coralline Algae Zone**, includes these habitats:

Sand communities, leafy algae/sponge, octocoral, algal pavements, mixed coral, antipatharians

265'

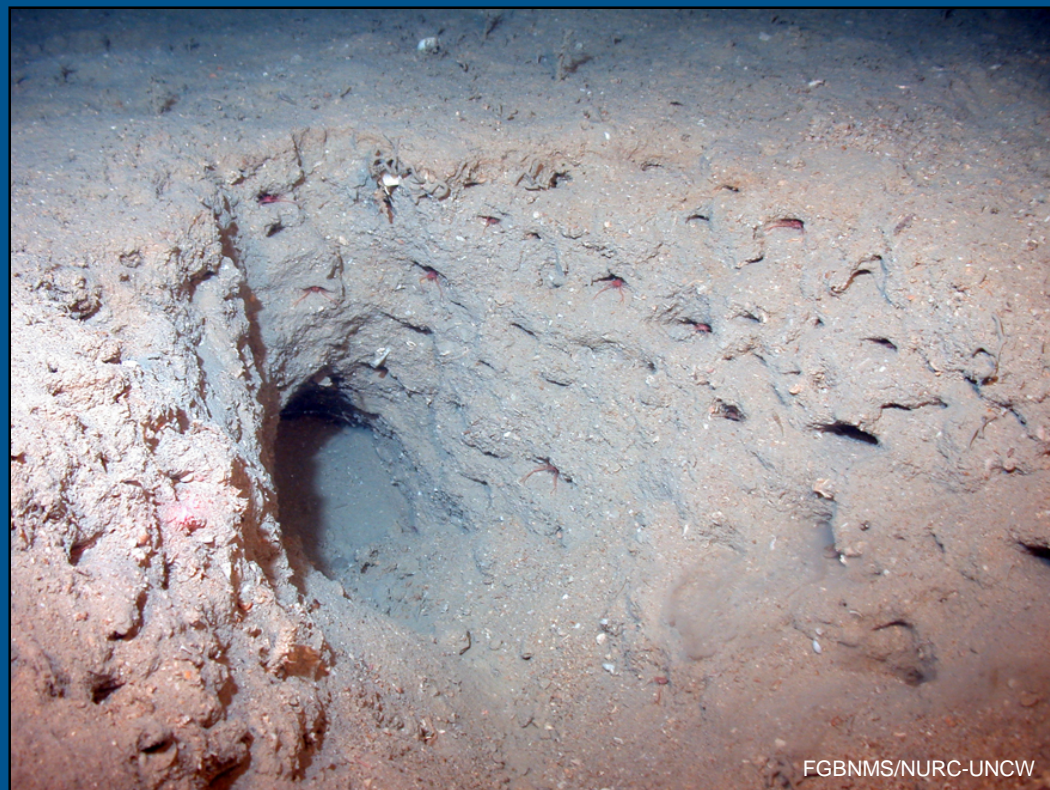
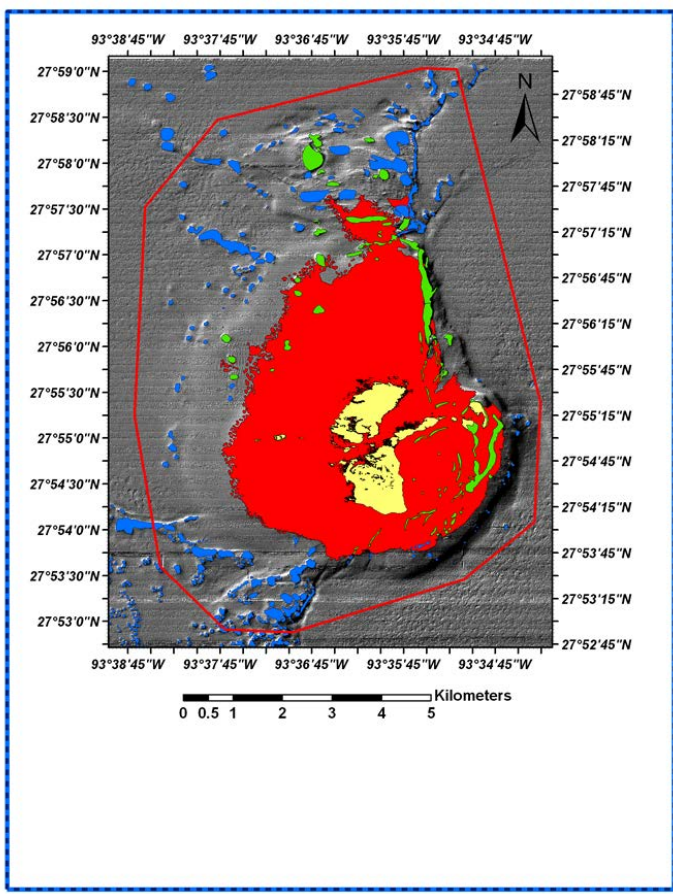




332'

**Deep Coral Zone**, includes these habitats:  
 Octocoral, antipatharian, mixed coral, stony coral



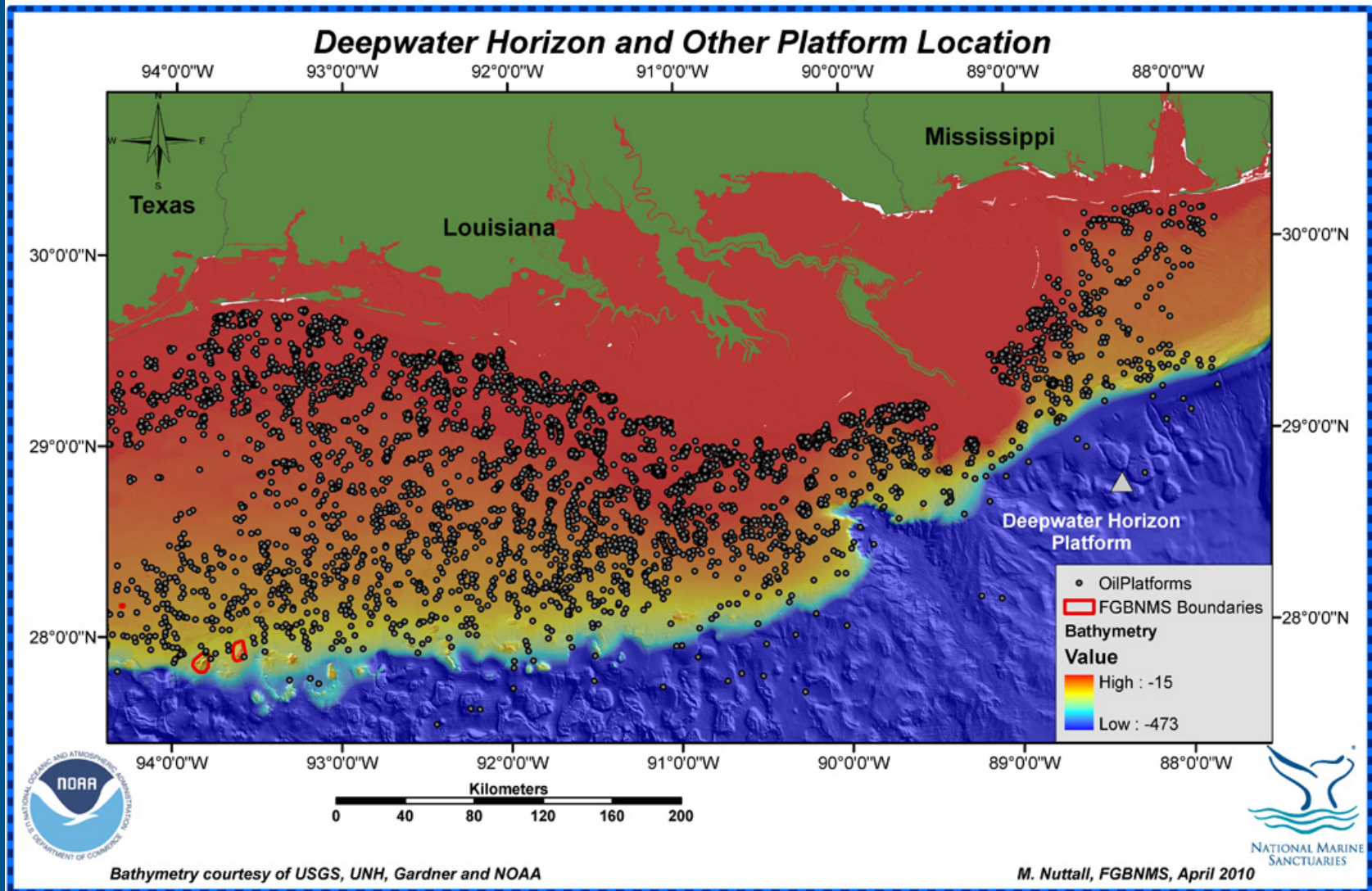


370'

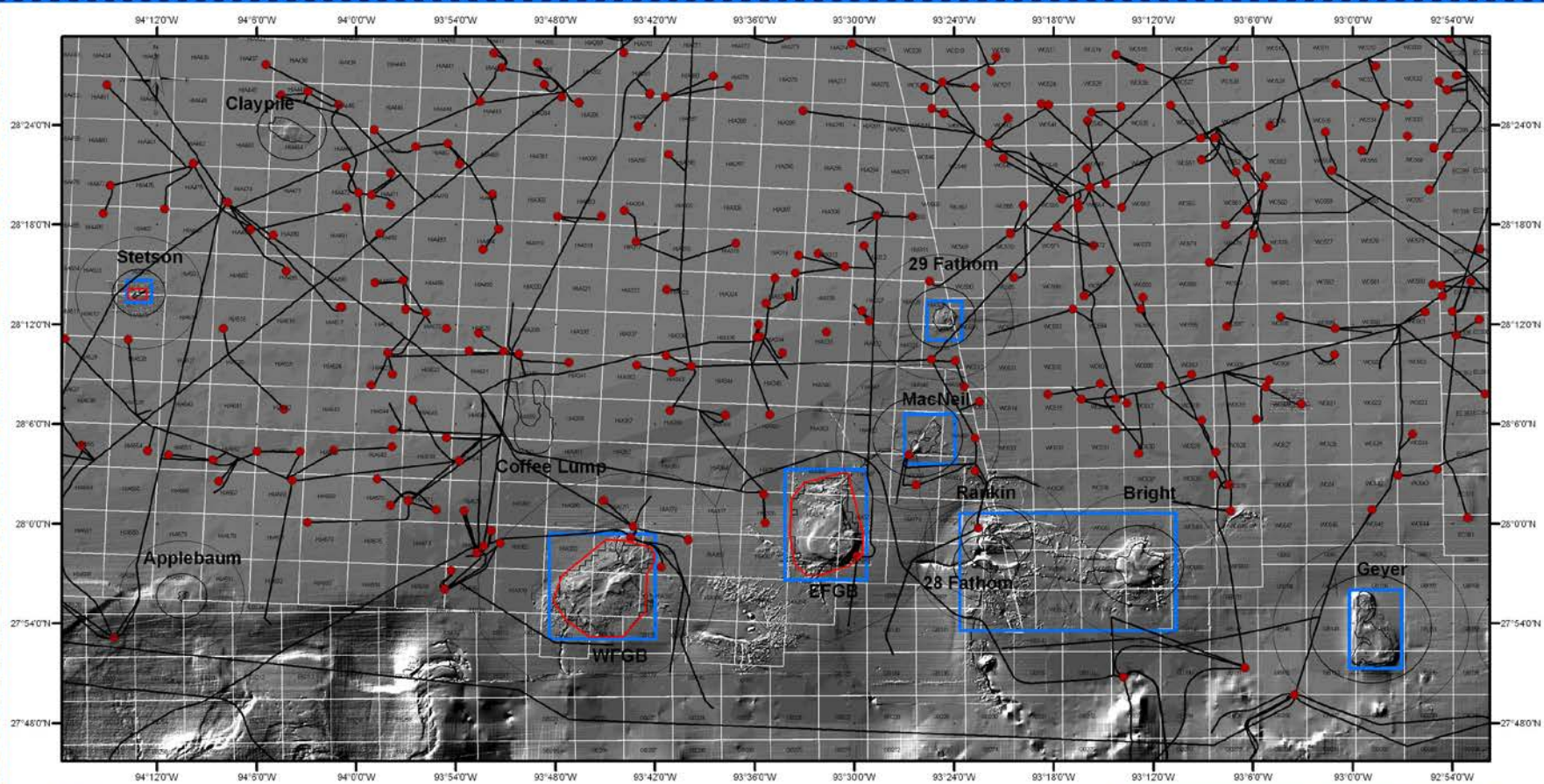
**Soft Bottom Community Zone**, includes these habitats:  
silt, fine, coarse, rubble



# Oil and Gas Infrastructure







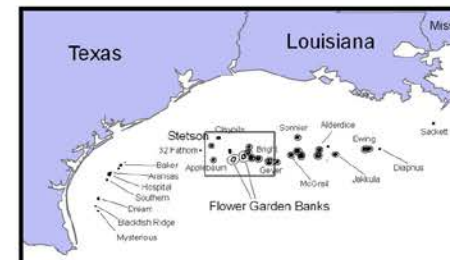
Bathymetry by NOAA and USGS

- Legend**
- 1000m boundary
  - 2000m boundary
  - 3000m boundary
  - 4000m boundary
  - 5000m boundary
  - NOACTIVITY
  - Oil Platforms
  - Oil Pipelines
  - Seafloor polygons

0 5 10 20 30 Nautical Miles

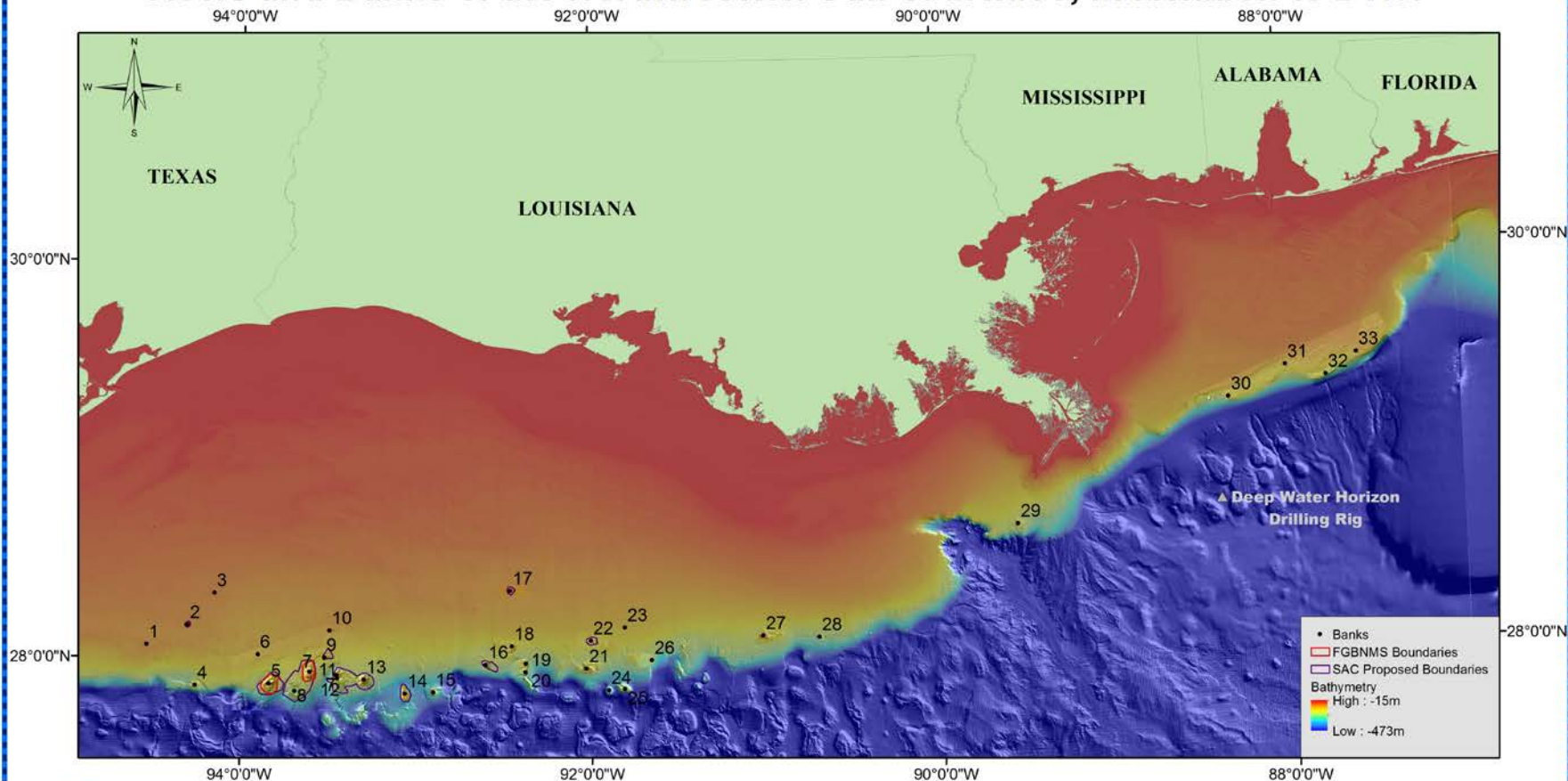
## Northwestern Gulf of Mexico Region

Rendered by D. Weaver, FGBNMS, June 2007





# Reefs and Banks of the Northwestern Gulf of Mexico, in Relation to DWH



1. 32 Fathom Bank, 2. Stetson Bank, 3. Claypile Bank, 4. Applebaum Bank, 5. West Flower Garden Bank, 6. Coffee Lump Bank, 7. East Flower Garden Bank, 8. Horseshoe Bank, 9. MacNeil Bank, 10. 29 Fathom Bank, 11. Rankin Bank, 12. 28 Fathom Bank, 13. Bright Bank, 14. Geyer Bank, 15. Elvers Bank, 16. McGrail Bank, 17. Sonnier Bank, 18. Bouma Bank, 19. Rezak Bank, 20. Sidner Bank, 21. Parker Bank, 22. Alderdice Bank, 23. Fishnet Bank, 24. Phleger Bank, 25. Sweet Bank, 26. Jakkula Bank, 27. Ewing Bank, 28. Diaphus Bank, 29. Sackett Bank, 30. Alabama Alps Reef, 31. Double and Triple Top Reefs, 32. Alabama Pinnacles Reef, 33. Yellowtail, Cat's Paw, and Roughtounge Reefs.

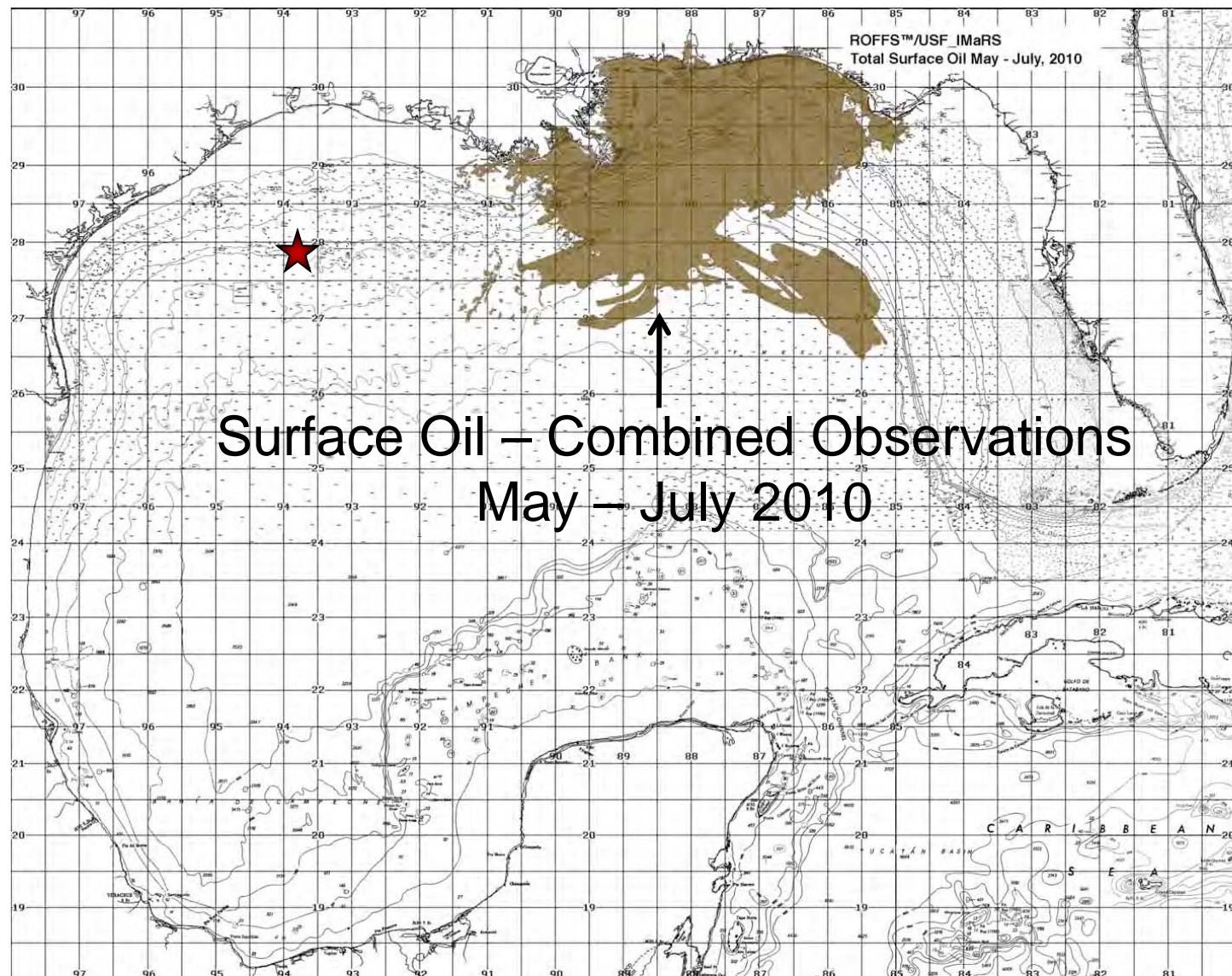


Bathymetry courtesy of USGS, UNH, Gardner and NOAA

M. Nuttall, FGBNMS, Feb 2015







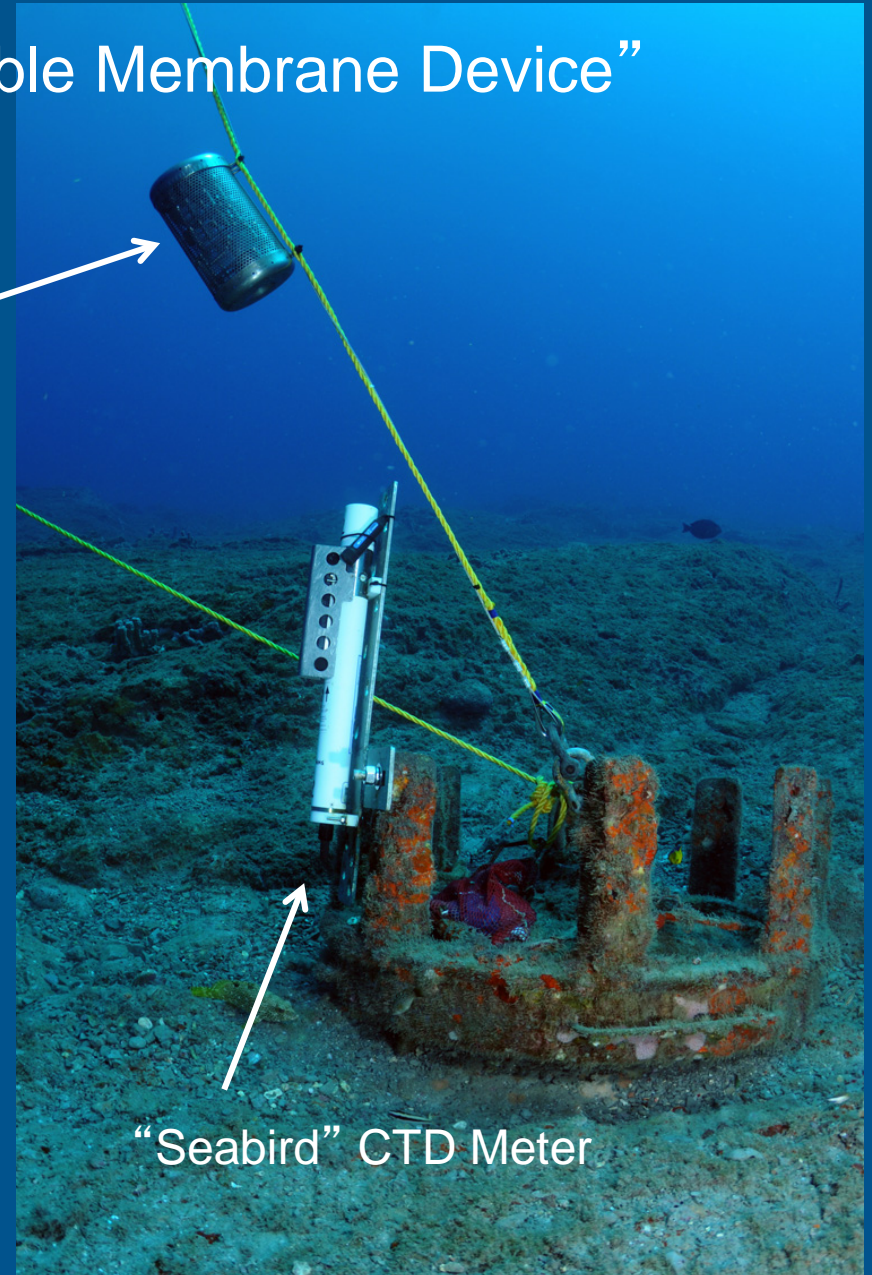
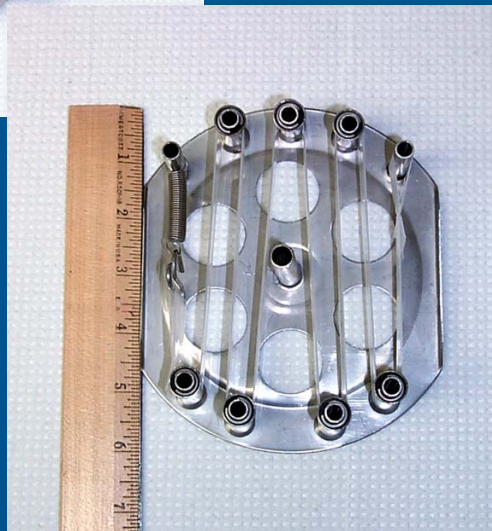
Data courtesy of: ROFFER'S OCEAN FISHING FORECASTING SERVICE, INC.



# SPMD – “Semi Permeable Membrane Device”



SPMD



"Seabird" CTD Meter



*Deepwater Horizon* Oil Spill  
Final Programmatic Damage Assessment  
and Restoration Plan and Final Programmatic  
Environmental Impact Statement

FEBRUARY 2016

*Deepwater Horizon* Final  
Programmatic Restoration Plan

Published February 2016

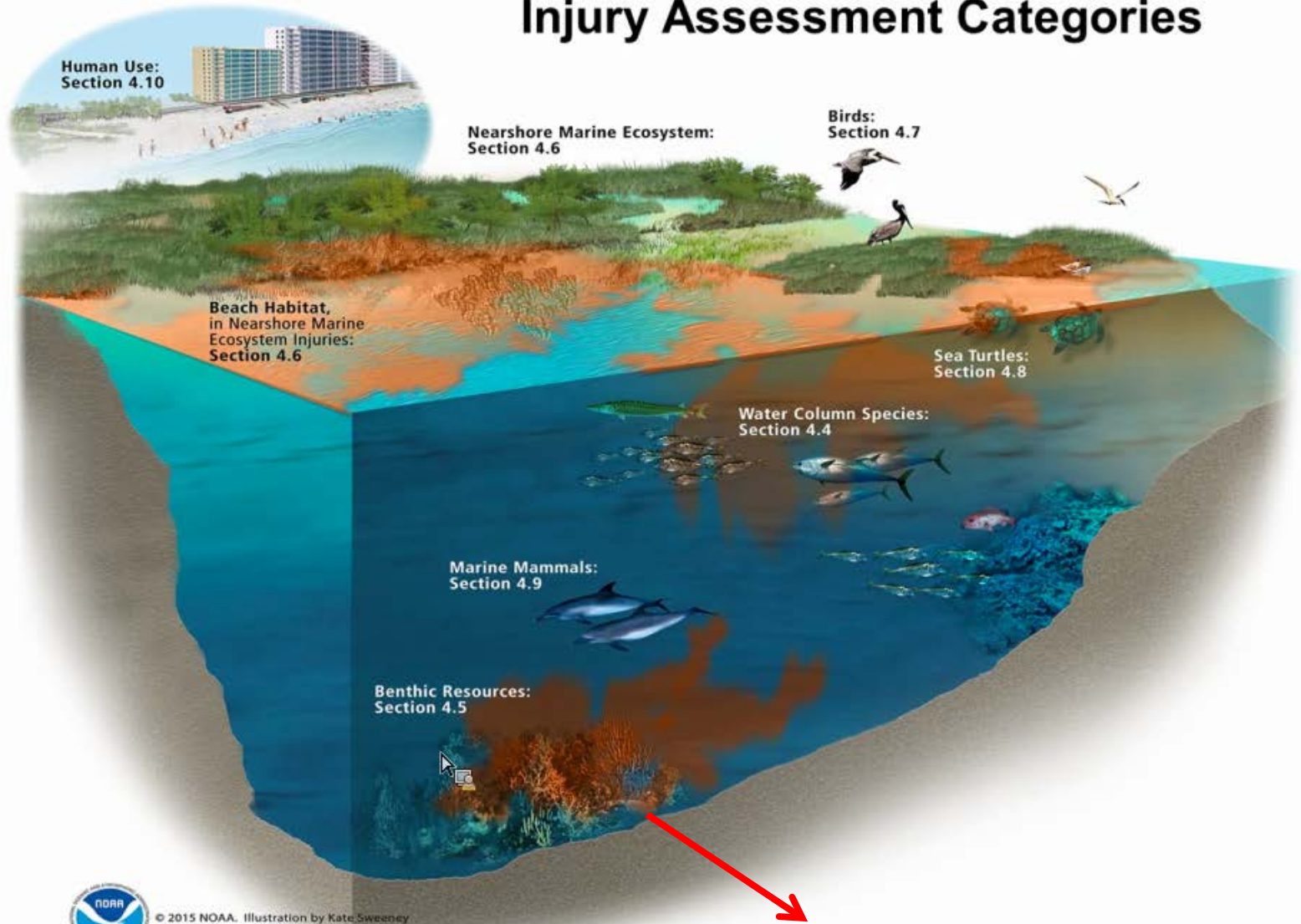
Outlines Restoration Strategies  
for Injured Resources within  
various categories

15 year timeframe





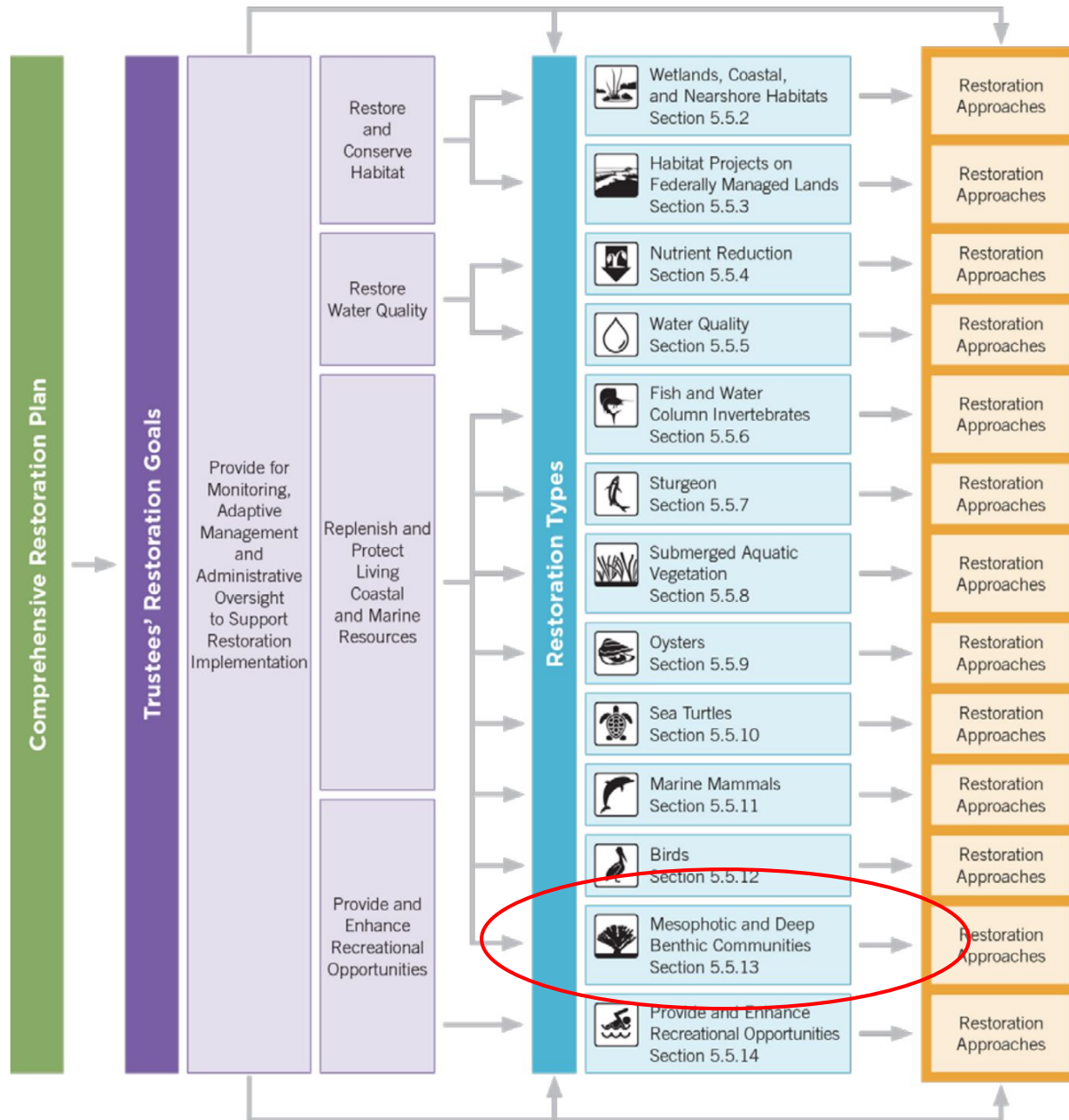
# Injury Assessment Categories



© 2015 NOAA. Illustration by Kate Sweeney



\$8.1B



\$273M



design studies will ensure success of this technique by determining the optimal design for implementation and allowing responsive decision-making. Collateral injury to other natural resources is expected to be minimal due to the relatively small footprint of hard substrate placement on a vastly large expanse of soft sediment substrate. The Trustees do not anticipate that the approach will negatively affect public health or safety and consider it likely to benefit other natural resources. Although the Trustees find this overall restoration approach to be appropriate under OPA, they will ensure project appropriateness by ~~conducting and selecting projects~~ based on a project-specific evaluation of the OPA evaluation standards found at 15 CFR § 990.54(a).

#### D.7.2 Protect and Manage Mesophotic and Deep Benthic Coral Communities



This restoration approach focuses on establishing areas for spatially discrete management of and protection for mesophotic and deep benthic communities and associated resources. For some natural resources, projects that manage and prevent future injuries from known threats can often have more certain outcomes and be more cost-effective than projects designed to create these resources (Chapman & Julius 2005). The acquisition of equivalent natural resources or services for public management has long been considered as a viable restoration option (Wickham et al. 1993). The mesophotic and deep benthic coral communities would particularly benefit from a preventive restoration project because they are sessile and therefore susceptible to threats such as oil and gas activities, fishing activities, and marine debris. An MPA is defined as “any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein” (MPA Executive Order 13158). Examples of federal MPAs include national marine sanctuaries (NMS), Essential Fish Habitat, habitat areas of particular concern, and oil and gas no-activity zones. Establishing protections



*Deepwater Horizon* Oil Spill Natural Resource Damage Assessment and Restoration

Open Ocean Trustee Implementation Group  
Draft Restoration Plan 2/Environmental Assessment

Fish, Sea Turtles,  
Marine Mammals,  
and Mesophotic and  
Deep Benthic Communities

Open Ocean Restoration Area



May 2019

# Deepwater Horizon

## Natural Resource Damage Assessment

### “Open Ocean” Draft Restoration Plan 2

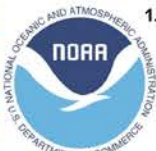
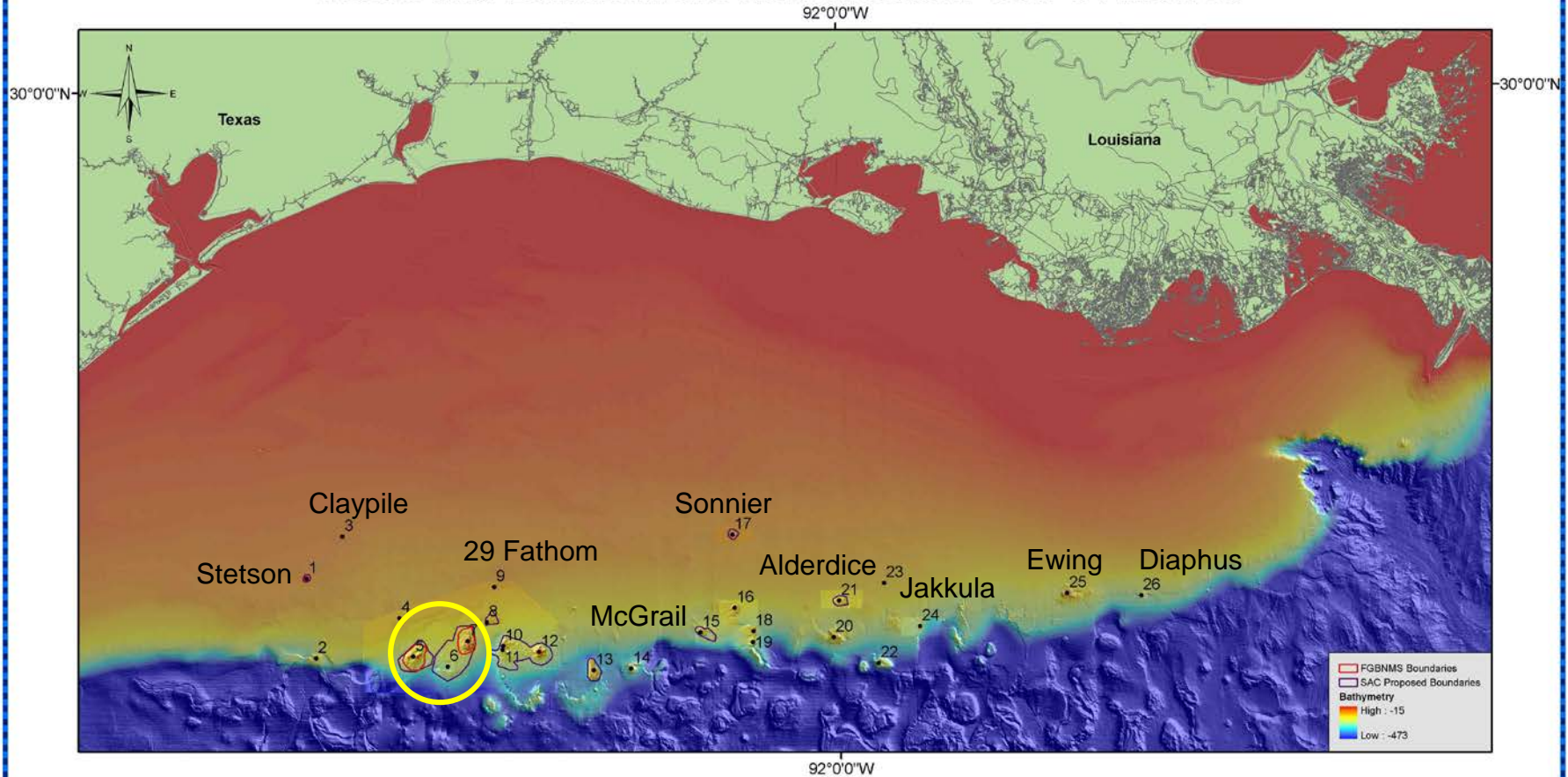
Released May 15, 2019

Comments taken  
through August 2, 2019

Plan to be released Fall  
2019/Spring 2020



## Reefs and Banks in the Northwestern Gulf Of Mexico



1. Stetson Bank, 2. Applebaum Bank, 3. Claypile Bank, 4. Coffee Lump Bank, 5. West Flower Garden Bank, 6. Horseshoe Bank, 7. East Flower Garden Bank, 8. MacNeil Bank, 9. 29 Fathom Bank, 10. Rankin Bank, 11. 28 Fathom Bank, 12. Bright Bank, 13. Geyer Bank, 14. Elvers Bank, 15. McGrail Bank, 16. Bouma Bank, 17. Sonnier Bank, 18. Rezak Bank, 19. Sidner Bank, 20. Parker Bank, 21. Alderdice Bank, 22. Sweet Bank, 23. Fishnet Bank, 24. Jakkula Bank, 25. Ewing Bank, 26. Diaphus Bank,

0 30 60 90 120 150 Kilometers

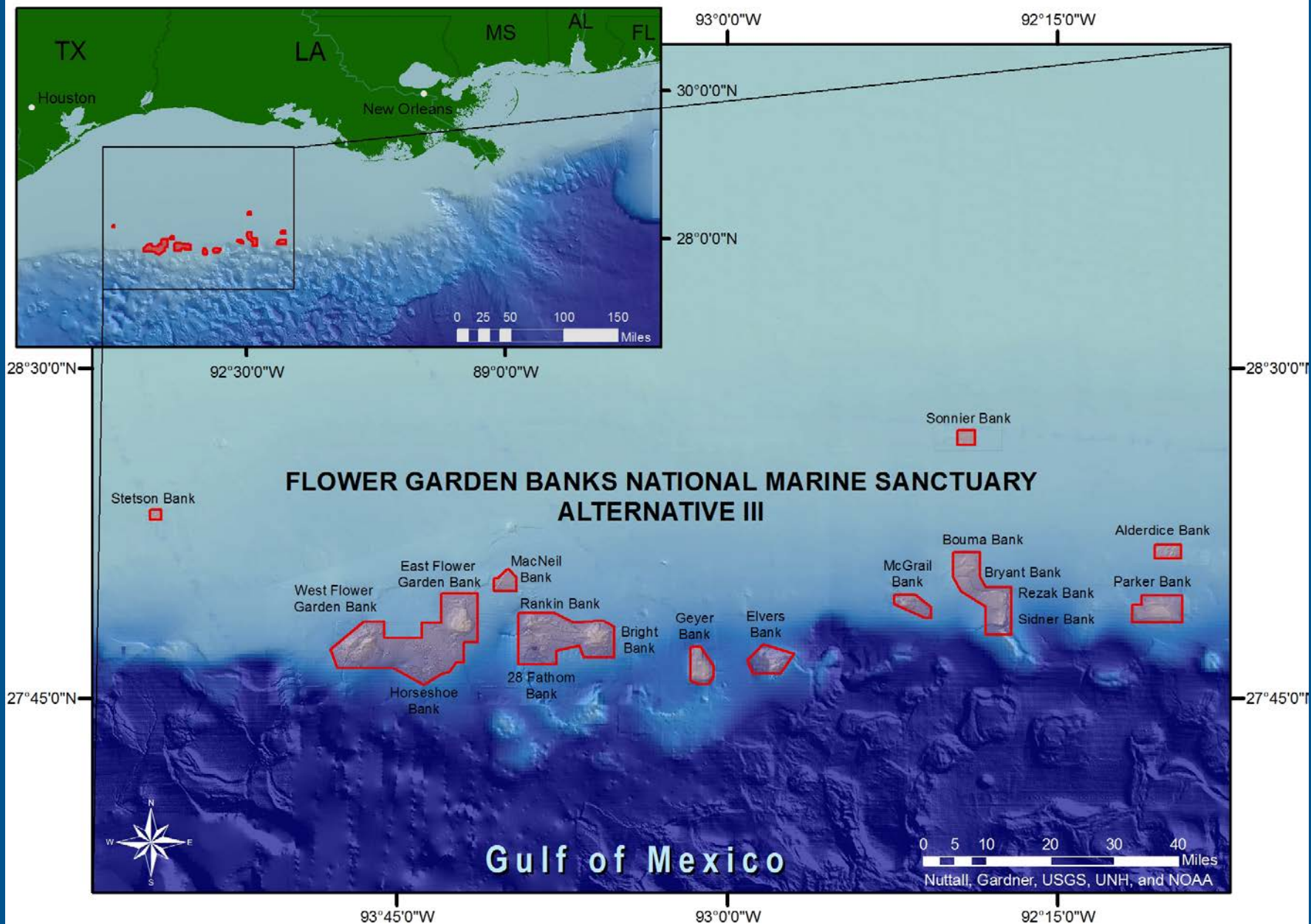
Bathymetry courtesy of USGS, UNH, Gardner and NOAA

M. Nuttall, FGBNMS, July 2010

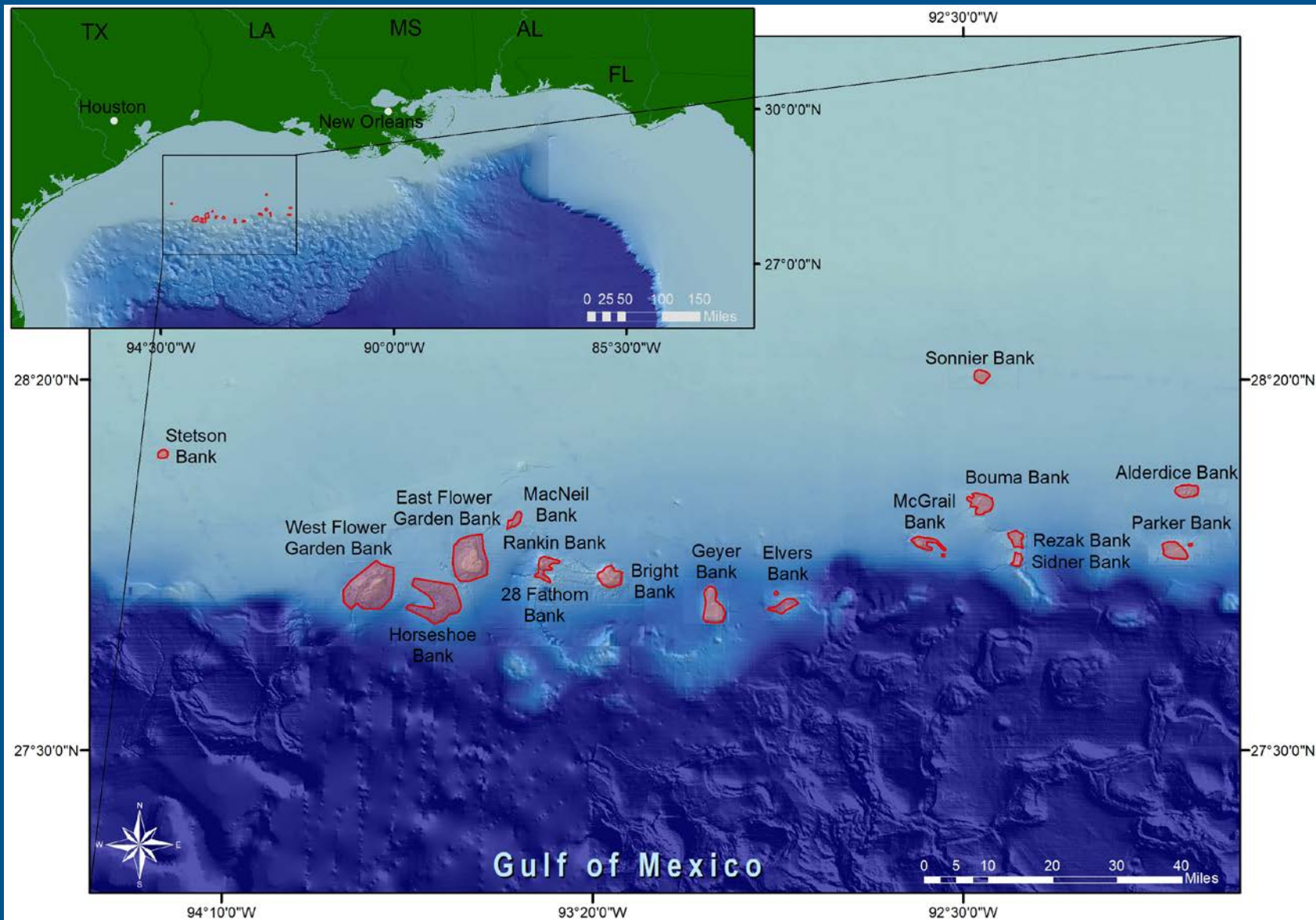


# Reefs and Banks of the Northwestern Gulf of Mexico





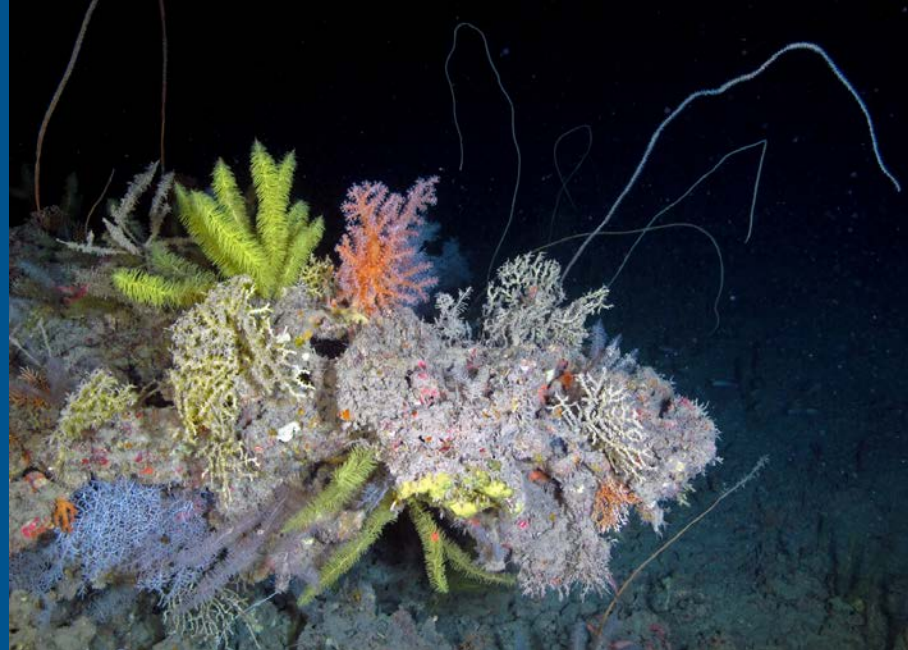




2019 Sanctuary Advisory Council Recommendation



- Existing Sanctuary area: 56 sq mi
- Expansion area: 14-15 additional banks in 9-16 polygons
- NOAA Preferred Alternative (2016 DEIS): 383 sq mi
- 2019 Sanctuary Advisory Council Recommendation: 160 sq mi
  
- NEXT STEPS:
- GOING THROUGH OMB REVIEW, AGENCY CONSULTATIONS
- PROPOSED RULE RELEASE END OF 2019
- PUBLIC COMMENT PERIOD
- DEVELOPMENT OF FEIS BY END OF 2020





National Marine Sanctuaries  
National Oceanic and Atmospheric Administration



NATIONAL MARINE  
SANCTUARIES

---

FLOWER  
GARDEN BANKS

G.P. Schmahl – Superintendent  
George.Schmahl@noaa.gov  
409-356-0383  
979-229-6542 cell

Emma.Hickerson@noaa.gov  
Research Coordinator  
409-356-0390  
979-777-3895 cell

4700 Ave U, Bldg 216, Galveston, TX 77551

<http://flowergarden.noaa.gov>





# Intercontinental Terminals Company 3/17/19 Tank Fire Emergency Response

EPA OSC ADAM ADAMS – TCEQ Anthony Buck





# EPA PARTNERS





# Thanks to all the agencies that made this emergency response a success

(THIS LIST IS NOT ALL INCLUSIVE)

---

- Oil and hazardous substance incident, large volume.
- Tank Farm (on-site), Plume for 3 days (Deer Park to past Katy, TX), and Houston Ship Channel with adjoining ~86 miles of shoreline.
- Almost 2,000 responders from over 18 organizations working together with the same objectives:
  - EPA, USCG(Sector & NSF), NOAA, DOI/USFW, ATSDR/CDC
  - TCEQ, CST, Texas Poison Control, TPWS
  - Harris County Fire Marshall, Harris County PCS, Harris County Health Department, Local Emergency Management, multiple local fire departments, and Channel Industries Mutual Aid (CIMA)
  - ITC
- No significant Health and Safety incidents (on-site or the community/for the ~2,000 responders).
- Based on the over 919,000 bbls (over 38M gal) of CERCLA hazardous waste,... this incident is one of the largest non-natural disasters in the agency's history.



# Initial Response: Fire Fighting and Foaming

---



- **Morning of March 17<sup>th</sup>:** Tank 80-8 (containing Naphtha) caught fire
- **Night of March 17<sup>th</sup>:** Fire had spread to 6 tanks
- Initial Responders: Harris County Fire Marshall, additional fire departments, and Channel Industries Mutual Aid (CIMA)
- EPA, USCG, and TCEQ mobilized to the response





## Smoke Plume

- Typical observations include:
- Gray to black smoke emitted.
- 3/17/19 plume rose vertical then west:
  - Floor @ 3,500 ft agl
  - Top @ 4,000 ft agl.
- 3/19/19 plume rose vertical then west:
  - Floor @ 2,000 to 4,000 ft agl
  - Top @ 4,000 to 6,500 ft agl.
- Visible from 40 miles away.
- Deer Park to approx. Katy, TX (~47 mi)
- Particulate monitoring – no exceedances.







Tidal Road Ditch







# Unified Command

---



- EPA directed the response using FOSC authority for inland zone discharges and its CWA order authority
- Unified Command included
  - EPA, USCG, TCEQ, Harris County/Local Emergency Mgmt, and ITC
- ICP initially located at 1943 Independence Parkway, La Porte, TX
- ICP relocated to 1030 Ethyl Road, Pasadena, TX when the incident scaled up



# On-going Timeline

---

- **March 17<sup>th</sup>:** Tank 80-8 (containing Naphtha) caught fire
- **March 20<sup>th</sup>:** Tank farm fire was extinguished the first time.
- **March 22<sup>nd</sup> (12:00pm):** A partial breach of the containment wall northeast of Tank 80-7 occurred into to the ditched area and into Tucker Bayou.
- **March 22<sup>nd</sup> (3:40pm):** Three tanks reignited. The fire spread from the containment area through the breached containment wall into the ditch along Tidal Road.



# Incident Evolves - Response Scales Up

---

- After the March 22, 2019 breach:
  - Tank Farm
    - Suppress Benzene Vapors
    - Keep the fire extinguished
    - Empty the Tanks and the Secondary Containment
  - Water Recovery Operations (South of I-10, East of Beltway 8, North of Hwy 146)
    - Contain the material from further migration
    - Recover the material
  - Continue air monitoring in the downwind community (protect public health)
    - TAGA Bus, ASPECT, Ground Teams, Joint Strike Team
    - Notify local EOC's for sustained benzene measurements > 1.0 ppm
  - Continue water sampling efforts
  - Continue daily Press Conferences and Press Releases



# Tank Farm

15 TANKS IMPACTED

13 WITH CONTENTS / 2 EMPTY (9 & 12)

2 HAZ / 11 OPA



- Base Oil (80-1, 80-4, 80-11)
- Gas Blendstock (80-2, 80-3, 80-6)
- Naphtha (80-8)
- Xylene (80-5)
- Toluene (80-13)
- Pygas (80-7, 80-10, 80-14, 80-15)



# Tank Farm







# Response Actions

## EPA Resources

---

- EPA deployed ASPECT (March 17) to conduct overflights collecting airborne infrared images, air monitoring data and aerial imagery
  - 27 overflights in total



- ASPECT is a small plane loaded with sensors to evaluate the smoke plume in the vicinity of the incident and the downwind community. Airborne Spectral Photometric Environmental Collection Technology aircraft (ASPECT) flew several missions daily throughout the response.





# Response Actions

## EPA Resources

---

- EPA deployed TAGA for the duration of the incident (March 20 – May 21) to conduct real-time air sampling
  - TAGA drove thousands of mile in the surrounding downwind communities and the vicinity of the site

The Trace Atmospheric Gas Analyzer (TAGA) unit was utilized for air monitoring on the ground in the downwind community in multiple routes on multiple occasions and provided real time air monitoring results.







# Response Actions

## Community Air Monitoring

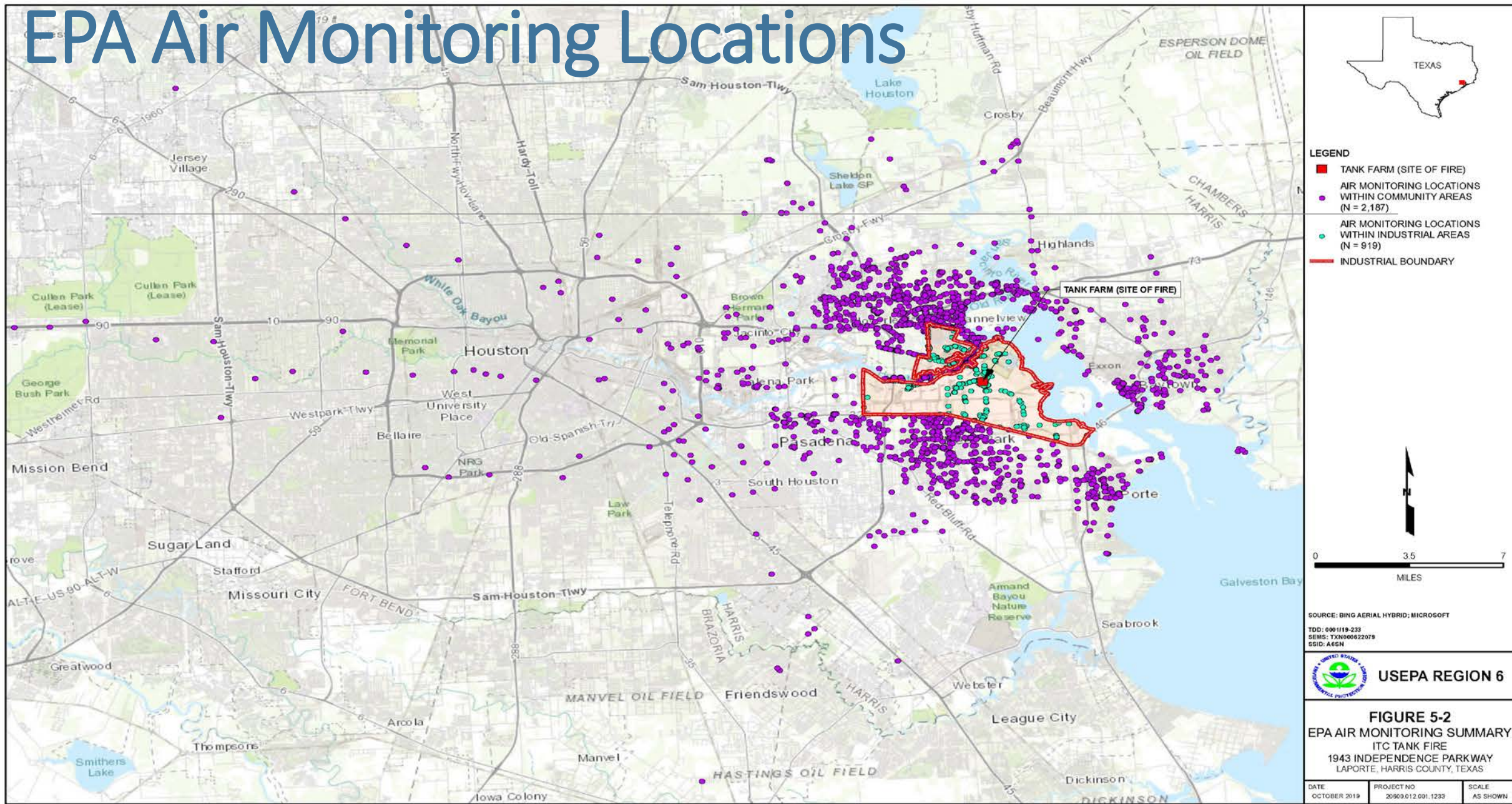


- Two strike teams (1 land and 1 water air monitoring strike teams) were created early in the response EPA, TCEQ, and ITC to conduct 24 hour air monitoring
- EPA and TCEQ focused on monitoring downwind communities based on daily downwind air weather patterns
- TCEQ Ambient Monitoring staff began conducting monitoring in the area of the Deer Park fire at Intercontinental Terminals Company on Monday, March 18, 2019. Monitoring vans contain multiple analyzers used to measure hydrogen sulfide (H<sub>2</sub>S), sulfur dioxide (SO<sub>2</sub>), and 17 volatile organic compounds (VOCs) at part per billion (ppb) levels.
- Over 3,500 air monitoring points were collected as part of the EPA strike team from March through May.
- CST also conducted air monitoring in the community.
- ITC conducted air monitoring and sampling on-site and in the downwind community.





# EPA Air Monitoring Locations



FILE: C:\EPA\Region6\START1\IVSuper\out\ITC Tank Fire\mfig5-2 EPA Air Monitoring Summary.mxd 10/14/2019 10:51:13AM 10/14/2019 10:51:13AM



# Site Area







**March 22, 2019 breach of containment wall**

**Initial Release from  
80-8**





March 22, 2019  
breach of  
containment wall



# Release Pathway



- Fire contact water, firefighting foam, and discharged tank contents flowed into the Tidal road Ditch, into Tucker Bayou and into the Houston Ship Channel
- USCG closed the Ship Channel on March 22
- The containment wall was re-secured on March 23



# Release Pathway



Houston Ship Channel

Tucker Bayou



# NOAA – Scientific Support Coordinator

---

- EPA OSC activated NOAA to provide Scientific Support Coordinator support (SSC), which included spill trajectories, weather, impact assessment, chemical disposition, endangered species consultation, etc
- NOAA collaborated with National Weather Service (NWS) and Interagency Modeling and Atmospheric Assessment Center (IMAAC) to receive weather reports and modeling

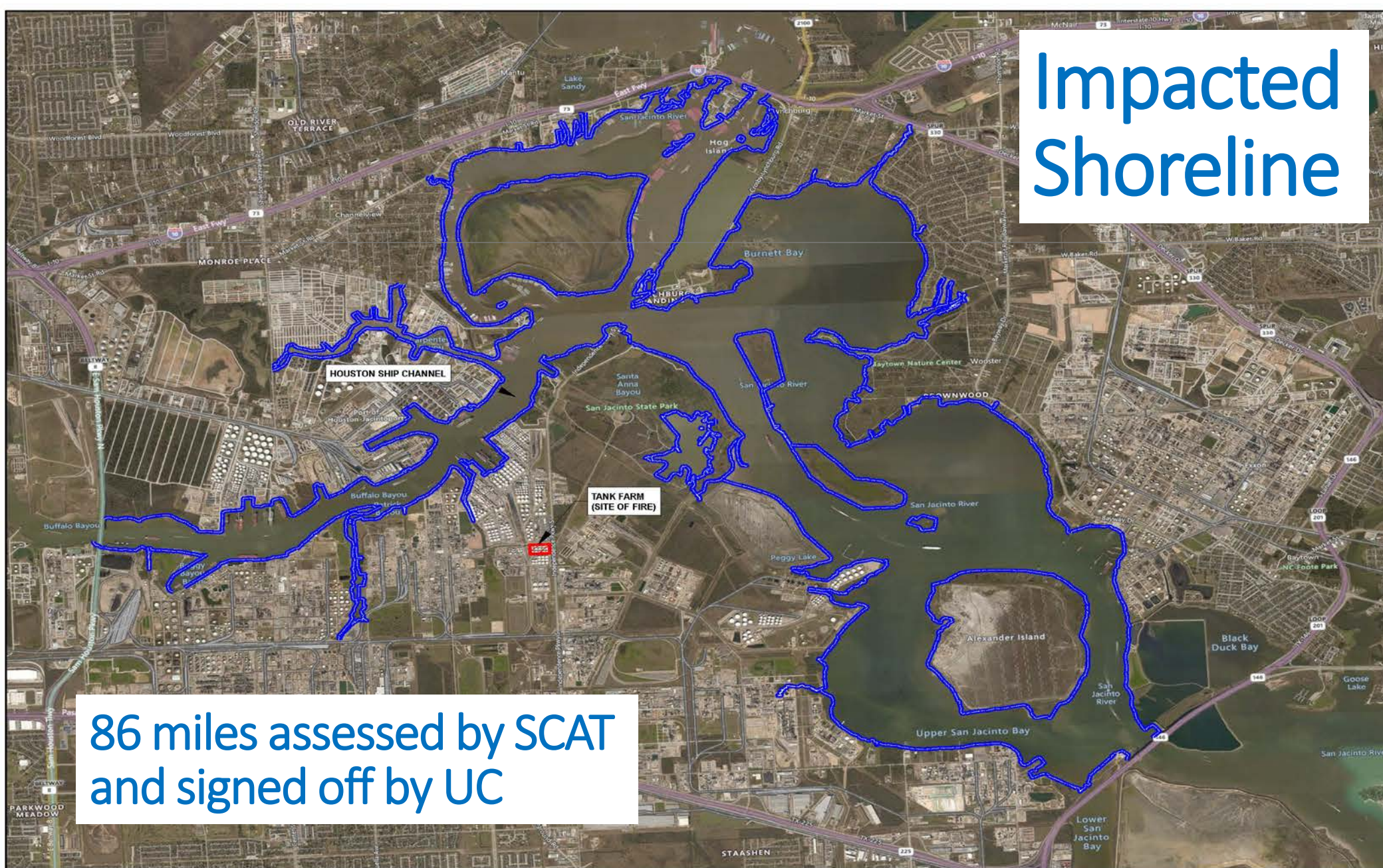




# Impacted Shoreline



**LEGEND**  
— ASSESSED SHORELINE  
■ TANK FARM (SITE OF FIRE)



0 0.75 1.5  
MILES

SOURCE: BING AERIAL HYBRID; MICROSOFT

TDD: 0001119-233  
SEMS: TXN000422079  
SSID: AS 5N



**USEPA REGION 6**

**FIGURE 4-1**  
**ASSESSED SHORELINE MAP**  
ITC TANK FIRE  
1943 INDEPENDENCE PARKWAY  
LAPORTE, HARRIS COUNTY, TEXAS

DATE SEPTEMBER 2019	PROJECT NO. 20900 012.001.1233	SCALE AS SHOWN
------------------------	-----------------------------------	-------------------

86 miles assessed by SCAT  
and signed off by UC

FILE: D:\EPA\Region 6 START\IVISuperfund\ITC Tank Fires\scat\Figure 4-1 - Assessed Shoreline.mxd 3:45:45 P.M. 9/23/2019 wldt

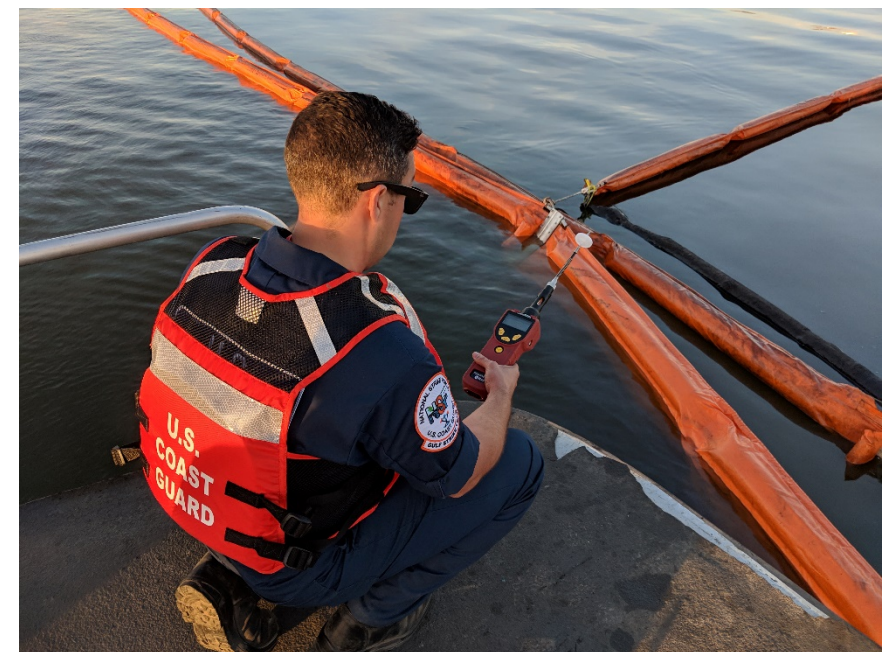




# USCG - On Water Recovery

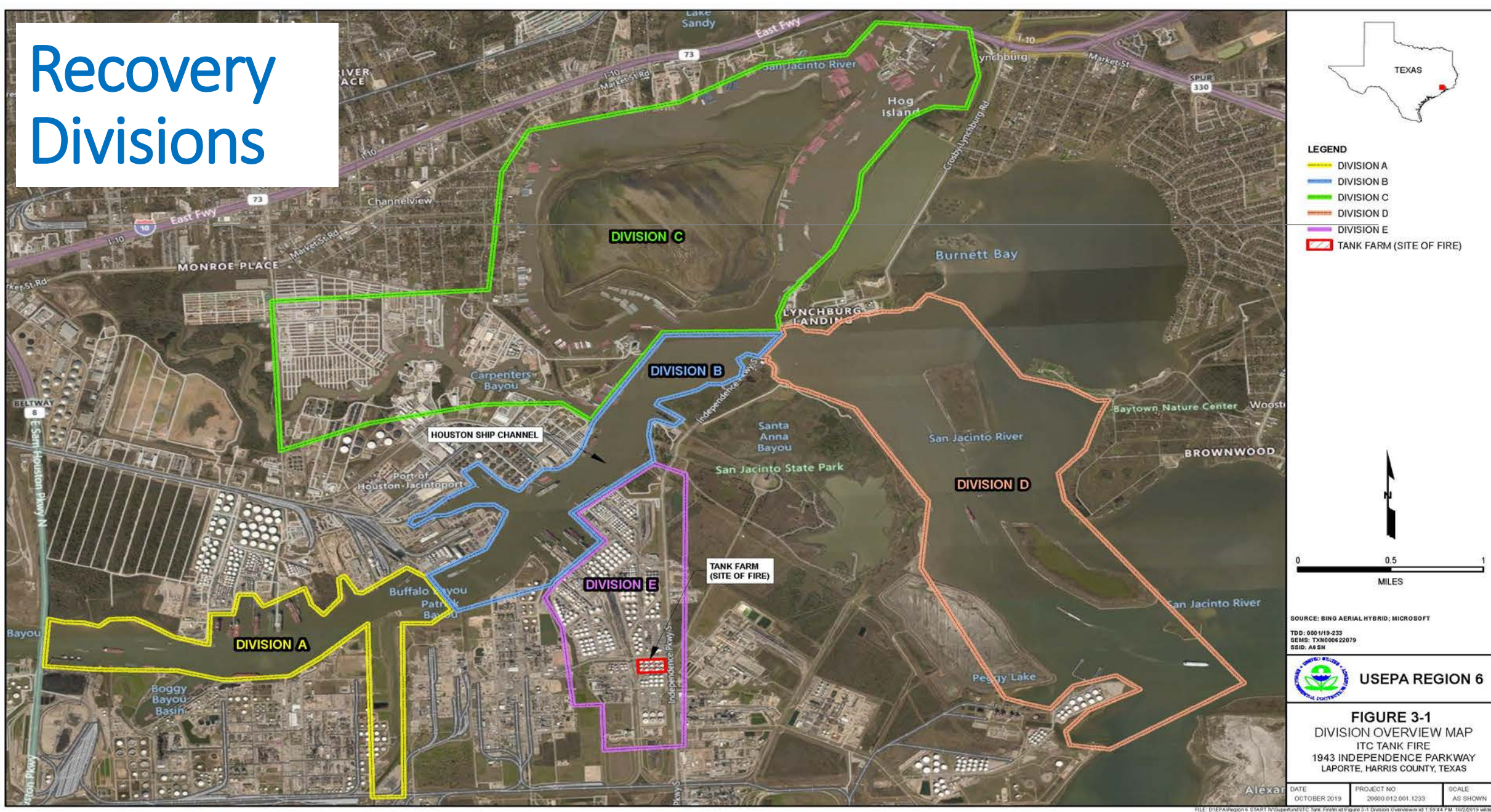


- EPA OSC activated the USCG National Strike Force (NSF) to support water recovery operations
- USCG (Sector and NSF) conducted on water air monitoring, PRP contractor oversight, oversaw vessel decontamination, and re-opened the Houston Ship Channel incrementally
- Established division recovery operations: A, B, C, D, and E
- ~30 miles of absorbent and solid boom deployed
- ~230 skimming, barges, and support vessels utilized for recovery
- Supported SCAT, ICS, PIO, etc.





# Recovery Divisions









Battleship Texas assessed and cleared prior to re-opening in early May









# On Water Recovery Operations





# Waste Recovery

- During the response, wastewater was stored in tanks, barges, and vacuum trucks
- Barges were moored at ITC Dock 4 for skimmer and vacuum truck off-loading and interim storage
- Total volume of CERCLA hazardous waste - over 919,000 bbls (38,598,000 gal)







# Response Actions

## Surface Water Sampling

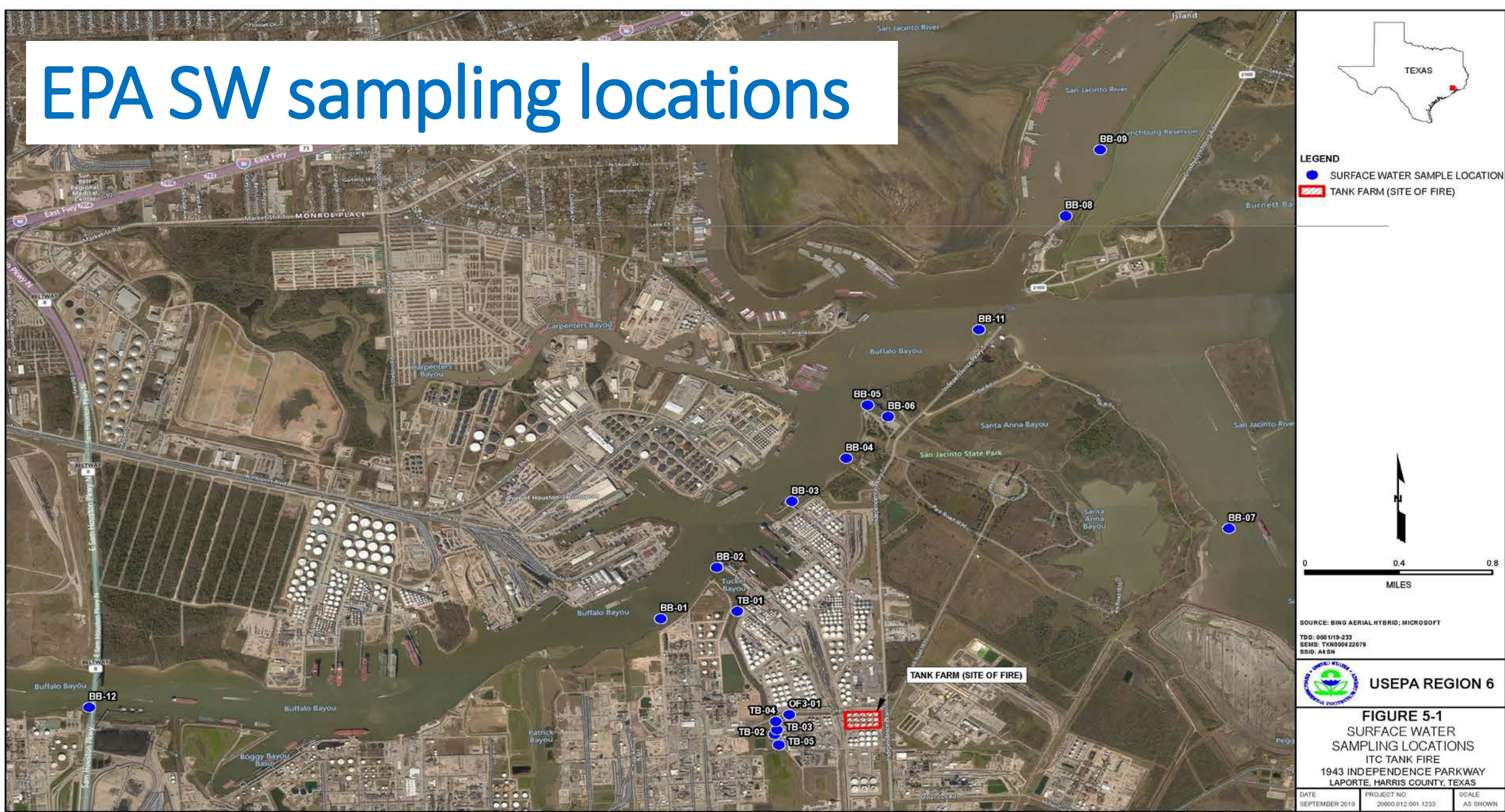


- In a collaborated effort, EPA and TCEQ conducted water sampling from Tidal Road ditch to the Houston Ship Channel via Tucker Bayou
- EPA
  - Sampling period: 3/20/2019 – 5/03/2019
  - Locations: ~10 daily sample locations along Buffalo Bayou and San Jacinto River
  - Analyzed for: PFAS, VOCs, SVOCs, COD, and oil & grease.
- TCEQ
  - Sampling period: 3/23/2019 – 5/24/2019
  - Locations: locations downstream of EPA's location all the way to Galveston Bay
  - Analyzed for: 139 Constituents mostly organics/oil and grease
- Harris County and ITC also conducted separate water sampling efforts throughout the impacted area





# EPA SW sampling locations



FILE: D:\EPA\Region 6 - START IV\Superfund\ITC Tank Fire\Fire\rd\Figure 5-1 Surface Water Sampling Locations.mxd 11:31:40 AM 9/26/2019 wilderj





# Wildlife Response



- TPWD coordinated the Wildlife Response with assistance from USFWS
- On April 3, 2019 EPA with NOAA SSC support requested an emergency ESA consultation via DOI with USFWS
- Determined that no potential endangered species were present in the response action area
- A hotline was created to report sightings of impacted wildlife, and the rehabilitation center was established in Baytown, TX





# Wildlife Response



Type	Dead in the Field
Fish	67
Avian	58
Mammals	7
Reptiles	8

Type	Released from Rehabilitation
Avian	31
Reptiles	40





# Wildlife Rehabilitation Center



Left: Red-eared slider, Right: American Coot





# Tank Deconstruction

---



- Deconstruction began May 13, 2019 utilizing hydraulic shears.
- The joint strike team (EPA, TCEQ, and ITC) continued air monitoring until May 21, 2019.
- TCEQ along with ITC's contractors continued to collect air monitoring data.



# Tank Deconstruction

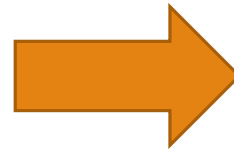
---



- As of June 17, 2019: Pygas tanks (Tank 80-15, 80-14, 80-10, 80-7) and toluene tank (80-13) deconstructed and removed
- ITC proceeded to deconstruct the remaining tanks



# June 19, 2019 Transition Emergency Response to Remediation



- 
- EPA OSC Adam Adams / [adams.adam@epa.gov](mailto:adams.adam@epa.gov) / 214-665-2779
  - TCEQ Anthony Buck/[anthony.buck@tceq.texas.gov](mailto:anthony.buck@tceq.texas.gov)/512-239-1511
    - November 6, 2019
    - Thank you
  - Any Questions? [www.response.epa.gov/itctankfire](http://www.response.epa.gov/itctankfire)





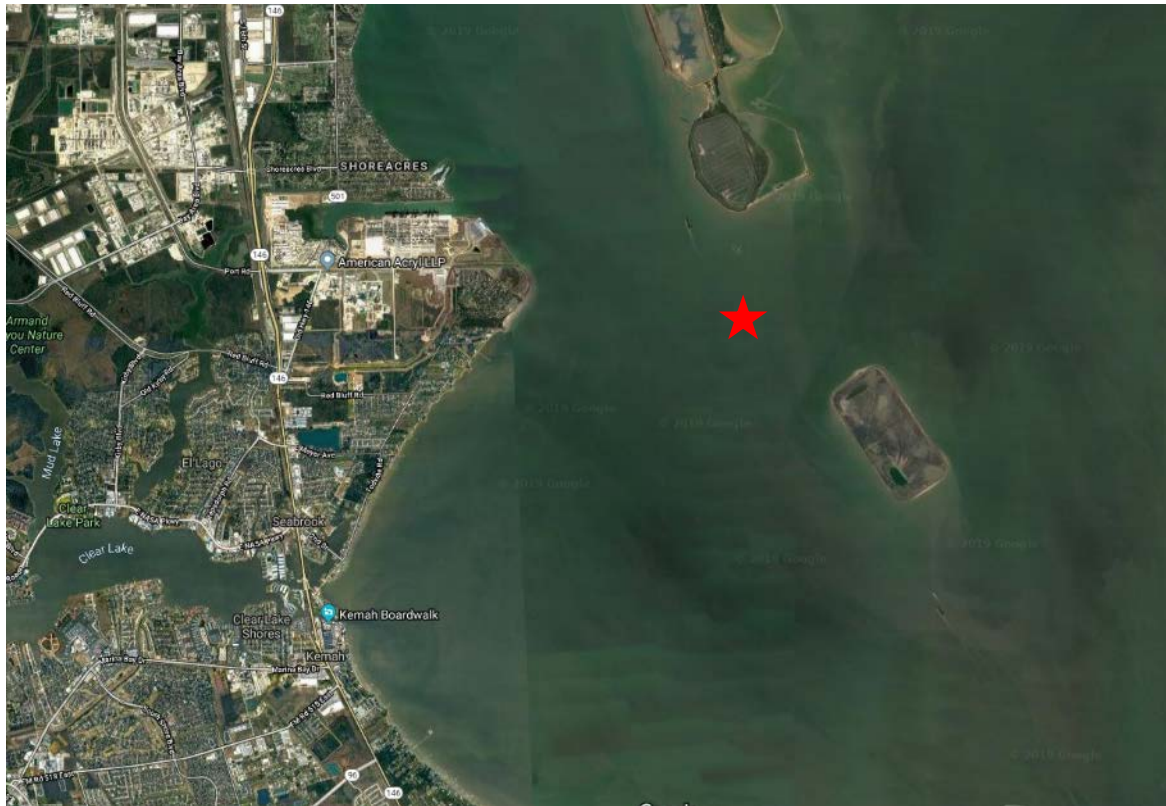
# Bayport Channel Collision Houston, Texas



**CDR Jarod Toczko**  
**Chief of Incident Management, Sector Houston-Galveston**

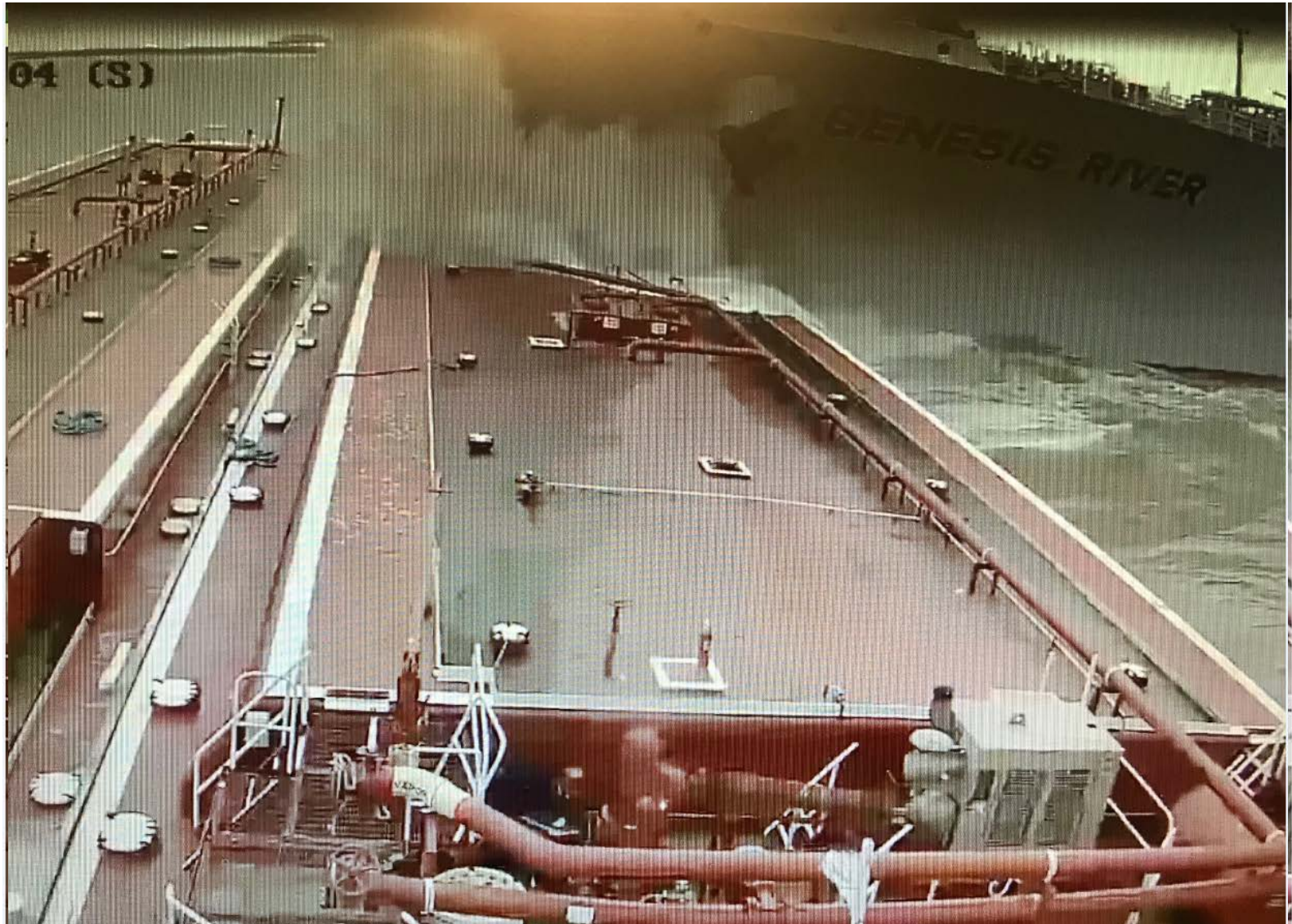


# Situation / Incident Location



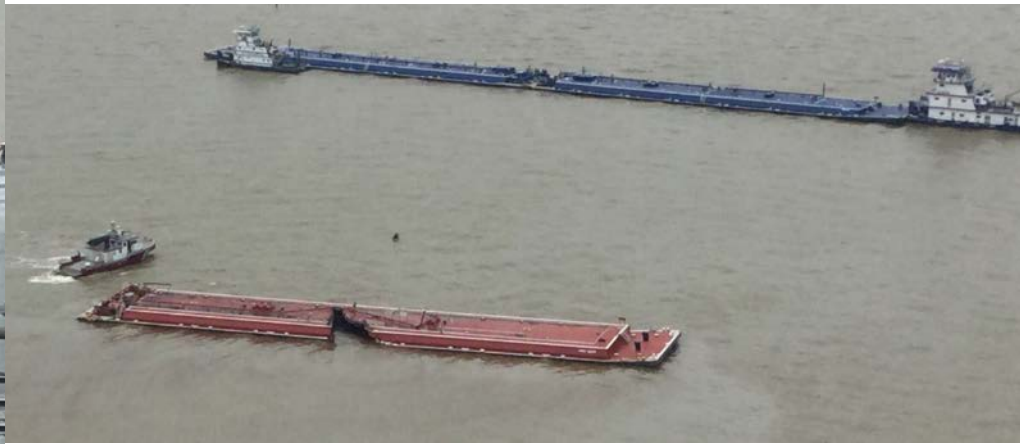


# Moment of Impact





# Initial Incident Description & Immediate Aftermath





# Actions to Mitigate Discharge

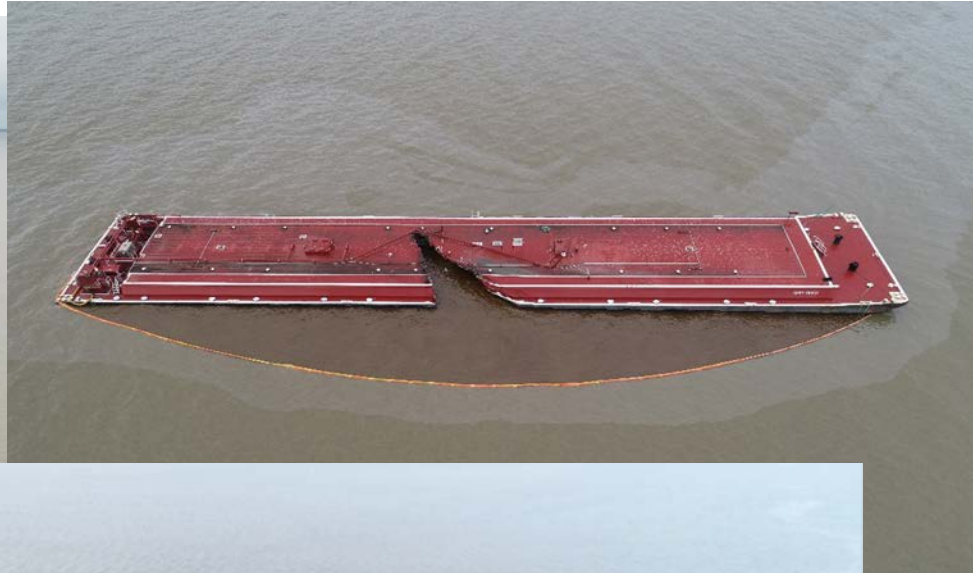


- Immediate closure the HSC Between Lights 61 and 75.
- Established Emergency Safety Zone & closure of Clear Creek Channel.
- Temporary Flight Restriction for 1NM Radius & 5,000FT AGL.
- Initial ICP established at Sector Houston-Galveston.
- Issued Press Release via PADET Houston.
- VRP Activation & Booming strategies employed on scene & at ESAs.
- Contacted NOAA for Trajectory, Fate Analysis and Resources at Risk Assessment.
- Mobilized Salvage Company to Assess & Stabilize Damaged Barges.
- Identified layberth & directed M/T GENESIS RIVER to Bayport Mooring
  - Shifted vessel damage assessment & investigation from UC to Sector Port State Control, IO Shop, and NTSB.





# Securing the Scene



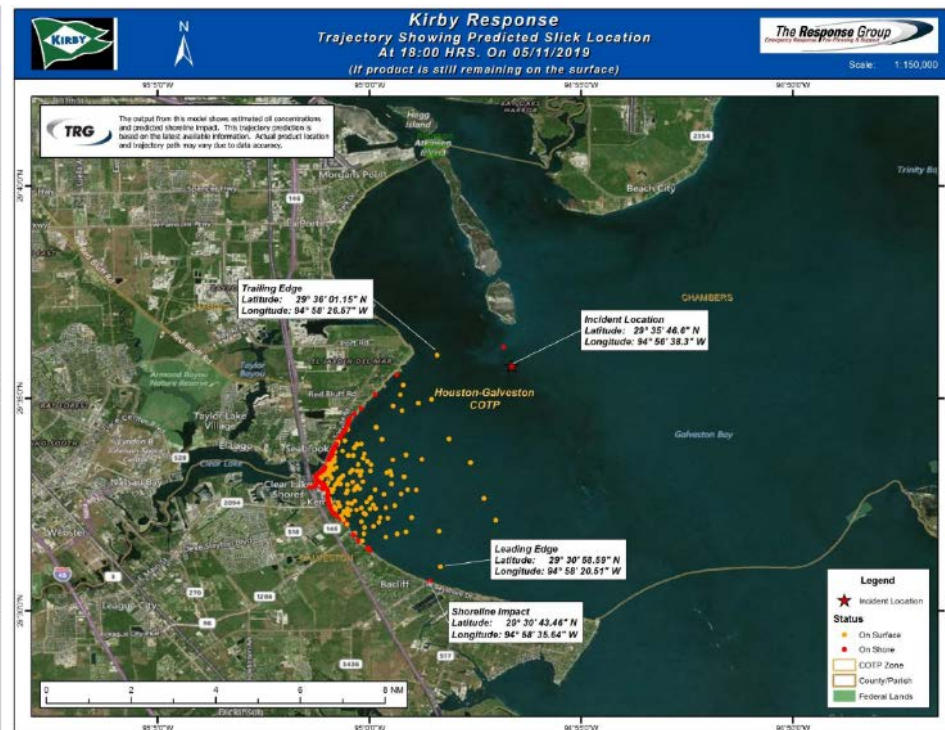
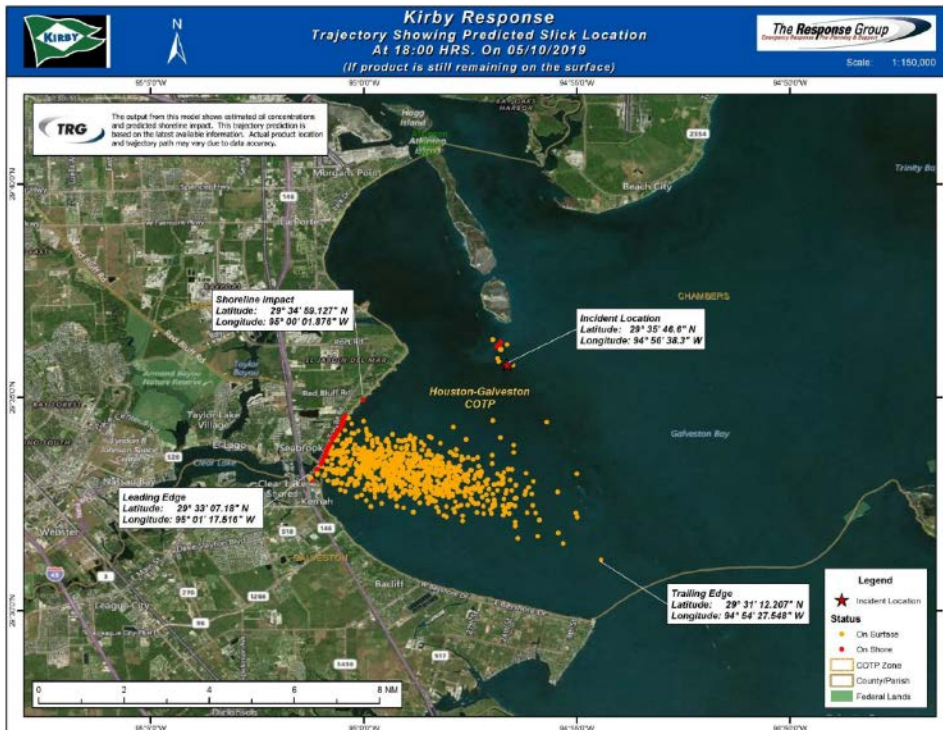


# Sheen Migration/Trajectory



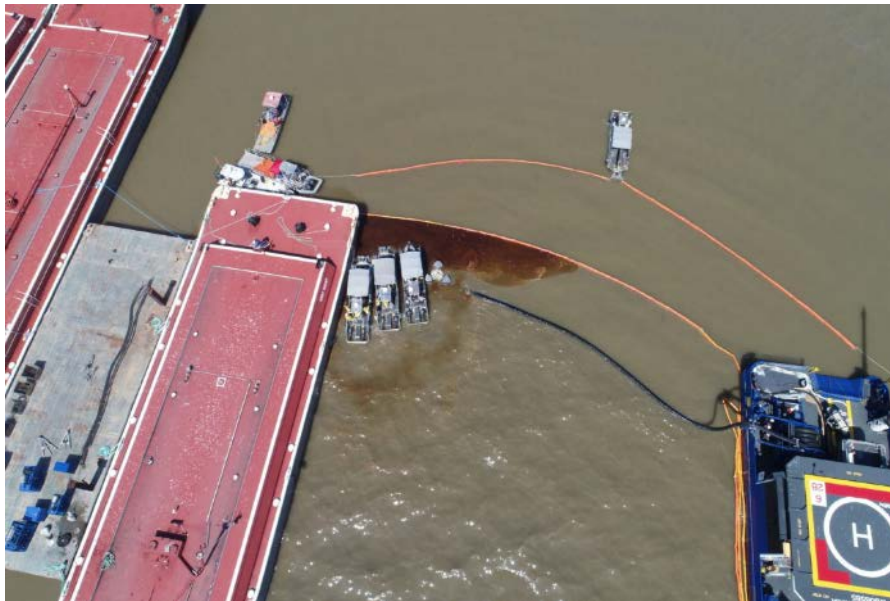
## 12 Hour Trajectory

## 24 Hour Trajectory





# Recovery Operations





# Product Complexities & Hazards



- Highly volatile light end product.
- Unknown rate of discharge complicates trajectory/fate analysis.
- Large plume: possible flammable atmosphere up to 1 mile & toxic air concentrations 2 miles downwind.
- Air Monitoring imperative for toxic and flammable atmospheres.

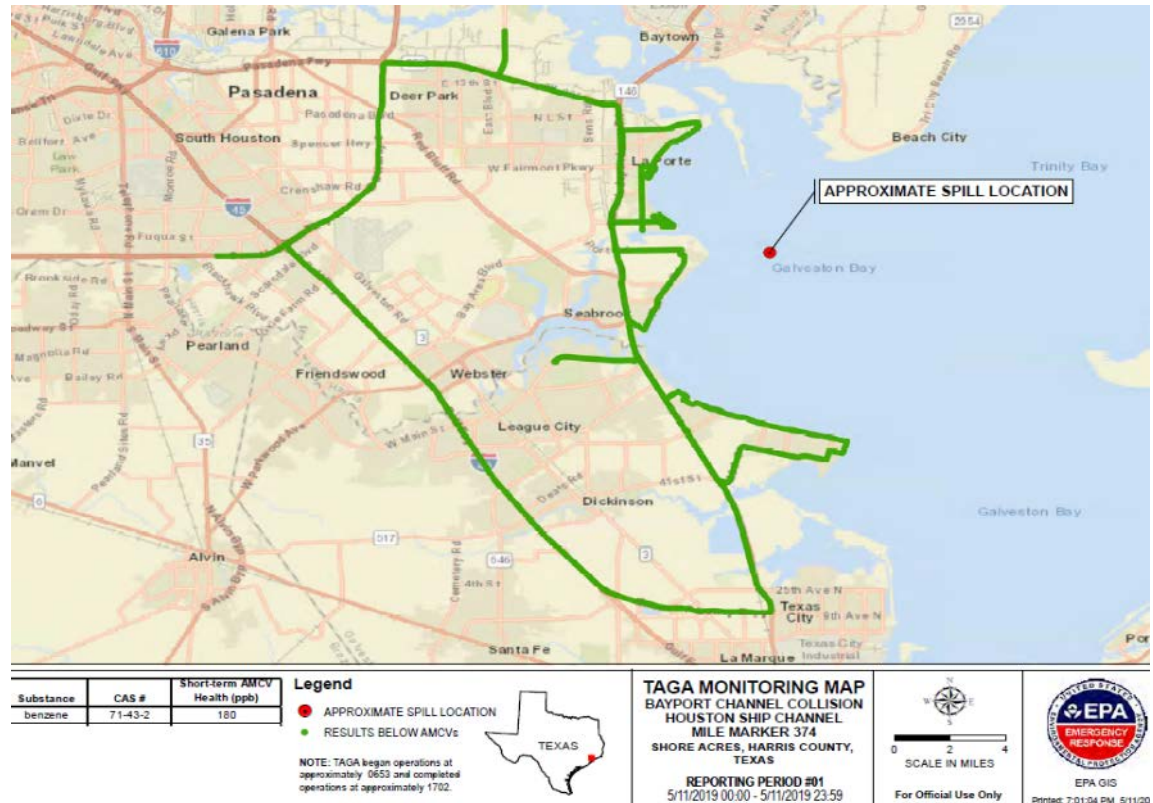




# Air Monitoring



- EPA TAGA Bus
- TCEQ
- TGLO
- CTEH
- Port of Houston Fire
- Local Fire Hazmat Teams
- Private Entities
- Plume impact realized over 5 County Area
- Local 911 Overwhelmed with reports.
- Impacts Tourism Locations on a Friday night.
- Need for Local Public Health Officials Presence in ICP/UC.



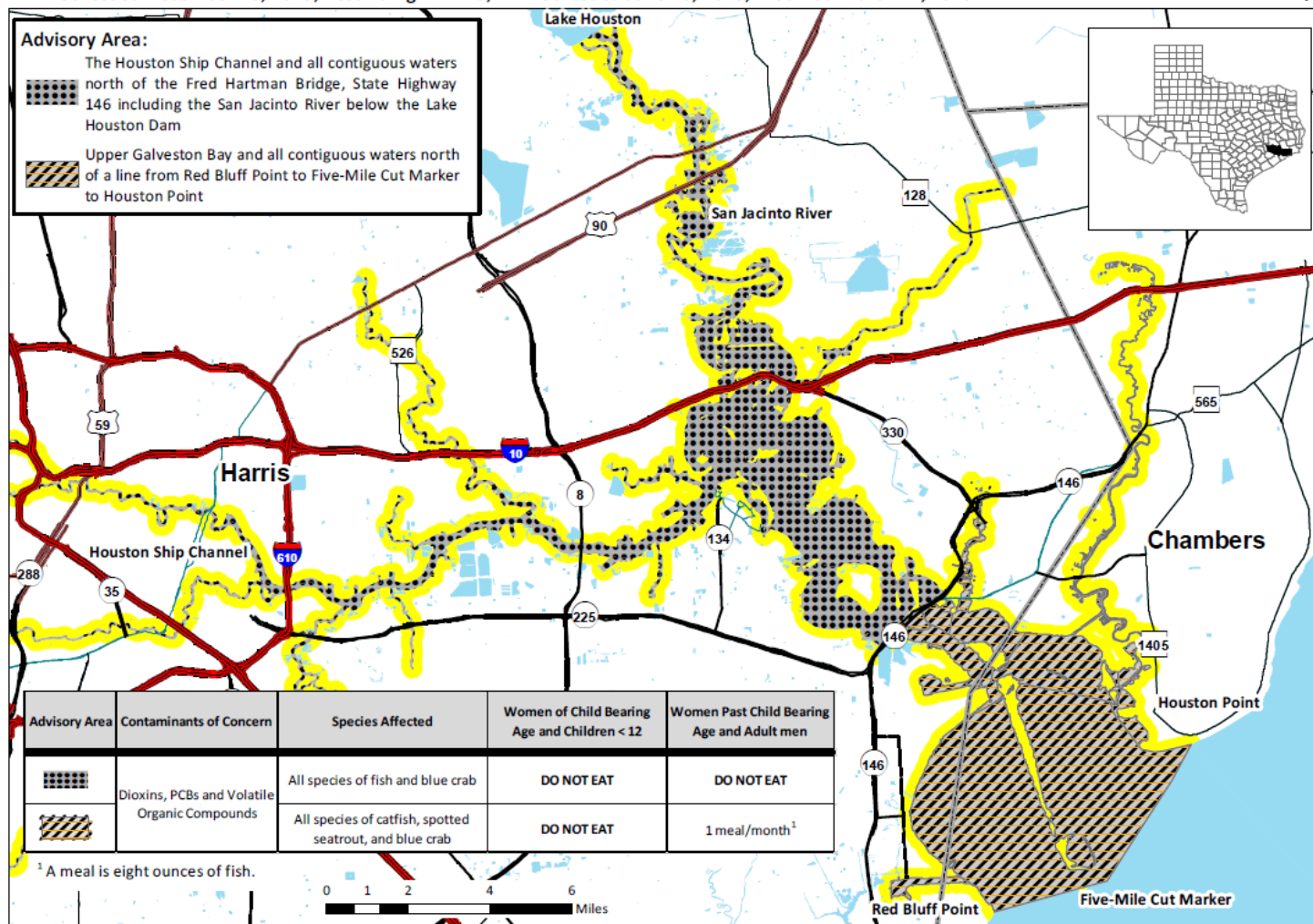


# Public Health Guidance



## Galveston Bay Estuary (Map 1) – Houston Ship Channel, San Jacinto River, and Upper Galveston Bay Chambers and Harris Counties

ADV-55 Issued December 18, 2015; Rescinding ADV-49; ADV-50 Issued June 26, 2013; Modified March 27, 2019





# CDC / ATSDR



- Public Health Messaging
- Coordination with local Poison Control Centers and County/State Health Officials
- In person Press Conference Support & analysis/evaluation of air monitoring results.





# Significant Waterway Impact



- Waterway contamination and elevated Benzene levels in the heart of the channel leading to the largest petro-chemical port complex in the nation.
  - 1-Day COTP Closure of HSC between Lights 61 and 75
  - 3-Day COTP Closure of Clear Creek Channel
  - “Daylight Only” and One-way Traffic restrictions in place for 5 days.





# Impacts to Tourism & Recreation





# Emergency Informal Consultations



- DOI – Susan King
- USFWS – Denise Ruffino, Chip Wood, David Hoth
- NOAA-NMFS – Joseph Cavanaugh, David Dale
- Texas SHPO – Amy Borgens
- Deceased Wildlife - 3 Birds, 2 mammals (1 Marine), 30 fish, and 40 crabs.



**TEXAS  
HISTORICAL  
COMMISSION**

*The State Agency for Historic Preservation*



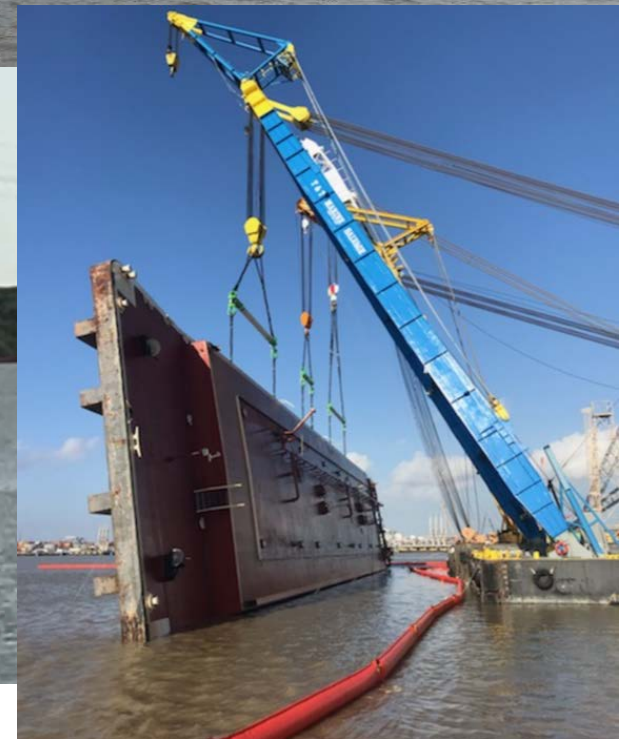
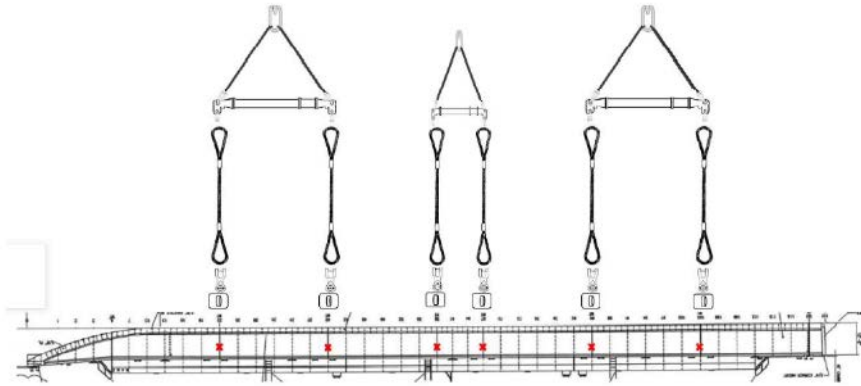
# Final Transit





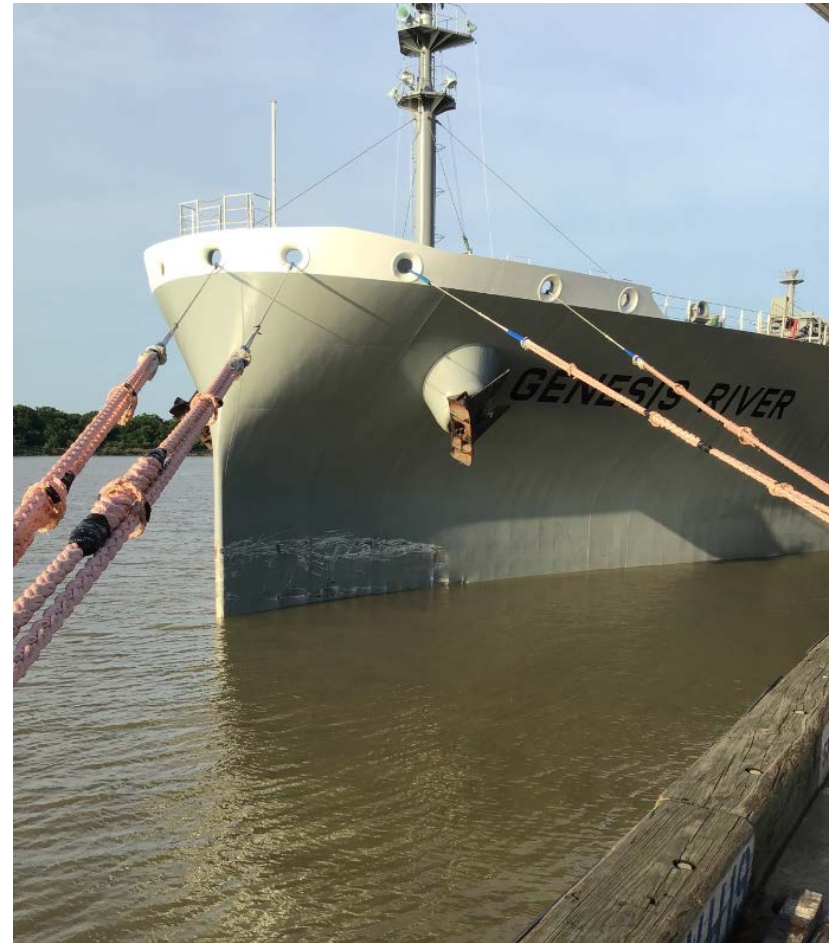


# Parbuckling Operation





# M/T GENESIS RIVER





# National Level Media Interest



- Live Press Conference and 25 published media releases.
- Covered by Associated Press, Reuters, CNN, Fox News, ABC National, Bloomberg, Yahoo Finance, USA Today, & Newsweek.
- Daily Port Coordination Team Briefs.

## Tanker collision sends thousands of gallons of gas product leaking into Houston shipping channel

By MARK OSBORNE May 11, 2019, 1:26 AM ET

Share Tweet



**WATCH** | Environmental concerns after a gas barge collision in the Gulf Coast





# Response by the Numbers



- Required Response and Mobilization of:
  - Nearly 1,500 Federal, State, Local, Responsible Party & Contracted personnel from 82 Organizations.
  - 90 Work Boats, 5 Cranes
  - 16 Skimmers
  - 20,550+ feet of boom deployed
- 29 Day Emergency Response Effort
  - 470,400 gallons of Reformate estimated discharged
  - 191,982 gallons of oily-water recovered
  - 1.6+ Million gallons of pure lightered product recovered from barges
  - 20+ miles of shoreline required assessment/clean-up







Questions?



# Federal Report Out



## RRT-6 Fall 2019 Meeting

6 Nov 2019





Role	RRT Member	Contact Info
Co-Chair	Mr. Michael Sams	(504) 671-2234 <a href="mailto:Michael.K.Sams@uscg.mil">Michael.K.Sams@uscg.mil</a>
Co-Chair Alternate	LT Keyth Pankau	(504) 671-2235 <a href="mailto:Keyth.A.Pankau@uscg.mil">Keyth.A.Pankau@uscg.mil</a>
Coordinator	Mr. Todd Peterson	(504) 671-2232 <a href="mailto:Todd.M.Peterson@uscg.mil">Todd.M.Peterson@uscg.mil</a>





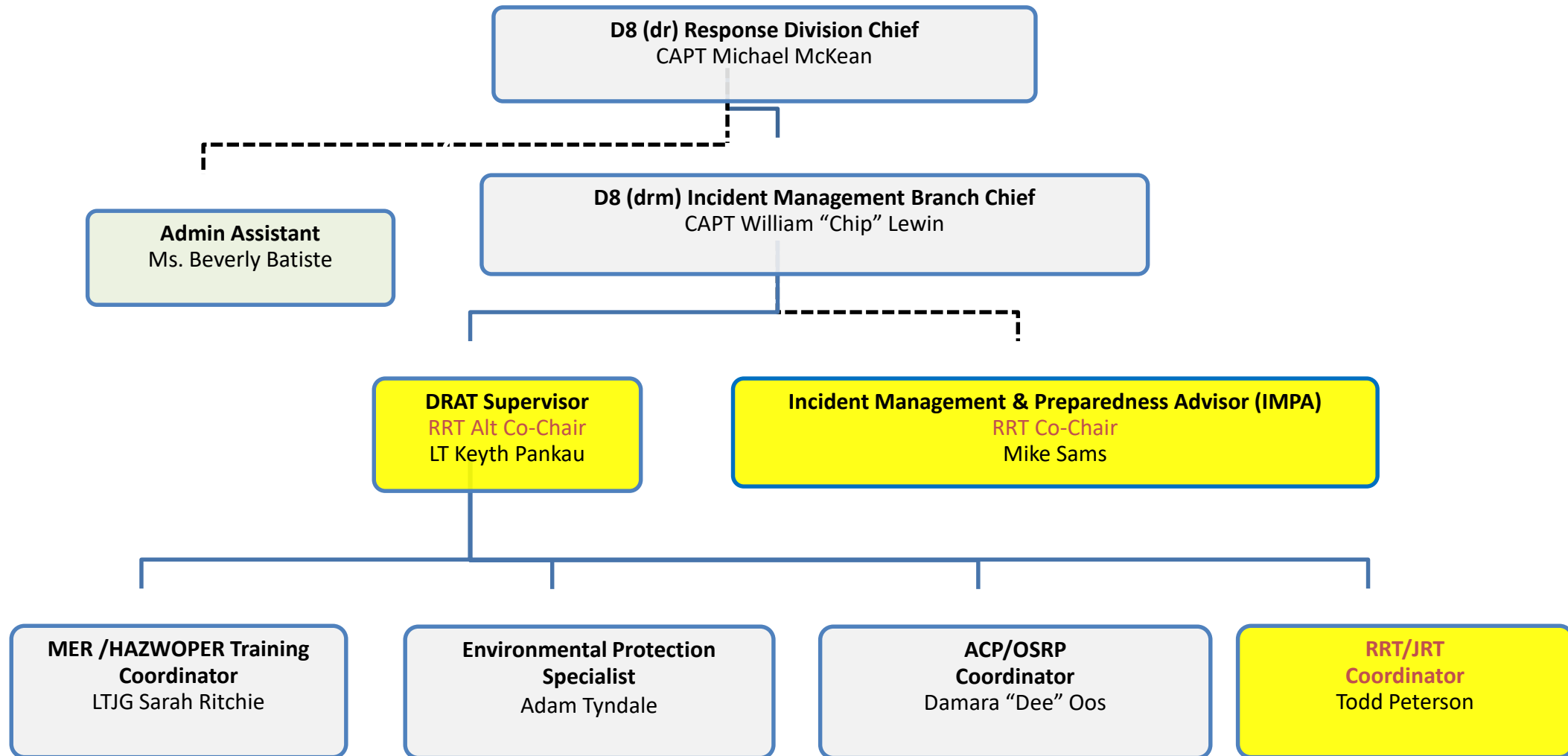
# Overview

- National Review Panel – ACPs
- Environmental Consultations
- High Water - Inland Rivers
- Hurricane Barry
- BSEE-USCG ACP Project
- BSEE-USCG GOM OCS Pollution Risk Project





# D8 (drm) Incident Management Branch







# Laws/Regulations/Policies

- **CG Headquarters:**
  - 2019 OSRO Guidelines
  - NRT Area Contingency Plan Workgroup
  - ESA Section 7
- **CGD 8:**
  - ESF-10 Appendix in coastal ACPs
  - Environmental Health Support Guidance
  - Pollution Planning, Preparedness, and Response Areas of Emphasis
  - ACP Policy Update
  - Operational Planning Directive





# Accomplishments

Since last RRT meeting  
27-28 Mar 2019

## Fed/State/Local planning and coordination efforts

Description	Location	Dates
3 <sup>rd</sup> Annual Clean Waterways Conference	Indianapolis, IN	16-18 Apr 2019
2019 National Response Team (NRT) - Regional Response Team (RRT) Co-Chairs Meeting	Chicago, IL	30 Apr-2 May 2019
Texas Statewide AC Meeting	The Woodlands, TX	21 May 2019
Louisiana Statewide AC Meeting	Baton Rouge, LA	5 Jun 2019
Louisiana Sea Grant College - Oil Spill Science Seminar	Lacombe, LA	13 Aug 2019
ICS-300 Training	St. Louis	20-22 Aug 2019
NOLA FOSCR College	New Orleans, LA	16-20 Sep 2019
Environmental Consultation Training	Lake Charles, LA	23-24 Sep 2019
NRT Area Contingency Plan Workgroup	Minneapolis, MN	24-26 Sep 2019
29 <sup>th</sup> Annual Clean Gulf Conference	New Orleans, LA	29-31 Oct 2019





# Outlook

Until Next RRT meeting  
6-7 May 2020

## Fed/State/Local planning and coordination efforts

Description	Location	Dates
Louisiana Statewide AC Meeting	Baton Rouge, LA	6 Feb 2020
MEXUSGULF WS 2020	New Orleans, LA	18-19 Mar 2020
4 <sup>rd</sup> Annual Clean Waterways Conference	Indianapolis, IN	7-9 Apr 2020
Texas Statewide AC Meeting	Houston, TX metro	16 Apr 2020
2020 National Response Team (NRT) - Regional Response Team (RRT) Co-Chairs Meeting	Seattle, WA	20-23 Apr 2020
International Oil Spill Conference	New Orleans, LA	11-14 May 2020



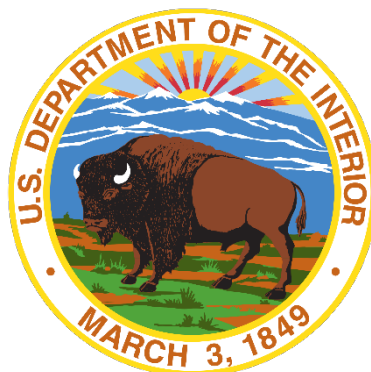
# Federal Report Outs – Department of the Interior (DOI)



## RRT-6 Fall 2019 Meeting

6-7 Nov 2019





DOI Primary	Regional Environmental Officer (REO) - Albuquerque	Susan	King	<a href="mailto:susan_king@ios.doi.gov">susan_king@ios.doi.gov</a>
DOI Alternate	REO – Denver	Courtney	Hoover	<a href="mailto:courtney_hoover@ios.doi.gov">courtney_hoover@ios.doi.gov</a>
BSEE	Senior Preparedness Analyst	Gary	Petrae	<a href="mailto:gary.petrae@bsee.gov">gary.petrae@bsee.gov</a>
FWS	National Contaminants Coordinator	Barry	Forsythe	<a href="mailto:barry_forsythe@fws.gov">barry_forsythe@fws.gov</a>
FWS	Contaminants Coordinator, Interior Regions 6, 7	Lynn	Wellman	<a href="mailto:lynn_wellman@fws.gov">lynn_wellman@fws.gov</a>
FWS	Senior Biologist, Interior Region 2	Felix	Lopez	<a href="mailto:felix_lopez@fws.gov">felix_lopez@fws.gov</a>



## 12 Interior Region Names Based on Watersheds



## Status of DOI Reorganization





# Executive Summary

<b>Challenges</b>	<ul style="list-style-type: none"><li>➤ Significant staff shortages<ul style="list-style-type: none"><li>➤ REO, FWS, e.g.</li></ul></li></ul>
<b>Lessons Learned</b>	<ul style="list-style-type: none"><li>➤ Notifying Bureaus of spills</li><li>➤ Facilitating ESA consultations</li></ul>
<b>Best Practices</b>	<ul style="list-style-type: none"><li>➤ FWS-USCG-REO ESA consultation development:<ul style="list-style-type: none"><li>➤ Programmatic approach for typical USCG response actions in Louisiana (streamlines consultation)</li><li>➤ Pull-down menu ESA emergency consultation form</li></ul></li></ul>





# Key Personnel Changes

Role	Incoming	Outgoing
Regional Environmental Officer	Susan King	Acting to Permanent
BSEE OSPD Division – Acting Oil Spill Preparedness Section Chief	Sara Moore	Bryan Rogers
FWS Contaminants Biologist – Region 4 (LA, AR)	Robert Tawes (POC)	Steve Masson
FWS Oil and Gas Specialist, LA	Jimmy Laurent	Barret Fortier
FWS Oil and Gas Support (Refuges), LA	Chelsea Stringfield	Jim Pancionne





# Metrics/Trends/Challenges

## BSEE (FY 2019)

- 211 Oil Spill Response Plans reviewed
- 12 Government Initiated Unannounced Exercises (GIUEs) (3 with equipment deployment)
- 80 Equipment preparedness verification inspections (depots)
- 43 Functional or Full-scale exercises evaluated
- 68 Response team training & equip. deployment exercises evaluated

## REO, FWS (April – October 2019)

- 3,840 National Response Center notifications reviewed
- 16 EPA Region 6 response notices received/supported
- 34 USCG 8<sup>th</sup> District responses received/supported
- 1 Incident-Specific RRT call- in situ burn, Time Energy, Cox Bay, LA





# Laws/Regulations/Policies

## Endangered Species Act (ESA)

- **ESA final regulations revised, effective Oct 28**
- **Eastern black rail, Louisiana pinesnake** - still Proposed
- **American burying beetle** – Proposed to be downlisted from Endangered to Threatened in May; reopened for comment period, ending 29 October







# Accomplishments

## Training

Description	Date
FWS- Endangered Species Act rules/pilot- SE Regions 2, 4)	14-18 Oct
BIA Southwest Regional Office- ICS 300,400	Summer 2019

## Exercises/Workshops

Description	Dates
Incident-Specific (IS) RRT Exercises: Surface Collecting Agents/Herders, Subsea Dispersant Injection	9 May; 21 Aug
12 GIUEs, 43 Functional or Fullscale Exercises	BSEE
Tabletop, Haggerman Natl Wildlife Refuge, TX	29 Oct

## Fed/State/Local planning and coordination efforts

Description	Dates
Endangered Species Act – USCG, EPA technical assistance/emergency consultation support – FWS, occasionally REO facilitating	Throughout
Clean Gulf conference (BSEE, BOEM, Office of Emergency Management, DOI/Office of Env Policy & Compliance)	28-31 Oct
BSEE Offshore Response Information for Area Contingency Plans	FY2020 – FY2023
Cultural resources coordination (USCG, LOSCO, LA SHPO, REO)	August





# Outlook

## Training

Description	Dates
DOI Inland Oil Spills courses	FY 2020, 2021
Historic Properties Specialist training, NPS	FY 2020, 2021

## Exercises/Workshops

Description	Dates
Aerial dispersants exercise – RRT call	14 Nov 2019
Various – REO attending	FY 2020

## Fed/State/Local planning and coordination efforts

Description	Dates
RRT 6 Surface Washing Agents Working Group	Ongoing
ESA programmatic consultations, USCG & FWS	Ongoing
Area Committee meetings	FY 2020



# Federal Report Outs



## RRT-6 Fall 2019 Meeting

6 - 7 November 2019

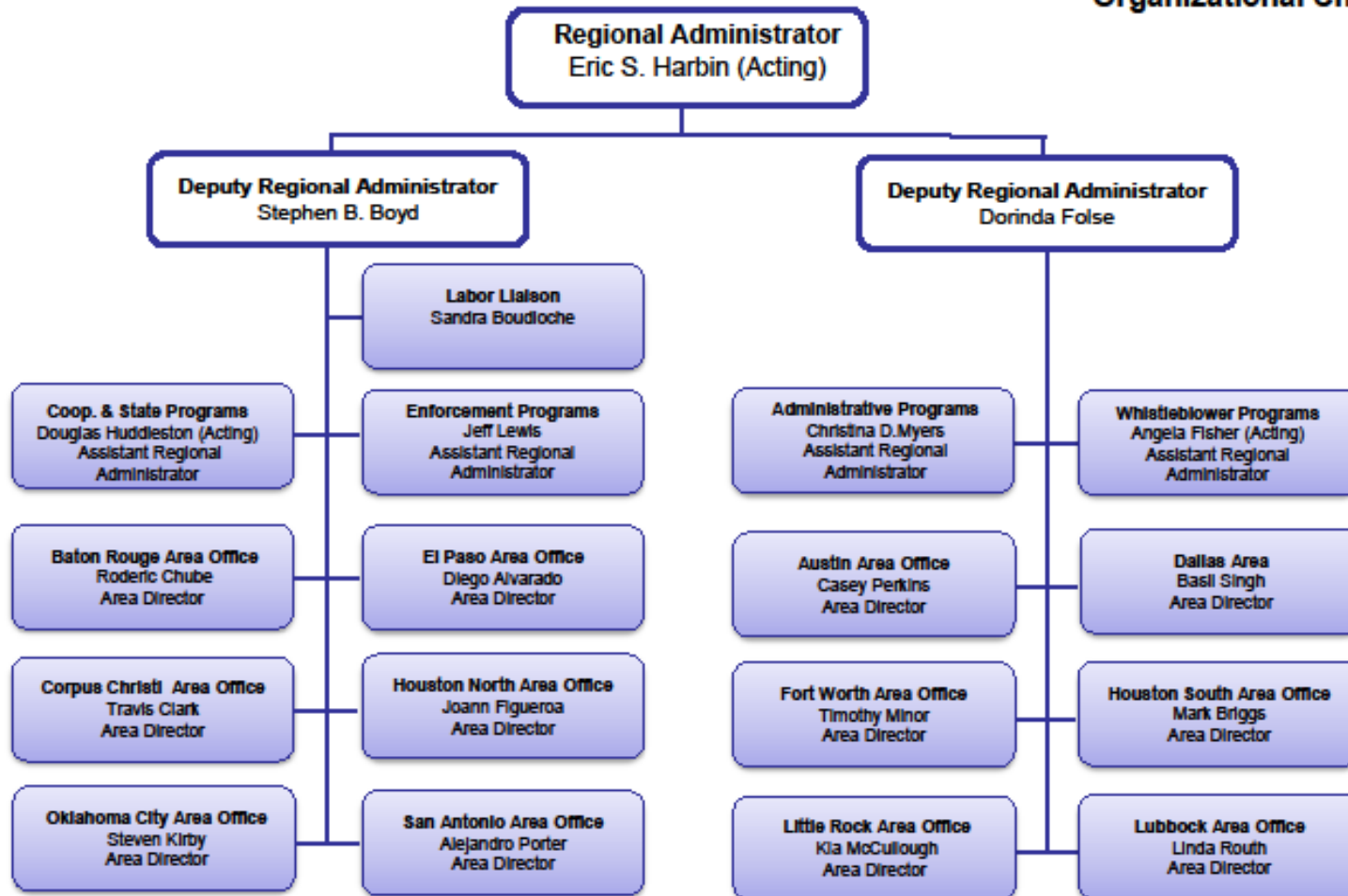




Primary	U.S. DOL / OSHA	Doug	Huddleston	<a href="mailto:Huddleston.Douglas@dol.gov">Huddleston.Douglas@dol.gov</a>
Alternate	U.S. DOL / OSHA			



## REGION VI Organizational Chart



Updated 11/4/2019





# Laws/Regulations/Policies

## **OSHA “Establishment Search” Tool Upgrade**

- OSHA is working on a system that will allow Local Emergency Planning Committee (LEPC) / State and Tribal Emergency Response Commission (SERC) / (TERC) officials to view OSHA citations involving hazardous chemicals at facilities located within their state or counties.

## **Region VI – FACT SHEET on OSHA’s Establishment Search**

- Region VI worked with the National Office to develop a Fact Sheet that provides instructions on how to use OSHA’s Establishment Search for local sites that have received hazardous chemical violations (1910.1200, 119, 109, 106, etc.).
- Region is awaiting National Office approval – once approved, plan is to disseminate the fact sheet through LEPC’s / SERCs / TERCs.





# Laws/Regulations/Policies

## **Regional Emphasis Program (REP) for Fertilizer Grade Ammonium Nitrate (FGAN) and Agricultural Anhydrous Ammonia Facilities**

- The intent of this emphasis program is to reduce injuries, illnesses and fatalities related to workers' exposures in fertilizer grade ammonium nitrate (FGAN) and agricultural anhydrous ammonia mixing/blending, storage, and distribution facilities.
- Original REP effective October 1, 2018, and is currently being approved for a 2-year extension (November 1, 2019 to December 2021).
- Under the REP, OSHA will go conduct on-site inspections and review production operations, working conditions, and safety and health programs and management systems.





# Laws/Regulations/Policies



## OSHA REGIONAL NOTICE

U.S. DEPARTMENT OF LABOR **Occupational Safety and Health Administration**

<b>DIRECTIVE NUMBER:</b> 02-02-031	<b>EFFECTIVE DATE:</b> October 1, 2018
<b>SUBJECT:</b> Regional Emphasis Program for Fertilizer Grade Ammonium Nitrate (FGAN) and Agricultural Anhydrous Ammonia Facilities	
<b>REGIONAL IDENTIFIER:</b> Region VI	

*Updating*

### ABSTRACT

- Purpose:** The purpose of this Notice is to establish a Regional Emphasis Program (REP) to reduce injuries, illnesses and fatalities related to workers' exposures in fertilizer grade ammonium nitrate (FGAN) and agricultural anhydrous ammonia mixing/blending, storage, and distribution facilities.
- Scope:** This Notice applies to all worksites in Arkansas, Louisiana, Oklahoma, and Texas, and those worksites in New Mexico that are under Federal Jurisdiction.
- References:** OSHA Instruction CPL 02-00-160, Field Operations Manual (FOM)  
OSHA Instruction CPL 04-00-001, Procedures for Approval of Local Emphasis Programs (LEPs)  
OSHA Instruction CPL 02-00-051, Enforcement Exemptions and Limitations under the Appropriations Act
- Cancellations:** None
- State Plan Impact:** Region VI 21(d) Consultation Project Offices in Arkansas, Louisiana, Oklahoma, and Texas will provide outreach, consultation services, and training to affected employers as requested. State Plans are strongly encouraged to adopt this program.
- Action Offices:** Region VI Area Offices  
Region VI Consultation Project Offices  
Dallas Regional Office
- Originating Office:** Dallas Regional Office – Enforcement Programs





# Laws/Regulations/Policies

## Chemical Facility Security and Safety Working Group Charter

### Background

The Working Group was initially established as a response to several catastrophic chemical facility incidents in accordance with Executive Order (EO) 13650 "Improving Chemical Facility Safety and Security" on 08/01/2013.

- The Charter was re-signed in the Fall of 2018.

### Membership

The National Working Group consists of representatives from the following:

- Department of Homeland Security, (OHS), Office of Infrastructure Protection
- Department of Labor, (DOL), Occupational Safety and Health Administration (OSHA)
- Environmental Protection Agency's (EPA) Office of Land and Emergency Management

### Additional representatives include, but are not limited to:


- Department of Justice, Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF)
- Department of Transportation (DOT)
- Department of Agriculture (USDA)





# Improving Chemical Facility Safety and Security

<https://www.osha.gov/chemicalexecutiveorder/>




UNITED STATES  
DEPARTMENT OF LABOR


f t i r e y

Occupational Safety and Health

OSHA ▾ STANDARDS ▾ TOPICS ▾

Directorate of Standards and Guidance / Chemical Facility Safety and Security





History >

**Tools and Resources >**

### Tools and Resources

Similar to the consolidated [Federal Action Plan](#), the tools and resources below have been organized into five elements:

[Strengthening Community Planning and Preparedness](#)

- [Computer-Aided Management of Emergency Operations \(CAMEO\)](#). EPA suite of software applications/tools used to plan for and respond to chemical emergencies.
- [Envirofacts](#). EPA system that provides search access to multiple environmental databases that may include data on such things as toxic chemical releases, water discharge permit compliance, hazardous waste handling processes, Superfund status, and air emission estimates, among others.
- [Facility Registry Service \(FRS\)](#). EPA system that provides data about facilities, sites, or places of environmental interest to support EPA's mission of protecting human health and the environment.
- [Training.FEMA.gov](#). FEMA website offering more than 150 courses to help build critical skills first responders need to function effectively in mass consequence events.
- [Funding Resources](#). This webpage is a compilation of resources which can help communities improve their SERCs, TERCs, LEPCs, and TEPCs emergency planning and preparedness efforts.

### Policies and Regulatory Updates

- [OSHA Process Safety Management Appendix A Chemical Concentrations](#)
- [OSHA Process Safety Management RAGAGEP](#)
- [OSHA Process Safety Management Retail Exemption](#)
- [Issued RMP Final Amendments Rule](#)
- [Risk Management Program Reconsideration Rule](#). On May 17, 2018, EPA's Administrator signed a proposed rule requesting public comment on several proposed changes to the final RMP Amendments issued on January 13, 2017.
- [Process Safety Management](#). As an initial rulemaking step, and prior to publication of any changes to existing rules or enforcement policies, OSHA convenes a Small Business Advocacy Review Panel ("SBAR Panel") in accordance with the Small Business Regulatory Enforcement Fairness Act. OSHA held the SBAR Panel in order to get feedback on several potential revisions to OSHA's Process Safety Management Program (PSM) standard. The Panel's final report can be found at: <https://www.regulations.gov/document?D=OSHA-2013-0020-0116>
- [Chemical Facility Anti-Terrorism Standard](#). On January 18, 2019, President Trump signed into law the *Extension of Chemical Facility Anti-Terrorism Standards Program of the Department of Homeland Security* to extend the CFATS program for 15 months—through April 2020.
- [Reducing the Threat of Improvised Explosive Device Attacks by Restricting Access to Explosive Precursor Chemicals](#). Study conducted by The National Academies of Sciences, Engineering and Medicine commissioned by DHS.
- [Policy for Assessing a Civil Penalty under the CFATS Program](#).

Severely hazardous chemical releases and mitigation regulations. To address environmental and workplace risks. If you are a member of the Chemical Facility Safety and Security Working Group, please email [ChemSafe&Secure@hq.dhs.gov](mailto:ChemSafe&Secure@hq.dhs.gov).

agricultural anhydrous ammonia.





# Laws/Regulations/Policies

## **OSHA Process Safety Management (PSM) Standard Update**

OSHA convened a Small Business Advocacy Review Panel in order to receive feedback on potential revisions to OSHA's Process Safety Management Program (PSM) standard. Report issued August 1, 2016 – No revisions from this action.

- OSHA entered into the Small Business Regulatory Enforcement Fairness Act (SBREFA) process in October 2018.
- Public comments were solicited on the Information Collection Requirements contained within the PSM Standard and closed August 27, 2019.





# Investigations

## Intercontinental Terminals Company (ITC) Deer Park AGST Explosion

- This incident was investigated by our Houston South Area Office
- Total of 242 Above Ground Storage Tanks (AGST) – approximately 80,000 bbls each
- Fire reported in vicinity of Tank #80-8 manifold system
- Fire spread rapidly to the other adjacent tanks (total of ten (10) tanks out of fifteen (15) caught fire)
- Hazards - Naphtha, Blended Gasoline, Toluene, Xylene and Base Oil

**Conditions:** Tank 80-8 was in circulation after being injected with butane. Butane is injected in tank 80-8 to “boost” the octane level of product, which was Naphtha. The butane injection system is connected to the discharge piping of the pump for tank 80-8. The butane is supplied via trucks by third-party. Manifold system was installed in 1977. Last know API 653 inspection was June 2017.





# Synopsis / Hazards

ITC maintenance technicians performed an area walk-around twice a week and looked for any leaks around tanks, pumps, fittings, valves and piping. They also performed a monthly Spill Prevention Control and Countermeasure (SPCC) inspection. Both of these observations are visual-only inspection. Environmental Systems Department used to do SPCC inspection, but function was transferred to the maintenance department in February 2018.

- Ultrasonic Thickness (UT) testing conducted on piping “only if pipe leaked”
- No program / policy to check the pipe for “retirement thickness” (API 570)
- No established Mechanical Integrity Program (MIP) for the circuit piping
- No fixed gas monitors on the 2<sup>nd</sup> set of 80s tank farm to “detect leaking tanks”
- Sprinkler/Deluge system on 1st 80s manifold – None installed on 2nd 80 manifolds
- Total of two (2) maintenance technicians – One (1) maintenance tech was certified in API 653, but not certified in API 570





# Inspection Violations

OSHA issued a Citation that carried four (4) instances:

- 29 CFR 1910.119(d)(3)(ii) – Failure to follow NFPA 11 and NFPA 16 – Failure to ensure that foam generating equipment, such as the Foam-Concentrate Tank and Pump were constructed to resist or located to protect against exposure to fire
- 29 CFR 1910.119(j)(2) – Failure to implement written ITC Mechanical Integrity Program to maintain the serviceability of Injection/Recirculation piping and components – Failure to maintain ongoing fitness for service of Tank 80-8 injection/recirculation piping and components
- 29 CFR 1910.119(j)(4)(ii) – Failure to comply with API 570 “Piping Inspection Code” and API RP 574 “Inspection Practices for Piping System Components” – Failure to ensure inspection and testing on Tank 80-8 cargo pump discharge circulation piping and injection point process piping
- 29 CFR 1910.119(j)(5) – Failure to correct deficiencies on process equipment, in that the piping used to inject Butane with Naphtha to boost octane levels in Tank 80-8 was below its minimum required thickness





# ICT Deer Park AGST Explosion / Fire



Photo Courtesy of KTRK Houston





# AGST 80-8 Pump Manifold Damage



**Photo of the manifold near butane injection system coupling where suspected leak developed and precipitated the explosion and fire**





**Photo of the partial 2 inch butane injection piping  
at the manifold - noting rupture at feed piping**





**Overhead view of the Manifold and Associated Piping**



# Questions??

**Doug Huddleston, CSP**  
**OSHA Region VI**  
**Office Number: 972-850-4167**  
**[huddleston.douglas@dol.gov](mailto:huddleston.douglas@dol.gov)**



# Federal Report Outs



## RRT-6 Fall 2018 Meeting

8-9 Nov 2018





Primary	U.S. DHS / FEMA	Christine	Hanson	<a href="mailto:christine.hanson@fema.dhs.gov">christine.hanson@fema.dhs.gov</a>
Alternate	U.S. DHS / FEMA	David	Bell	<a href="mailto:david.bell@fema.dhs.gov">david.bell@fema.dhs.gov</a>
Alternate	U.S. DHS / FEMA	Kenneth	Clark	<a href="mailto:Kennethg.Clark@fema.dhs.gov">Kennethg.Clark@fema.dhs.gov</a>
Alternate	U.S. DHS / FEMA	Kevin	Jaynes	<a href="mailto:kevin.jaynes@fema.dhs.gov">kevin.jaynes@fema.dhs.gov</a>





# Executive Summary

<b>Challenges-</b>	<ul style="list-style-type: none"><li>• FEMA HQ Devolution</li><li>• RISC meeting improvement</li><li>• MA Internal Controls</li></ul>
<b>Lessons Learned-</b>	
<b>Best Practices-</b>	





# Key Personnel Changes

Role	Incoming	Outgoing
IMAT Team 1 Operations Section Chief	Vacant	Steve Palladino
FEMA Integration Team (FIT) Members	Eric White (AR) Nick Bosch (NM) Karri DuBois (OK)	n/a
Hurricane Program Manager	Arianne Thomas	John Boesch
Senior Operations Specialist	Vacant	Lonnie Ward
Operations Specialist	Vacant	Arianne Thomas





# Metrics/Trends/Challenges

- Challenge: FEMA HQ devolution mission
  - R6 to assumes HQ duties, transfers our duties to R10
- Challenge: Regional Interagency Steering Committee (RISC) meeting improvement
  - Reworking RISC format to increase overall benefit
- Challenge: Mission Assignment (MA) internal controls
  - Disaster Recovery Manager





# Laws/Regulations/Policies

## **FEMA POLICY #104-010-2 Mission Assignments**

After 180 days without any financial activity, the MA is financially closed.

### **Exceptions:**

- Other federal agency (OFA) provides a valid justification
- Expenses incurred within the last 180 days not yet billed





# Accomplishments

## Training

Description	Dates
FEMA R6 Regional Training Day	Every 2 <sup>nd</sup> Thursday
FEMA Response FIT Training	15 – 18 Oct 19

## Exercises/Workshops

Description	Dates
FEMA Region 6 State Historic Preservation Officer and Environmental & Historic Preservation Team Workshop, Denton, Tx	17-18 Sep 19
Gulf of Mexico Alliance Mid-year Meeting, Corpus Christi, Texas	8 Oct 19
Fuerzas Amigas, Ft. Sam Houston, San Antonio, Texas	21-24 Oct 19

## Fed/State/Local planning and coordination efforts

Description	Dates
FEMA R6 Training and Exercise Planning Working Group National Level Exercise 2020	October 24
FEMA HQ Devolution Coordination Meeting	October 21-24
Texas Unified Federal Review Team, 4 <sup>th</sup> Quarter Call	October 24, 2019





# Outlook

## Training

Description	Dates
FEMA R6 Regional Training Day	Every 2 <sup>nd</sup> Thursday
Nuclear Weapons Incident Response Team (NWIRT), Defense Nuclear Weapons School, Kirtland AFB, Albuquerque, NM	16-19 Dec 19
FEMA Response FIT Training	13-17 Jan 20 13-17 Apr 20

## Exercises/Workshops

Description	Dates
Logistics Transportation Tabletop Exercise	16-20 Mar
LA Hurricane Rehearsal of Concept Drill & Statewide Exercise	23 Mar – 3 Apr 20
R6 IMAT Exercise	4-8 May 20
National Hurricane Conference, Orlando FL	6-9 Apr 20
Logistics ESF 7 Summit, Washington DC	13-17 Apr 20

## Fed/State/Local planning and coordination efforts

Description	Dates
TDEM Logistics Capability Assessment, Austin, TX	13-15 Nov 19
Scholes Airfield Assessment, Galveston, TX	18-22 Nov 19
CISA ISAC/DAMS sector training, FEMA R6, Denton, TX	3-6 Dec 19
Bush Intercontinental Airport Assessment, Houston, TX	20-24 Jan 20
Louis Armstrong Airport Assessment, New Orleans, LA	3-7 Feb 20
FEMA R6 Regional Interagency Steering Committee (RISC) Meeting, Denton, TX	4-6 Feb 20





Alternate	U.S. DOC -- NOAA	Paige	Doelling	<a href="mailto:paige.doelling@noaa.gov">paige.doelling@noaa.gov</a>
Primary	U.S. DOC -- NOAA	Charlie	Henry	<a href="mailto:charlie.henry@noaa.gov">charlie.henry@noaa.gov</a>
Alternate	U.S. DOC -- NOAA	Brandi	Todd	<a href="mailto:brandi.todd@noaa.gov">brandi.todd@noaa.gov</a>

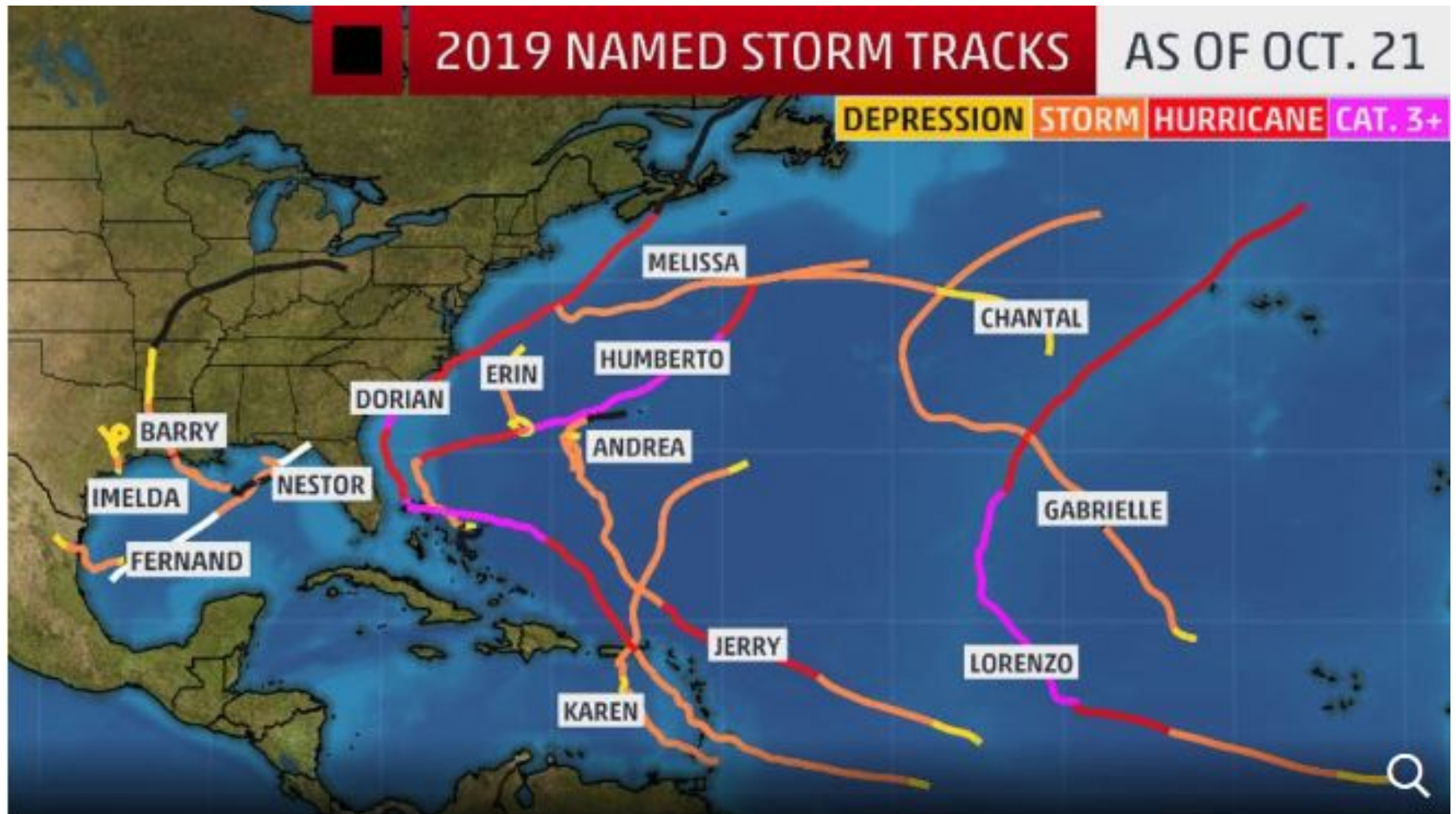




# Executive Summary

<b>Challenges</b> -	<b>Not as Busy Atlantic Hurricane Season</b> <b>Depressions – 19</b> <b>Total Storms – 15</b> <b>Hurricanes – 6 (3 were major hurricanes)</b>
<b>Lessons Learned-</b>	<b>Hurricane Workshop/Summit to capture lessons learned from the past three hurricane seasons. Primarily will be NOAA centered, but hey partners will be invited.</b>
<b>Best Practices-</b>	<b>“There is nothing gained by the second kick of a mule.”</b>





“It could have been much worse.”



# U.S. 2019 Billion-Dollar Weather and Climate Disasters



*This map denotes the approximate location for each of the 10 separate billion-dollar weather and climate disasters that impacted the United States from Jan–Sept 2019.*

TS Nestor and California Fires were after this graphic was made at the end of Sept.





# Key Personnel Changes

Role	Incoming	Outgoing
NOAA Office of Response and Restoration Chief	Scott Lung	Dave Westerholm







# Metrics/Trends/Challenges

- NSTR - Nothing Significant to Report





# Laws/Regulations/Policies

- NSTR - Nothing Significant to Report





# Accomplishments

## Training

Description	Dates
NSTR	

## Exercises/Workshops

Description	Dates
NSTR	

## Fed/State/Local planning and coordination efforts

Description	Dates
NSTR	





# Outlook

## Training

Description	Dates
Science of Oil Spills (SOS) Mobile, AL	TBD

## Exercises/Workshops

Description	Dates
FEMA National Level Exercise	May 2020



# U.S. EPA Region 6

## 30 Years of Emergency Responses



**Steve Mason**

**EPA Region 6**

**214 – 665 – 2276**

**[mason.steve@epa.gov](mailto:mason.steve@epa.gov)**



## **NRC REPORTS (LAST 30 YEARS NATIONALLY)**

**916,800 reports**

## **NRC REPORTS (LAST 30 YEARS REGION 6 EPA/USCG):**

**281,850 reports**

**31 % OF ALL REPORTS NATIONALLY**



# **EPA RESPONSES IN 30 YEARS:**

**1,055 RESPONSES TO  
HAZARDOUS SUBSTANCE /  
OIL SPILLS / NATURAL  
DISASTERS**



webeoc.epa.gov/eoc7/controlpanel.aspx


Welcome, **mason.steve@epa.gov** (Logout). You are logged in as **R6 Duty Officer** in **---Daily Operations @ EPA Reg**

**Hotline Log**

Daily Operations @ EPA Region 6

Data ID:  NRC NO.:  Date Of Report:  to

DataID	Date Of Report	NRC NO.	Status	State Log NO.	Reporter / Receiver	Source Of Pollution	Location Of Incident	Water Body	Material Amount	Material Type	State Or EPA Responded	Initial EPA Action	URL
<a href="#">1119290</a>	01/09/2012 22:35:00	<a href="#">1000000</a>	Closed	NO REPORT #	Mason	LYONDELL BASELL CHEMICAL	CORPUS CHRISTI , TX County: NUECES		NATURAL GAS (0 UNKNOWN AMOUNT);	Other	No EPA response		n/a





**SOME OF THE MORE  
SIGNIFICANT  
RESPONSES EPA  
REGION 6 INVOLVED  
WITH:**





**05 / 05 / 1988**

**Shell Norco Explosion and Fire; 7 killed, 42 injured  
Norco, St. Bernard Parish, LA**







**03 / 24 / 1989**

**Exxon Valdez 11 Million Gallon Oil Spill  
Prince William Sound, Alaska**







**10 / 23 / 1989**

**Phillips Petroleum Explosion & Polypropylene Release; 23 killed,  
314 injured**

**Pasadena, Harris County, Texas**







**12 / 24 / 1989**

**Exxon Refinery Explosion; 2 killed**

**Baton Rouge, East Baton Rouge Parish, Louisiana**







**06 / 18 / 1990**  
**Mega Borg Explosion & 5.1 Million Gallon Oil Spill**  
**Gulf of Mexico, Galveston, Texas**







**07 / 07 / 1990**

**Arco Chemical Explosion; 17 killed  
Channelview, Harris County, Texas**







**03 / 05 / 1991**

**Citgo Explosion and Fire; 3 killed, 12 injured  
Lake Charles, Calcasieu Parish, Louisiana**







**05 / 01 / 1991**  
**Angus Chemical Explosion; 8 killed, 120 injured**  
**Sterlington, Ouachita Parish, Louisiana**







**06 / 01 / 1993**

**Midwest Flooding & HHW / Abandoned Containers  
Kansas, Iowa, and other Midwest States**







**10 / 20 / 1994  
Colonial Pipeline Rupture & Petroleum Fire  
San Jacinto River, Houston, Harris County, Texas**







**04 / 19 / 1995**

**Murrah Federal Building Bombing; 168 killed; 800 injured  
Oklahoma City, Oklahoma County, Oklahoma**







**01 / 10 / 1997**

**Padre Refining Tank 3,000 bbl Oil Spill & Burn**

**Five Mile Creek, Lisbon, Claiborne Parish, Louisiana**







**03 / 26 / 1997**

**Chief Supply Explosion & Chemical (waste fuels) Release; 1 killed  
Haskell, Wagoner County, Oklahoma**







**05 / 08 / 1997**

**BPS Inc. 1,000 lb. Azinphos Methyl Explosion; 3 firefighters killed  
West Helena, Phillips County, Arkansas**







**09 / 26 / 1998**

**Hurricane George Abandoned Container & Household Waste  
Gulf Coast, Louisiana**







**05 / 03 / 1999**

**Tornados & Household Waste / Abandoned Containers  
Moore, Cleveland County, Oklahoma**







**07 / 05 / 1999**

**Kaiser Aluminum Explosion & 54,000 lb Sodium Hydroxide Release;**

**29 injured**

**Grammercy, St. James Parish, Louisiana**







**08 / 30 / 1999  
Gibson Recycling Tire Fire  
Atlanta, Cass County, Texas**







**03 / 09 / 2000**

**Explorer Pipeline Rupture & 48,000 bbl Gasoline Spill  
East Caddo Creek, Greenville, Hunt County, Texas**







**05 / 10 / 2000**

**Cerro Grande Forest Fire – Los Alamos Labs  
Los Alamos, Los Alamos County, New Mexico**







**06 / 20 / 2000**

**Southwest Tire Processors 10 acre Tire Fire  
Socorro, Socorro County, New Mexico**







01 / 11 / 2001

**Agrifos Fertilizing Company 36,000 lb Phosphoric Acid Spill  
Flood Levee, Pasadena, Harris County, Texas**







**06 / 5-9 / 2001**

**Tropical Storm Allison & HHW / Abandoned Containers  
Houston, Harris County, Texas**







09 / 11 / 2001  
World Trade Center Attack Assistance to Region 2  
New York City, NY







**10 / 15 / 2001**

**Severe Flooding & Household Waste / Abandoned Containers  
Southeast Texas**









**01 / 29 / 2003**  
**Orion Refinery Storage Tank Fire**  
**Norco, St. Charles Parish, Louisiana**








### Columbia Shuttle Tragedy Region 6 -- Texas & Louisiana Response

*"A Proud Nation Salutes You"*

**Federal Partner:**

U.S. Environmental Protection Agency; U.S. Forest Service; U.S. Army Corps of Engineers; U.S. Air Force; U.S. Attorney General; U.S. Bureau of Alcohol, Tobacco, & Firearms; U.S. Bureau of Reclamation; U.S. Coast Guard Strike Team; U.S. Department of Health & Human Services; U.S. Department of Transportation; U.S. Geological Survey; EPA Environmental Response Team; Federal Bureau of Investigation; U.S. Fish & Wildlife Service; General Services Administration; National Park Service; National Transportation Safety Board; U.S. Navy; U.S. Search & Rescue Response System; Tennessee Valley Authority

**State & Local Partner:**

Amateur Radio Emergency Services; LA Army National Guard; Galveston Police Department Dive Team; Houston Police Department Dive Team; LA Department of Environmental Quality; LA Health & Hospitals; LA Office of Emergency Preparedness; LA State Police; LA Wildlife & Fisheries; Sabine River Authority; Seventy-Fifth Infantry Division; 6th, 81st, 82nd, 83rd, 84th Civil Support Team; Stephen F. Austin University; Texas A&M University; TX Civil Air Patrol; TX Commission of Environmental Quality; TX Department of Public Safety; TX Department of Transportation; TX Department of Health; TX Division of Emergency Management; TX Forest Service; TX National Guard; TX Natural Resources Information System; TX Mental Health & Mental Retardation; TX Task Force One; University of Texas

**Volunteer Partner:**

American Red Cross; Salvation Army; TX Baptist Men's Association

Countless other private citizens, public officials, businesses, and organizations

02 / 01 / 2003

Columbia Shuttle Recovery  
Eastern Texas & Western Louisiana







**05 / 08 / 2003**

**Tornadoes & Household Waste / Abandoned Containers  
Midwest City, Oklahoma County, Oklahoma**







11 / 14 / 2003

NMS 1477 – 100,000 gallon Sulfuric Acid spill  
Texas City, Galveston County, Texas







**06 / 30 / 2004**

**Union Pacific / BNSF Crash, Fire, & 60 ton Chlorine Release; 3 killed  
Macdona, Bexar County, Texas**





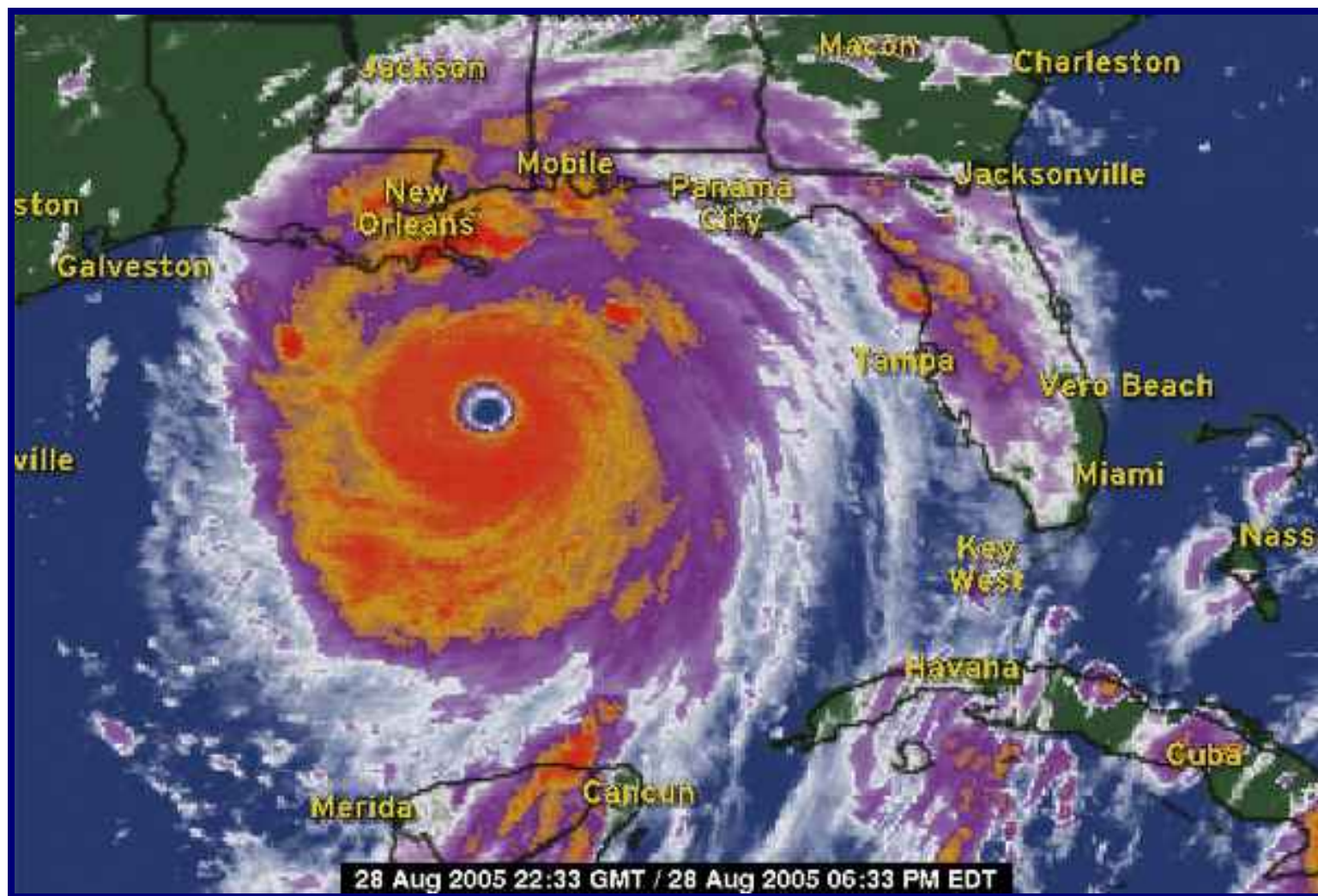


**03 / 23 / 2005**

**BP Amoco Explosion, Fire & Benzene Release; 15 killed  
Texas City, Galveston County, Texas**







08 / 29 / 2005

Hurricane Katrina / Rita Response (HHW, orphaned containers); 1600 killed

Gulf Coast, Louisiana







**09 / 03 / 2005**  
**Murphy 25,000 bbl. Oil Spill**  
**Chalmette, St. Bernard Parish, Louisiana**







**07 / 03 / 2007**

**Coffeyville Resources 42,000 gal Oil Spill**

**Verdigris River, Nowata, Nowata County, Oklahoma**







**07 / 23 / 2008**  
**Hurricane Dolly Emergency Response**  
**Southeast Texas**







**09 / 01 / 2008**  
**Hurricane Ike & Hurricane Gustav**  
**Southeast Texas and Southeast Louisiana**







04 / 16 / 2009

Norphlet Chemical potential HF release (abandoned)

Norphlet, Union County, Arkansas







**04 / 20 / 2010**

**BP Deepwater Horizon Explosion & 205M bbl. Oil Spill; 11 killed, 17 injured**

**Mississippi Canyon, Gulf Of Mexico, LA**







**10 / 2012**

**Hurricane Sandy; 157 killed**

**New York & New Jersey and Caribbean areas**







**04 / 17 / 2013**

**West Fertilizer Company; 15 killed (12 first responders), 160 injured  
West, McLennan County, Texas**







**11 / 15 / 2014**

**DuPont Chemical release; 4 killed  
La Porte, Harris County, Texas**







**08 / 05 / 2015**  
**Gold King Mine Release**  
**San Juan County, New Mexico**







01 / 02 / 2017

Residential phosphine release; 4 killed; 6 injured  
Amarillo, Potter County, Texas







08 / 23 / 2017

Hurricane Harvey orphaned container collection, vessel response  
Southeast Texas







**08 / 29 / 2017**  
**Arkema Chemical Fire**  
**Crosby, Harris County, Texas**







**03 / 17 / 2019**  
**ITC Terminals Fire**  
**Deer Park, Texas**







**05 / 2019  
Arkansas River Flooding  
Oklahoma & Arkansas**







**10 / 03 / 2019**

**Delek Pipeline 10,000 bbl diesel fuel discharge  
Hopkins County, Texas**





# Over 30 Years of Response Excellence





# DEVELOPMENT OF RESPONSE INFORMATION FOR OFFSHORE OIL SPILLS IN AREA CONTINGENCY PLANS

Regional Response Team (RRT) VI Fall Meeting  
U.S. EPA Training Center  
Addison, TX  
November 7, 2019

**Gabrielle G. McGrath**  
Senior Scientist / Senior Project Manager  
RPS Ocean Science





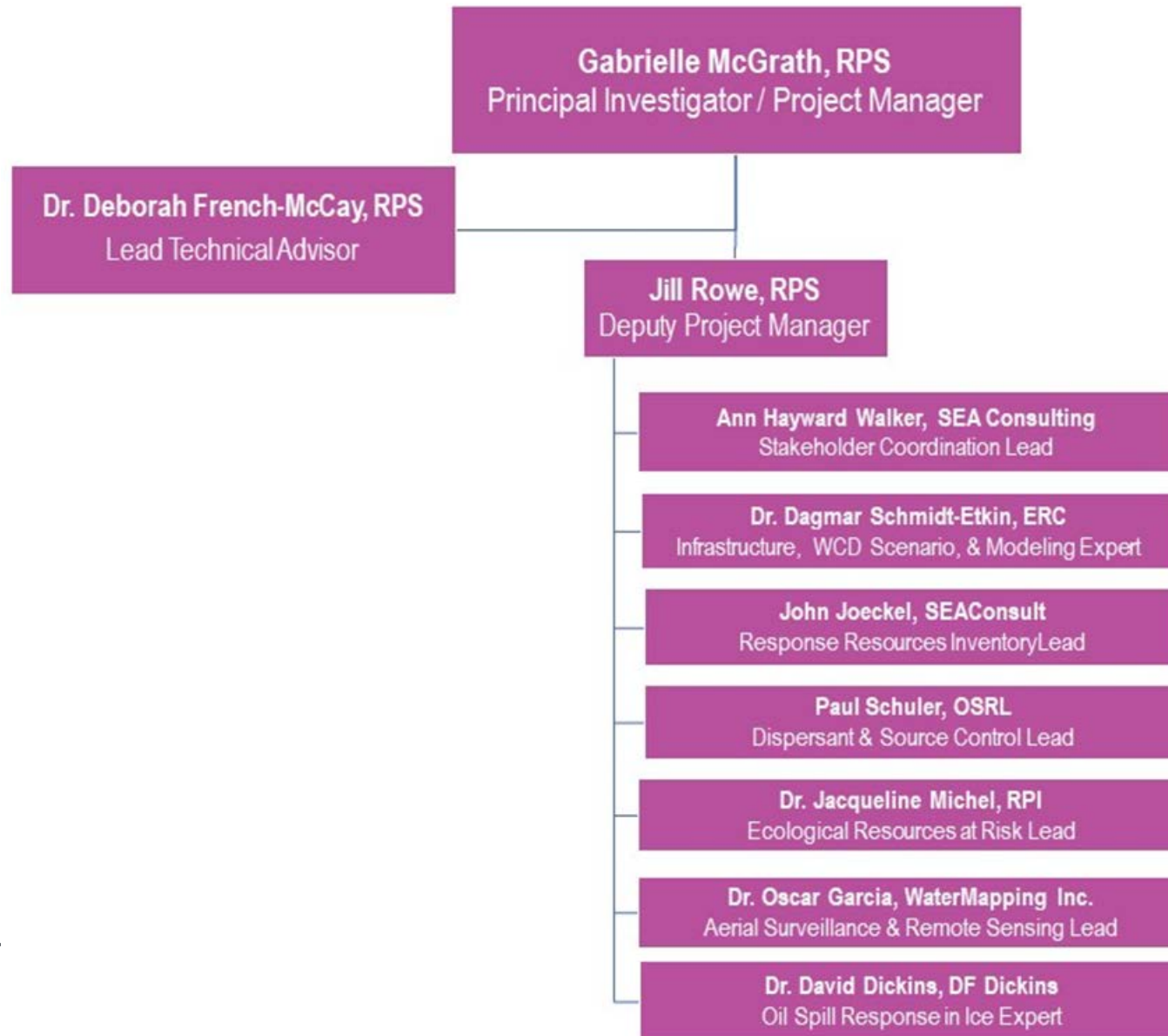
---

## **Goal of Project**

Improve the content of ACPs (and RCPs) to address oil spill planning and response for offshore oil and gas infrastructure

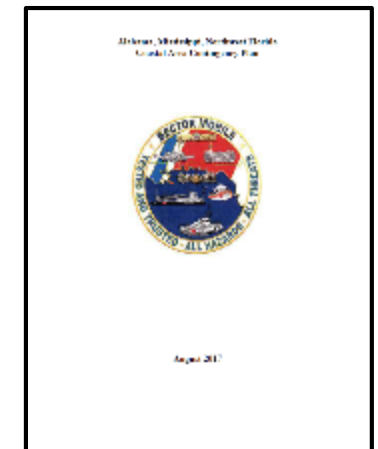
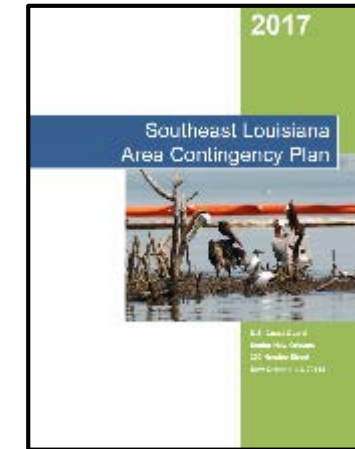
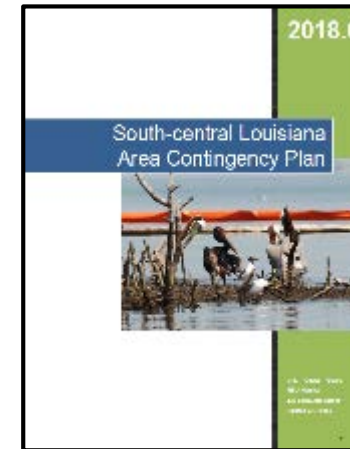
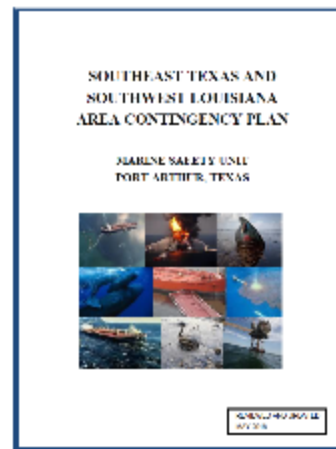
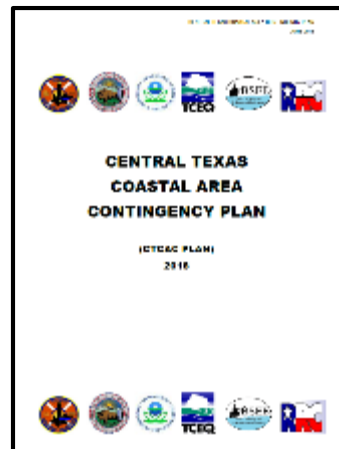
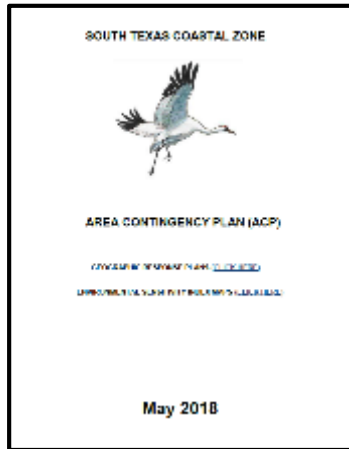


# RPS Project Team – Team Roles

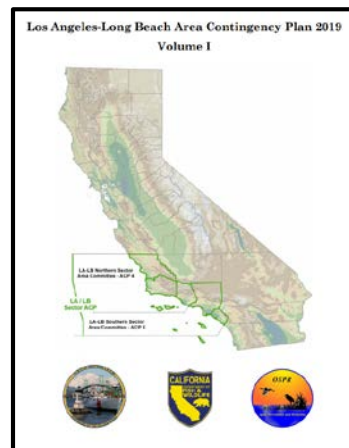




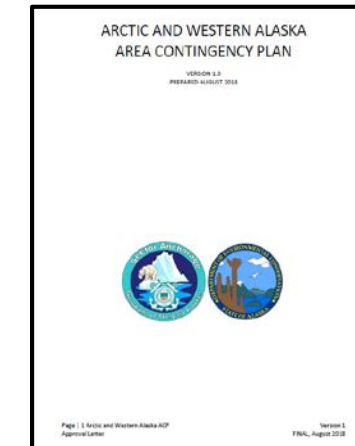
# Gulf of Mexico: Months 1-29



**Pacific:  
Months  
30-36**

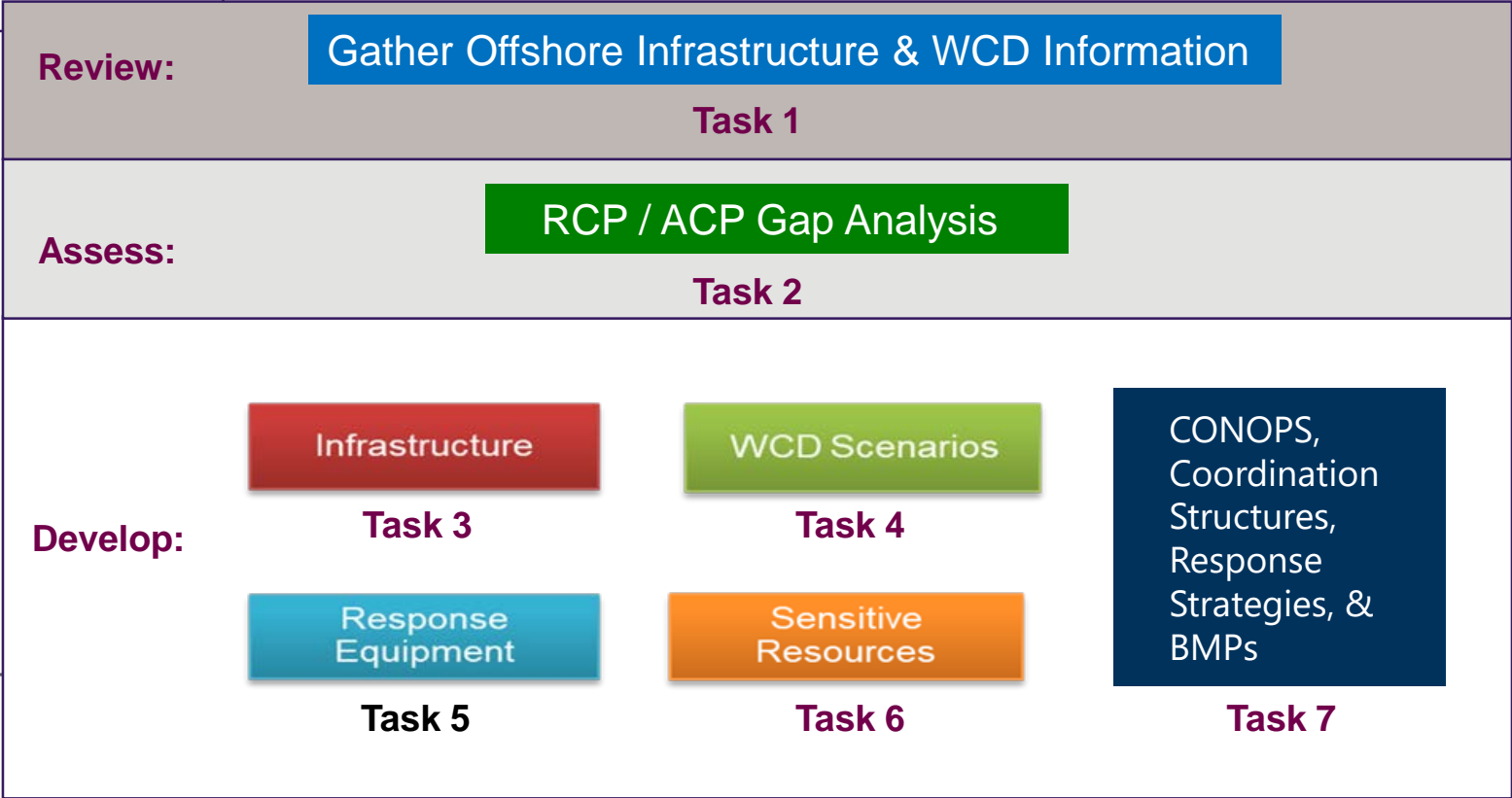


**Alaska:  
Months  
37-56**








Key Information Elements Required in ACPs





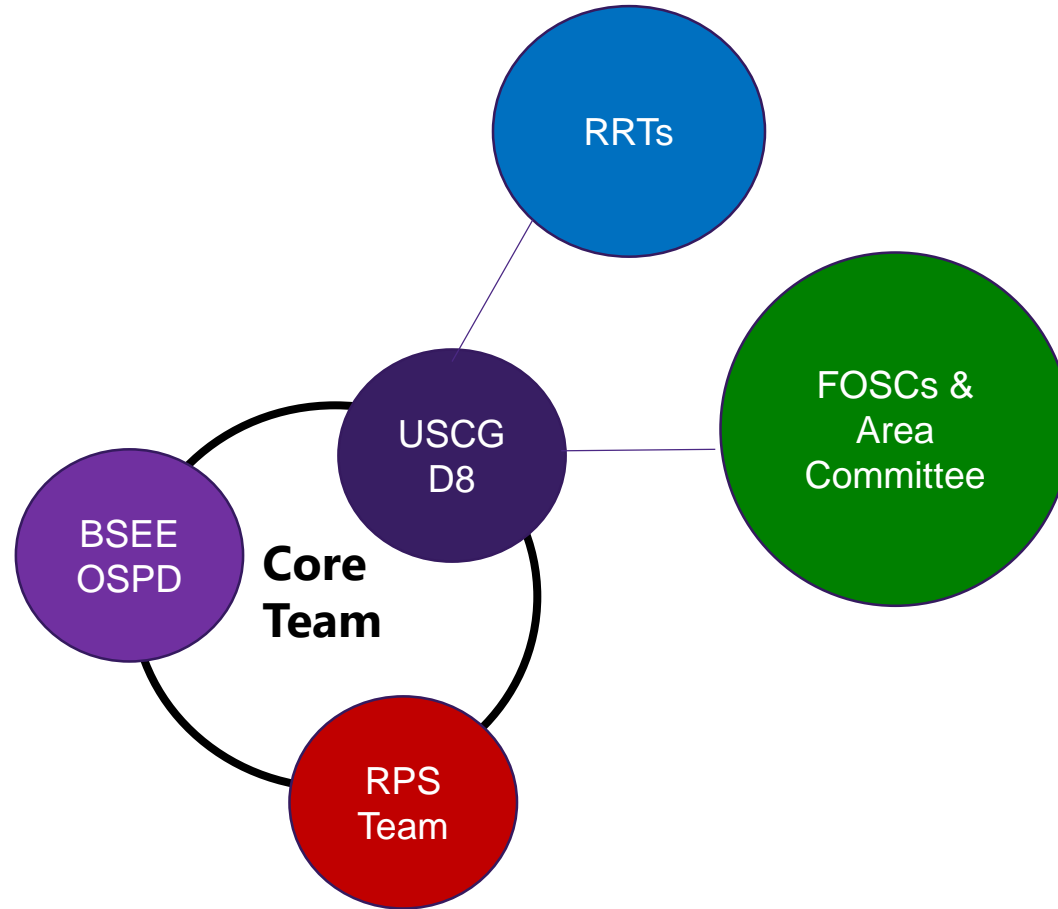
Infrastructure  
WCD Scenarios  
Coordination Structures  
Response Resources  
Ecological Resources  
Response Strategies

 Satisfactory  
 Some Content  
 No Content

Contingency Plan	Key Response Planning Items (KRPI)							Date Published	Notes
	1	2	3	4	5	6			
Base Period – Gulf of Mexico Area Contingency Plan									
Central Texas							Jun 2018	No offshore response info; small amount of response resource info for mechanical, ISB, & dispersants. No IAP for WCD	
South Texas							May 2018	Identifies Maragorda Island 629 as WCD scenario; describes BOEM OSRAM trajectory, but no figures; includes some response strategies & personnel/equipment needs & resources. No IAP for WCD	
Southeast Texas & Southwest Louisiana							May 2018	Identifies AUGER TLP & GB 426A as WCD scenarios; some response resource inventory. No IAP for WCD.	
South Central Louisiana							Aug 2018	Short description of infrastructure; identifies MC 807 as WCD scenario; includes some response strategies and explanation of countermeasures implemented. No IAP for WCD. Little offshore response resource information.	
Southeast Louisiana							Aug 2017	Duplicate of South Central Louisiana ACP.	
Alabama, Mississippi, Northwest Florida							Aug 2017	Identifies 4 WCD scenarios; includes Source Control ICS structure; Description of CONOPS and response strategies are good and could be used as template for other ACPs. No trajectories or IAP for WCD.	
Region VI RCP							May 2015	No specific information on offshore response.	
Region IV RCP							Jun 2016	No specific information on offshore response.	
Optional Task 1 – Pacific Area Contingency Plan									
Los Angeles / Long Beach							Feb 2016	Includes infrastructure description; describes platform discharge in Santa Barbara of 2200 bbl with expected impacts & response strategies; details shortfalls. Difficult to access ACP online.	
Region IX RCP							Sep 2017	No specific information on offshore response.	
Optional Task 2 – Arctic/Western AK Area Contingency Plan									
Beaufort Sea							Aug 2018	Combined into the Arctic/Western AK ACP. Some description of BSEE/USCG coordination; ecological Resources at Risk, Lists PDF links for planning scenarios in Cook Inlet and the North Slope, but they could not be accessed online.	
Chukchi Sea									
Cook Inlet									
Alaska RCP							Aug 2018	Includes same BSEE/USCG coordination description as ACP.	



# Project Coordination



- BSEE-USCG Joint Effort
- USCG D8 to act as liaison with:
  - Area Committees
  - FOSCs
  - RRT VI



# QUESTIONS?

Gabrielle G. McGrath, Project Manager  
Phone: 401-789-6224 or 860-514-5482  
Email: [gabrielle.mcgrath@rpsgroup.com](mailto:gabrielle.mcgrath@rpsgroup.com)





# OILMAP – OIL SPILL TRAJECTORY AND FATE MODEL

Regional Response Team (RRT) VI Fall Meeting  
U.S. EPA Training Center  
Addison, TX  
November 7, 2019

**GABRIELLE McGRATH** [Gabrielle.McGrath@rpsgroup.com](mailto:Gabrielle.McGrath@rpsgroup.com)

Senior Scientist / Senior Project Manager  
Commander, U.S. Coast Guard (Retired)

**TATYANA YANISHEVSKY** [Tatyana.Yanishevsky@rpsgroup.com](mailto:Tatyana.Yanishevsky@rpsgroup.com)

Senior Software Development Project Manager



---

## RPS Ocean Science Background

- Formerly known as Applied Science Associates. Environmental scientist and engineers, based in South Kingstown, Rhode Island.
- Member of the RPS Group since October 2011.
- RPS is a global science and technology solutions company. Through consulting, environmental modeling, and application development, RPS helps a diverse range of clients solve their issues of concern.
- Since 1979 and in over 150 countries, RPS provides services and custom solutions to sectors including energy, environment, construction, defense, security, emergency management, transportation, and shipping.
- Developers and users of OILMAP, commercially-available oil spill model for 30 years.



# Markets Served

- Government Agencies, Worldwide
- Oil & Gas Industry
- Port, Harbor, and Coastal
- Renewable Energy
- Power Generation & Distribution
- Dredging & Pipeline Burial
- Water Resources
- Water Quality
- Ecological Risk Assessment
- Environmental Data Systems
- Geospatial Application Development
- Coastal Hazards Assessment
- Operational Forecasting





# Uses of OILMAP

- Emergency Oil Spill Response Decision Support
- Oil Spill Drills and Exercises
- Oil Spill Response Training
- Pre-Positioning of Response Capabilities
- Litigation Support
- Contingency Planning
- Management of Spill-Related Data
- Hindcasting
- Well Blow-Out Modeling
- Geographic Response Strategy (GRS) Testing





# U.S. Coast Guard Use of OILMAP

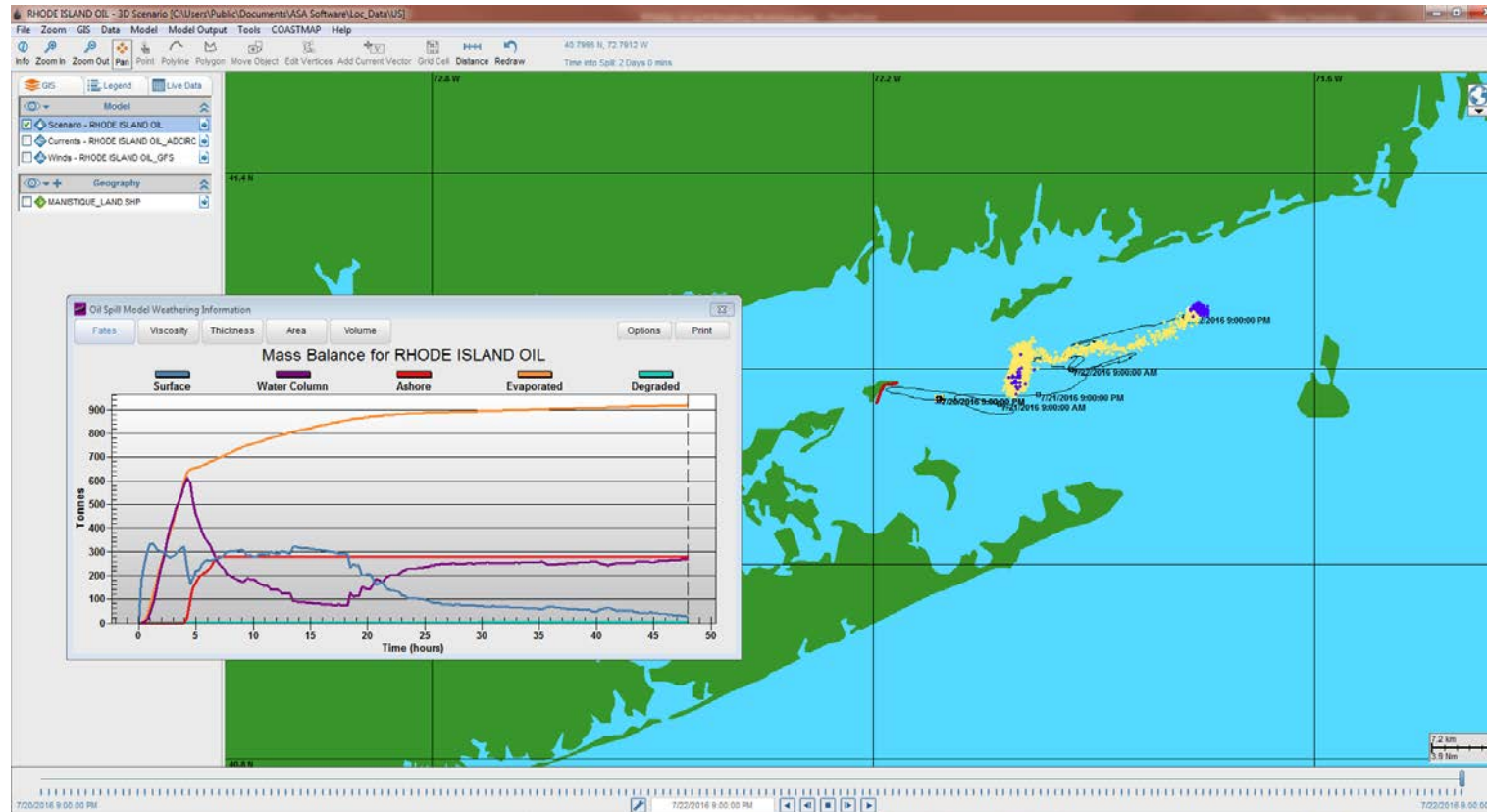
- OILMAP includes unique capability of testing response strategies, including booming, skimming, and subsea / surface dispersants.
- OILMAP is perfect tool to test GRS without field deployments.
- Meets requirements of CG MER Manual for GRS Testing: “supplemented with computer simulations.”
- USCG already subscribes to on-demand weather forecasts which drive the model.
- Currently being used by FORCECOM for exercise support. All CG IT requirements complete/near complete.
- D5 planning to purchase in FY20. CGA cadets testing Sector Del Bay GRS as Directed Studies project.

Validation Level	Name	Description	Requirements
I	Desktop	Evaluation of GRS data by subject matter experts (i.e., natural resource trustees) in an office or workshop setting.  Can be supplemented with computer simulations.	All data should attain Level I validation.
II	Visual Confirmation	Deployment of subject matter experts to specified geographic area. Visual inspection of operational environment and verification of tactical strategies. No equipment deployment.  Can be supplemented with computer simulations.	Targeted for moderate to high-risk areas where a degree of uncertainty exists.
III	Equipment Deployment	Deployment of identified equipment to verify its performance in the specified operating environment.	Targeted for inconclusive Level II validation strategies. Performed in high-risk areas where rapid and efficient response is critical.
IV	Full Scale Exercise (FSE)	Deployment of all appropriate response personnel and equipment under an area full scale exercise setting.	As dictated by the area exercise design/objectives.
V	Incident	Deployment of all appropriate response personnel and equipment for an actual incident.	Real world event.

Table 4-1: Geographic Response Strategies (GRS) Tiered Validation Levels

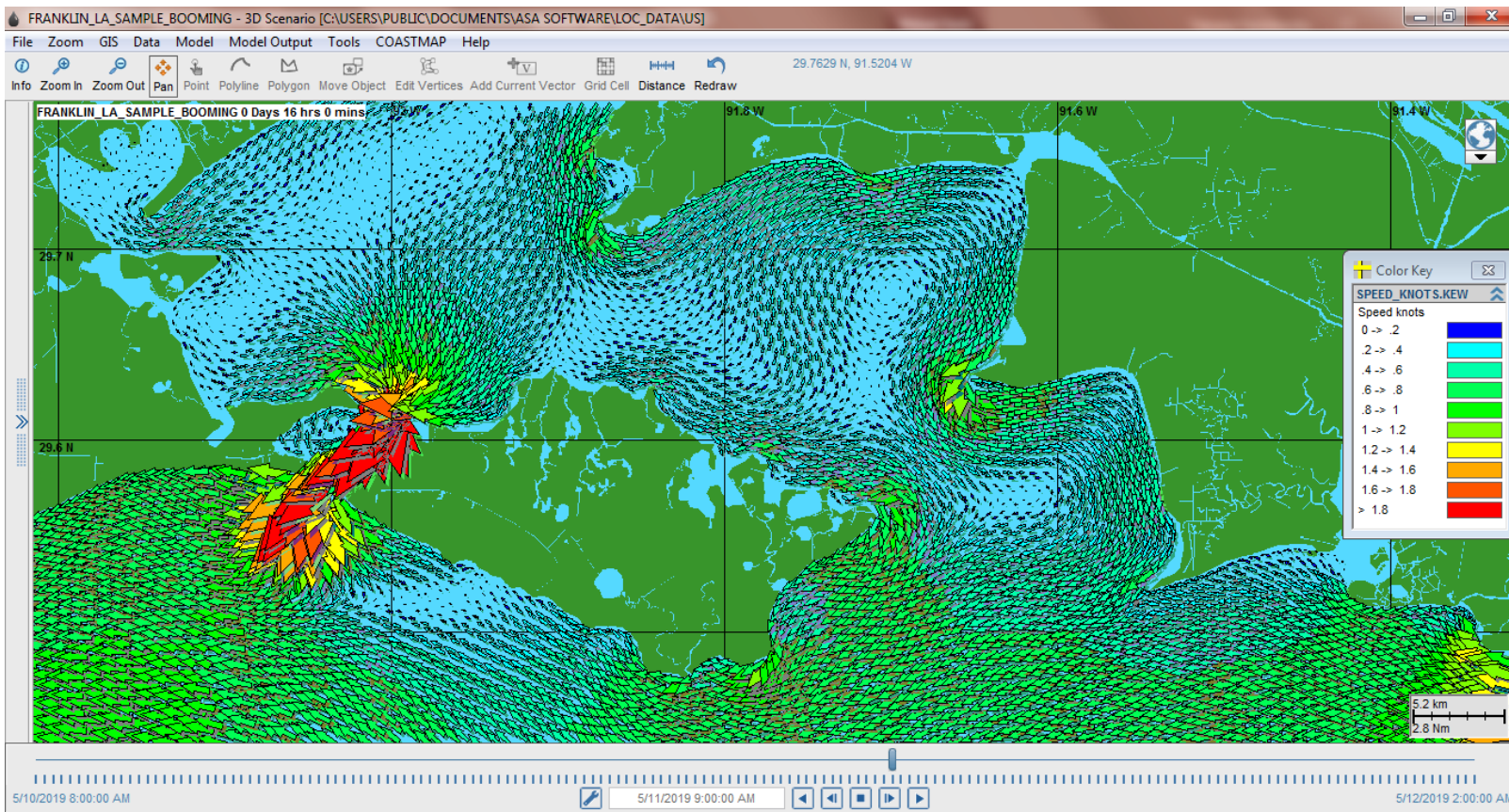


# Modeling Response Strategies with OILMAP





# Environmental Inputs to OILMAP: Currents



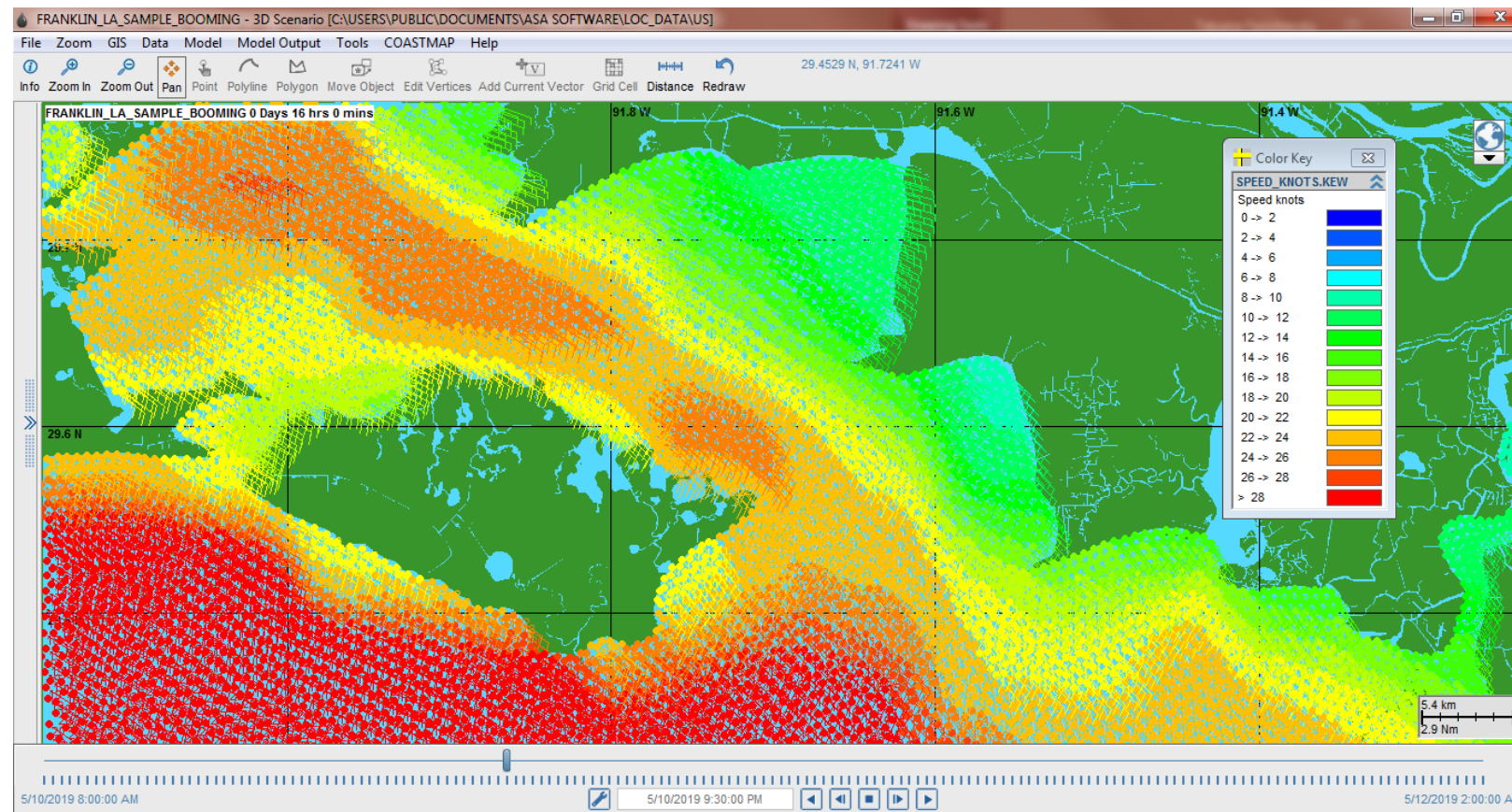
Example uses NOAA's National Ocean Service Northern GoM Operational Forecast System (NGOFS)

- Data distributed by RPS' Environmental Data Server (EDS)
  - Model Forecasts
  - Measurements and Observations
  - Local, Regional, & Global Datasets Available
  - Ongoing Integration of New Data Sources
  - Critical input to trajectory and fate model
  - Spatially- and temporally- varying
  - Downloaded for extent of simulation
  - Current speed by color/arrow size
- User can define current field manually

***USCG Largest User of EDS for SAROPS / OILMAP and Acts as Driver of Development***



# Environmental Inputs to OILMAP: Winds



Example uses NOAA's National Ocean Service Northern GoM Operational Forecast System (NGOFS)

- Data distributed by RPS' Environmental Data Server (EDS)
  - Model Forecasts
  - Measurements and Observations
  - Local, Regional, & Global Datasets Available
  - Ongoing Integration of New Data Sources
  - Critical input to trajectory and fate model
  - Spatially- and temporally- varying
  - Downloaded for extent of simulation
  - Wind speed by color/arrow size
- User can define wind field manually

***USCG Largest User of EDS for SAROPS / OILMAP and Acts as Driver of Development***



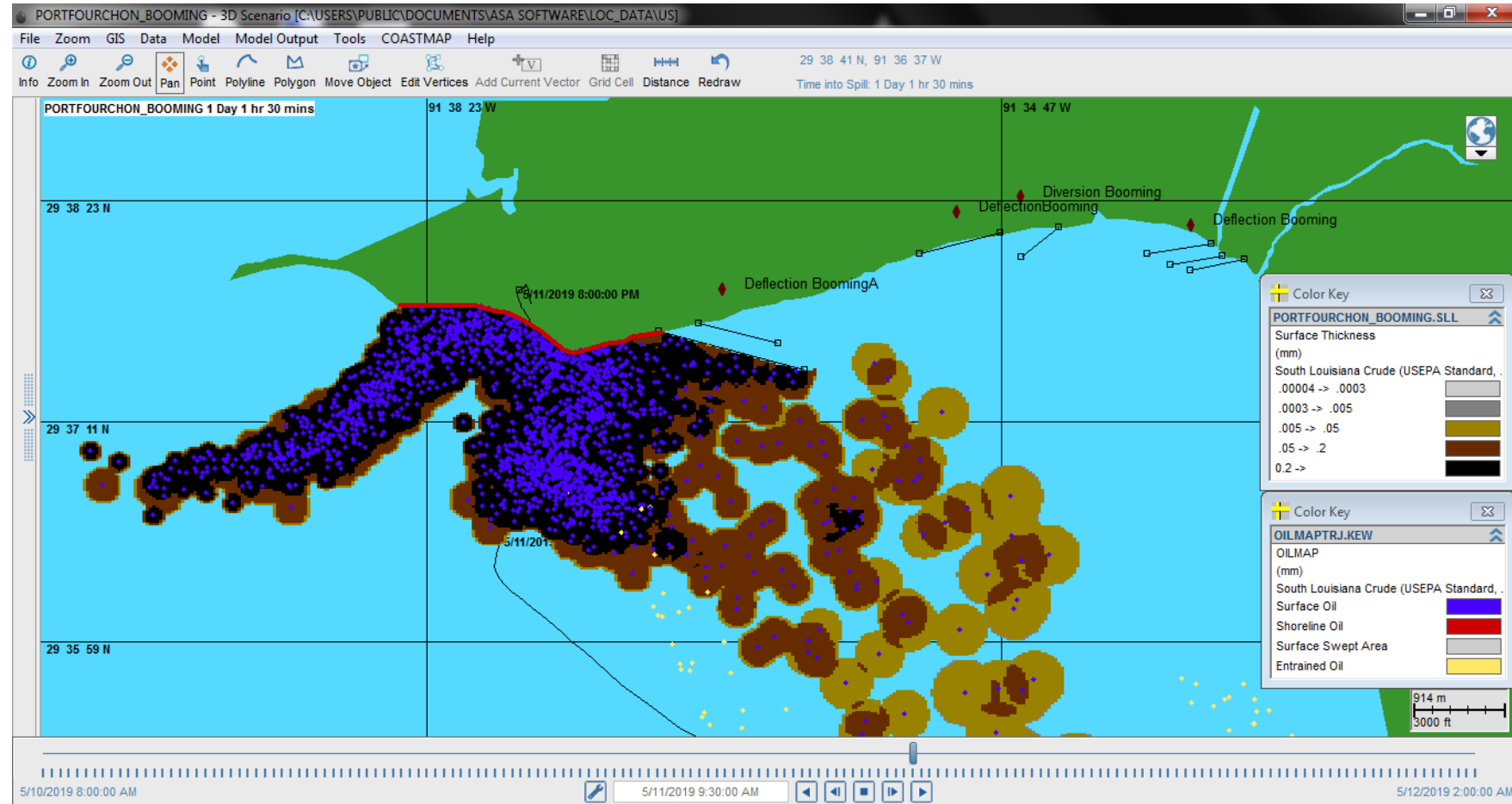
# OILMAP Modeling System

## Capabilities:

- Full 3D Trajectory & Fate Model
- Near-Field Blowout Model
- Air Model
- Integrated GIS
- Blowout plume dynamics
- Response activities

## Outputs:

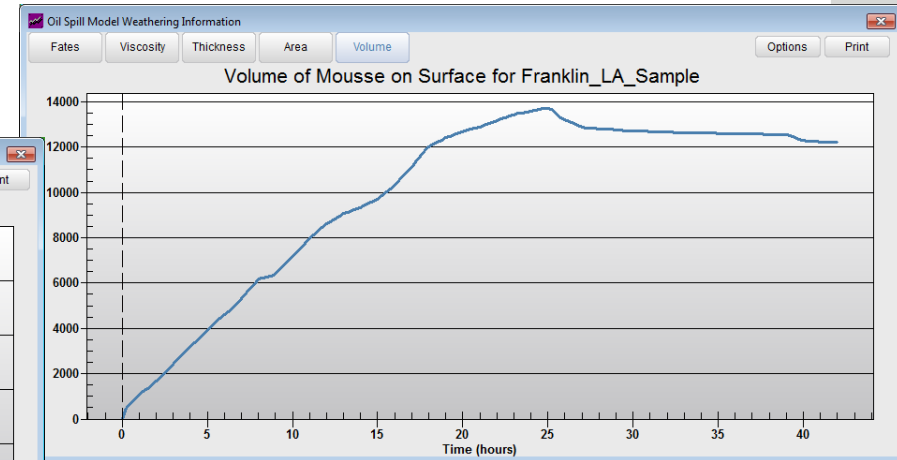
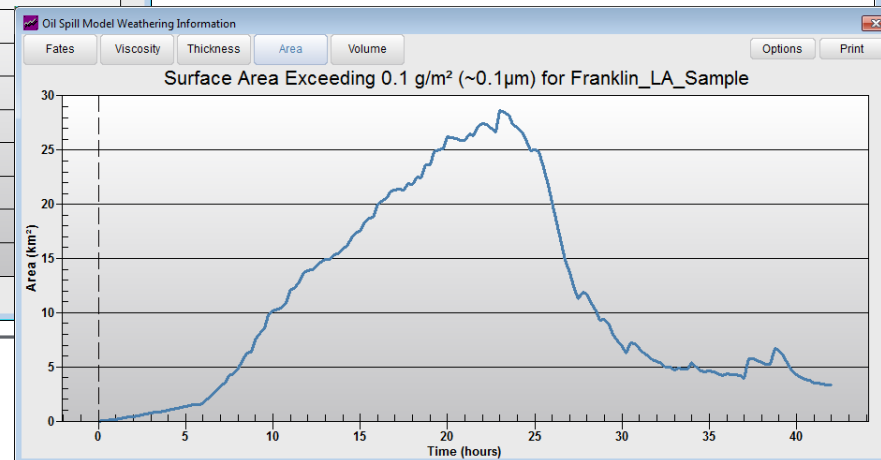
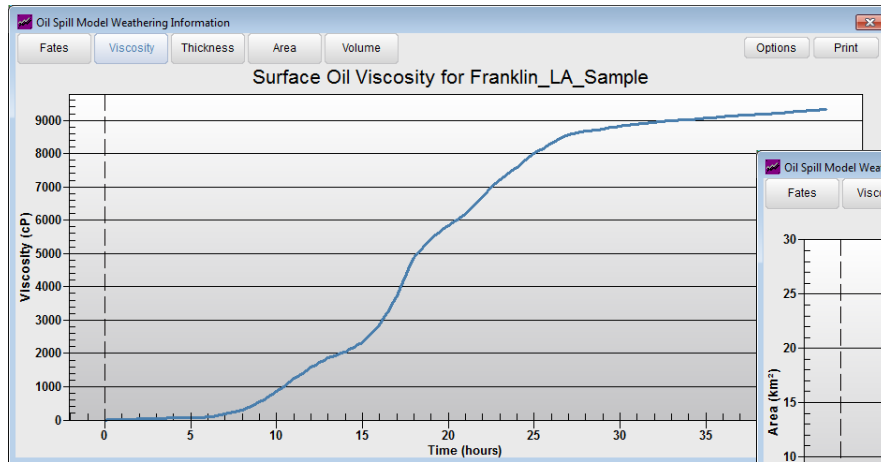
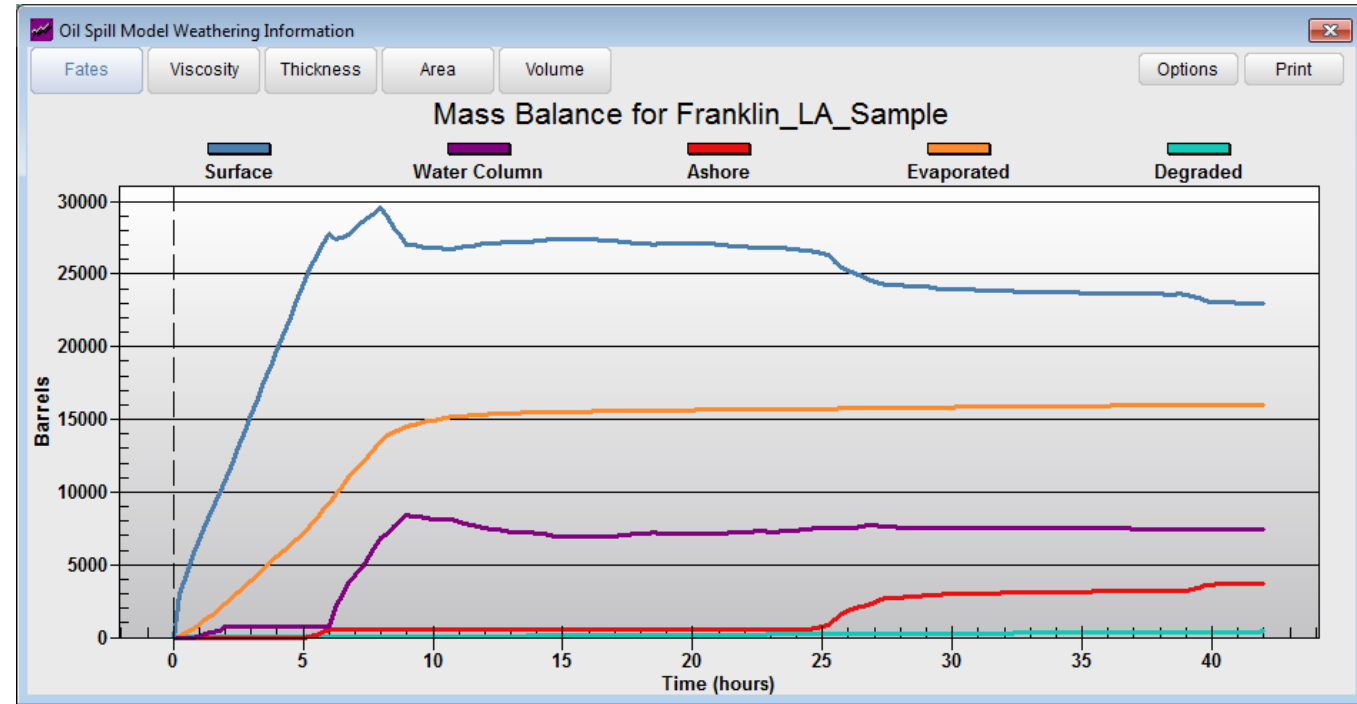
- Oil particle characteristics
- Floating surface oil
- Water column concentrations
- Shoreline oiling
- Evaporated hydrocarbons





# OILMAP Outputs

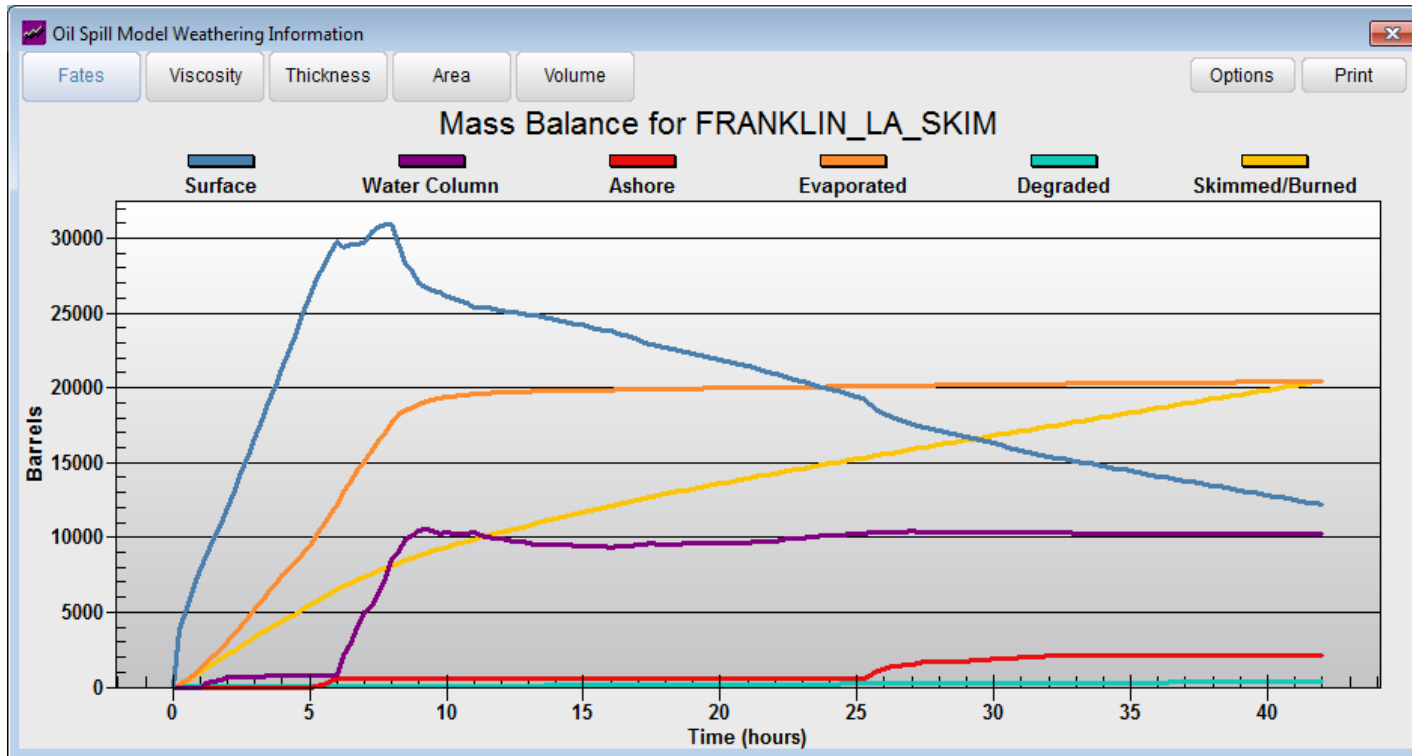
- Trajectory Maps
- Mass Balance
- Surface Area, Viscosity, Volume, Thickness
- All Temporally and Spatially-Varying
- Plots, graphs, tabular data, SHP, and KML exports



OILMAP OUTPUTS



# Response Activities in OILMAP

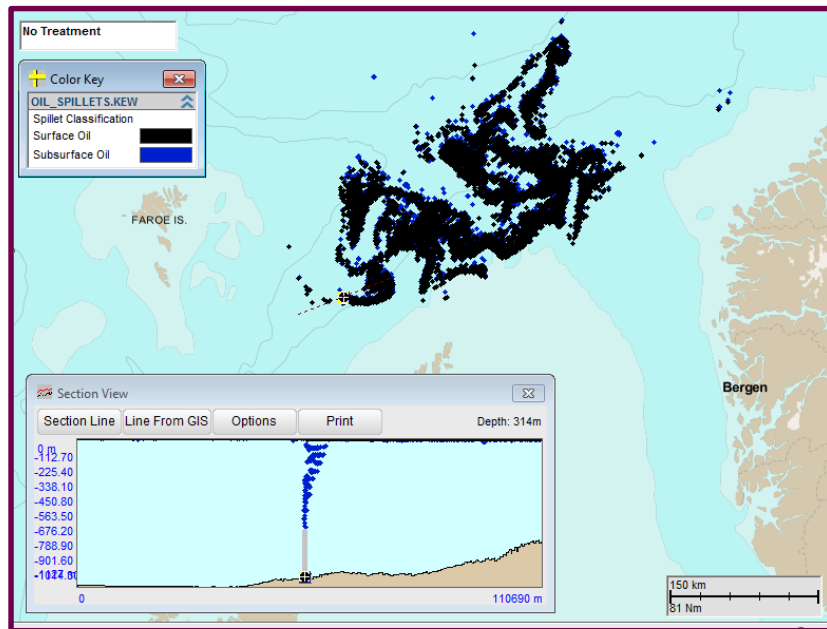


- Mechanical – Skimming & Booming
- In-Situ Burning
- Dispersant Application – Surface & Subsea Dispersant Injection (SSDI)

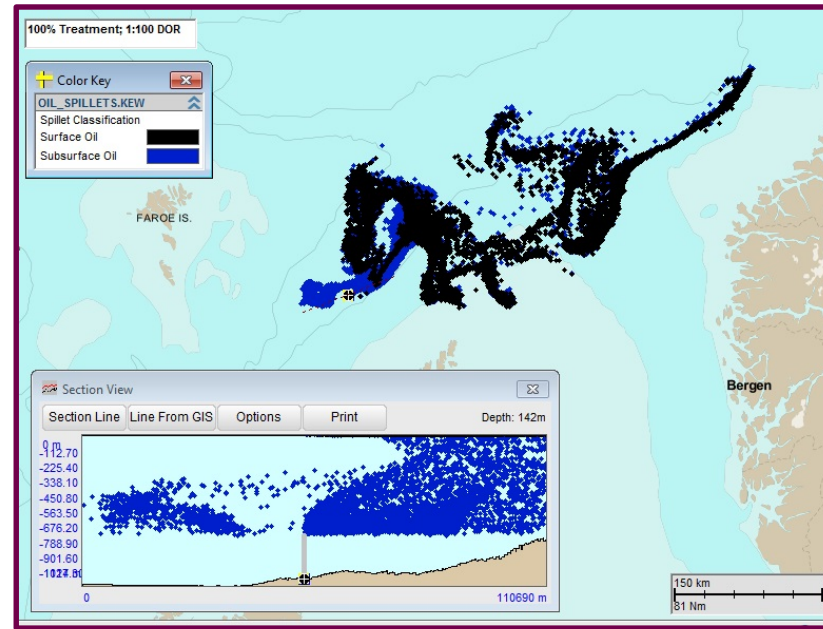




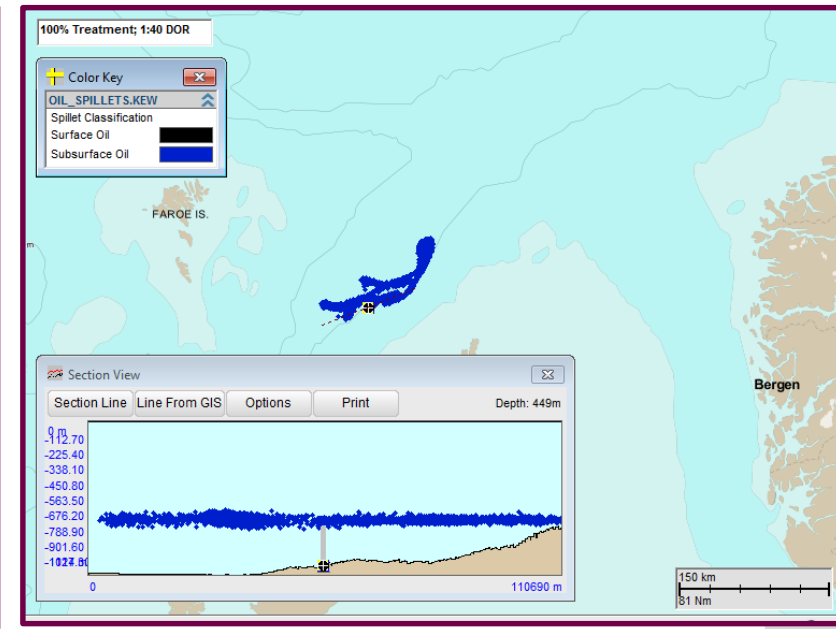
# Subsea Dispersant Injection (SSDI) Testing



No Treatment




100% Treatment; 1:100 DOR




100% Treatment; 1:40 DOR

\*\*\* Depends on properties of the oil and characteristics of water column

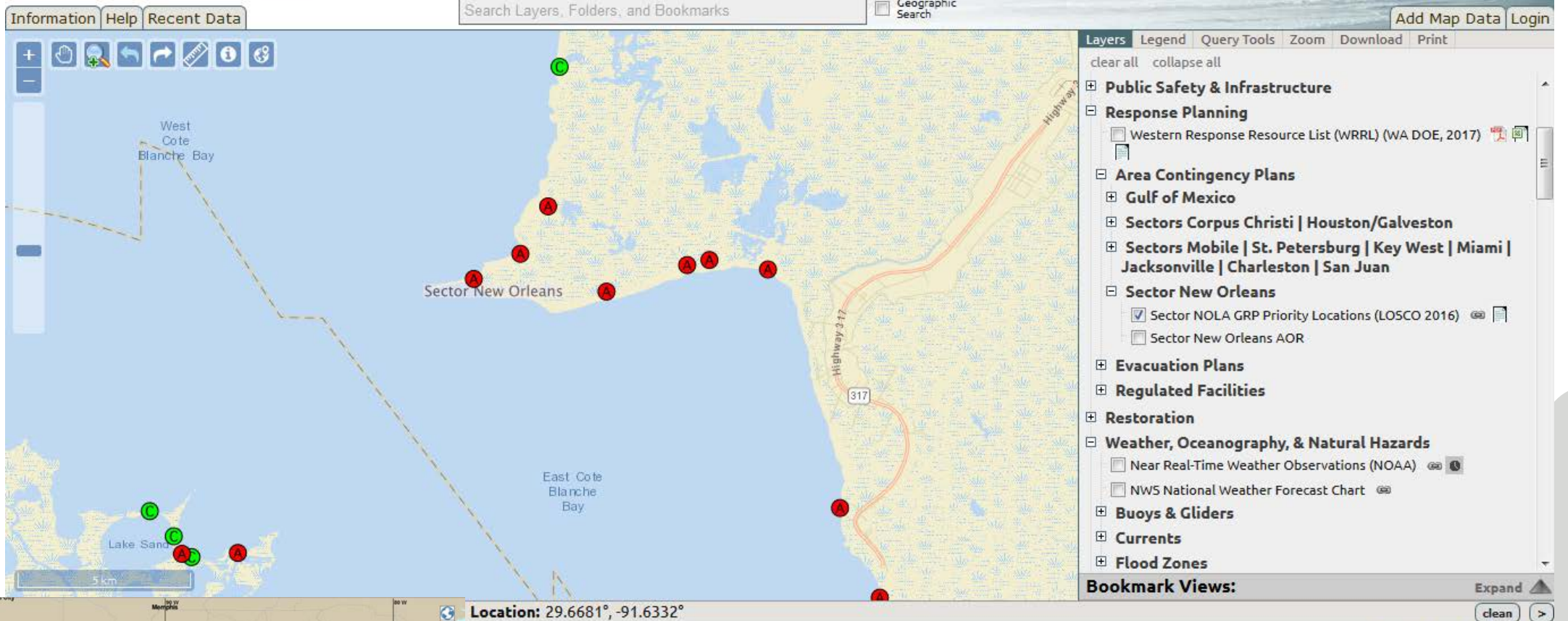




# **Sample Scenarios With and Without Response Activities**

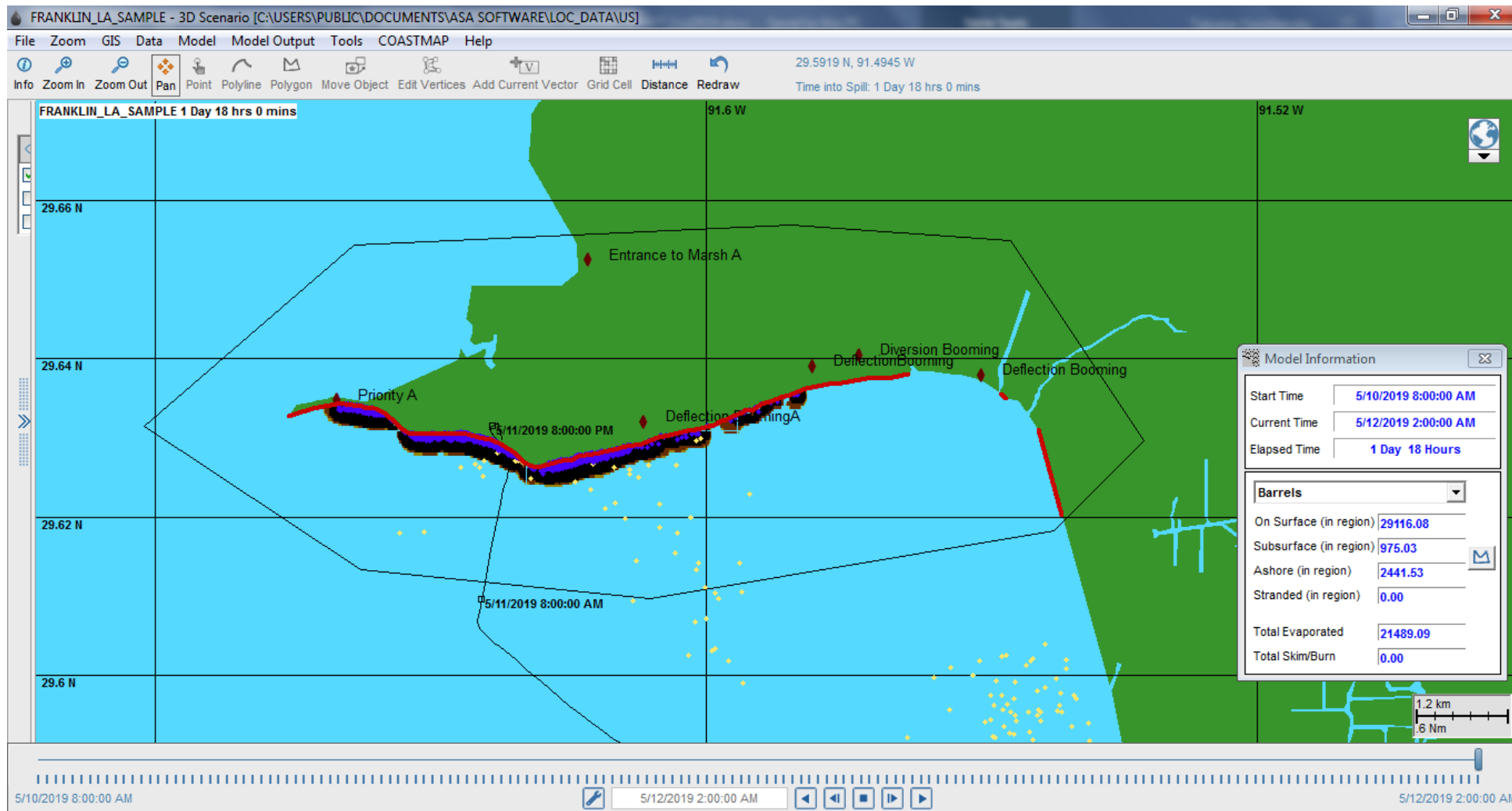








# Shoreline Impact: No Booming

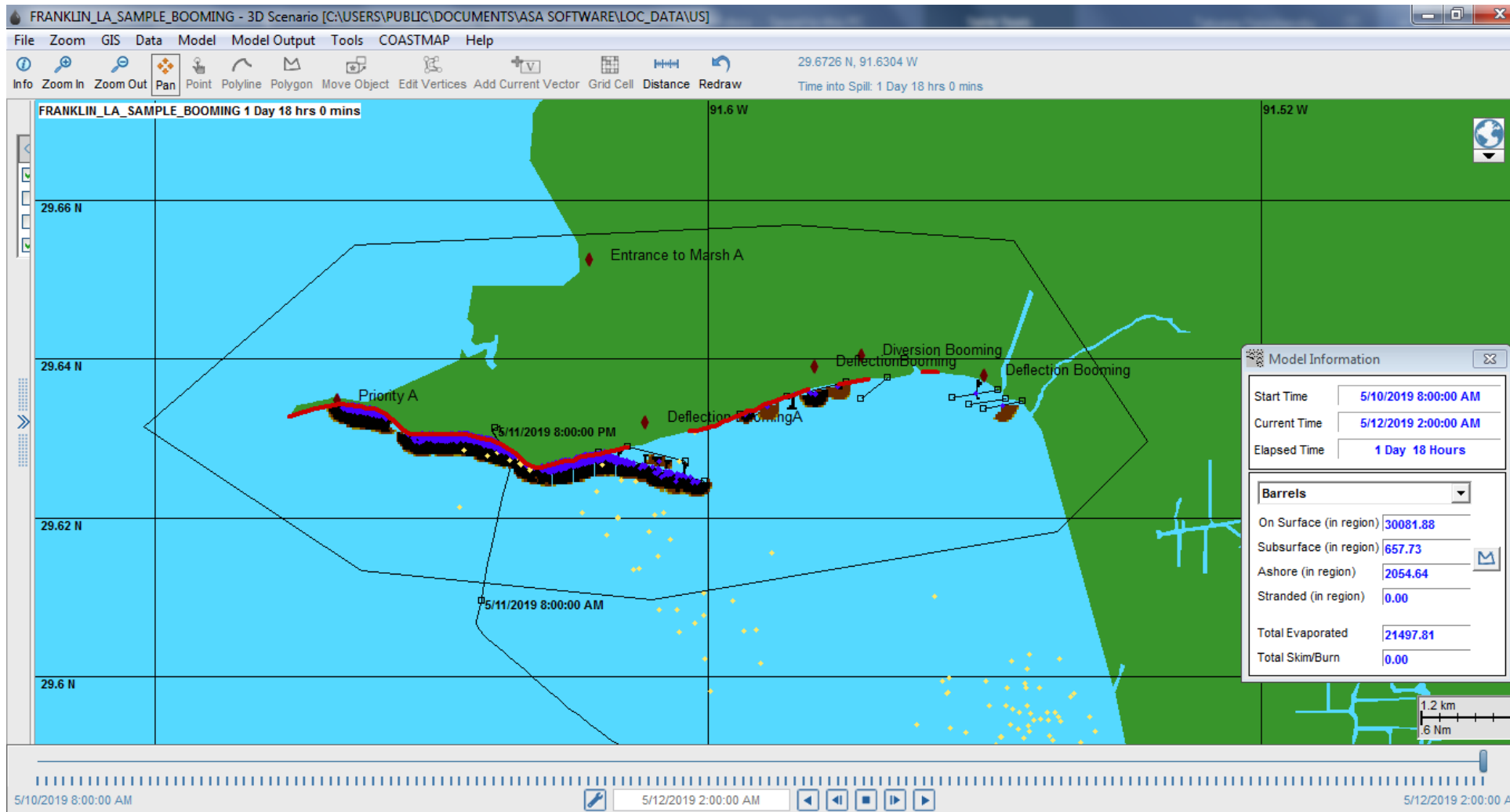


- South Louisiana Crude Oil
- No Booming

**RESULT:**  
**2,441 barrels of oil onshore**



# Shoreline Impact: Booming High Priority Areas in ACP



- South Louisiana Crude Oil
- Booming Strategy Based on ACP

**RESULT:**  
**2,054 barrels of shoreline impact**  
**16% reduction**

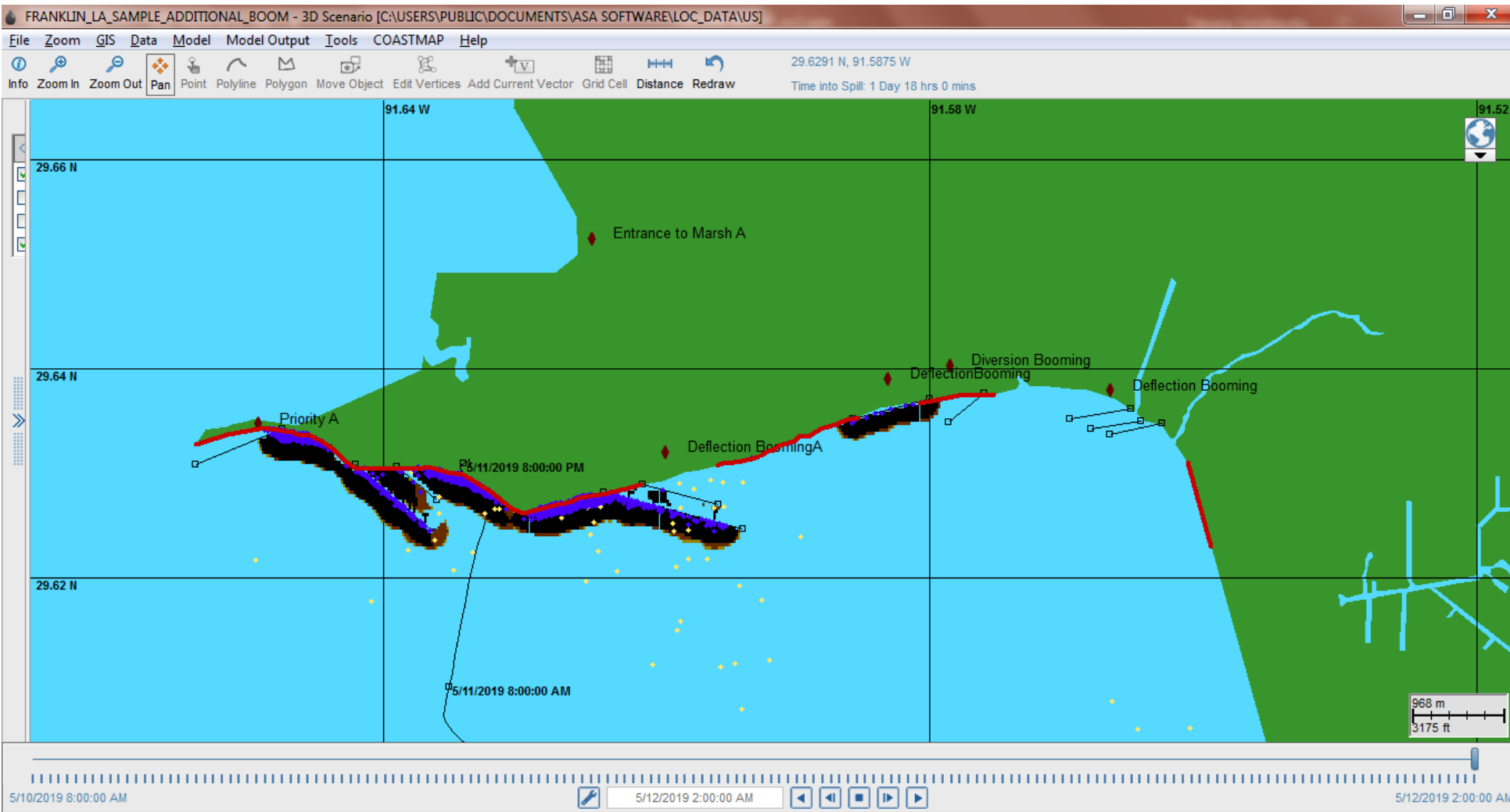


# Shoreline Impact: User-Adjusted Booming

- South Louisiana Crude Oil
- Booming Strategy User-Defined
- Quick test of different strategies
- Can simulate for different seasons / times of day

## RESULT:

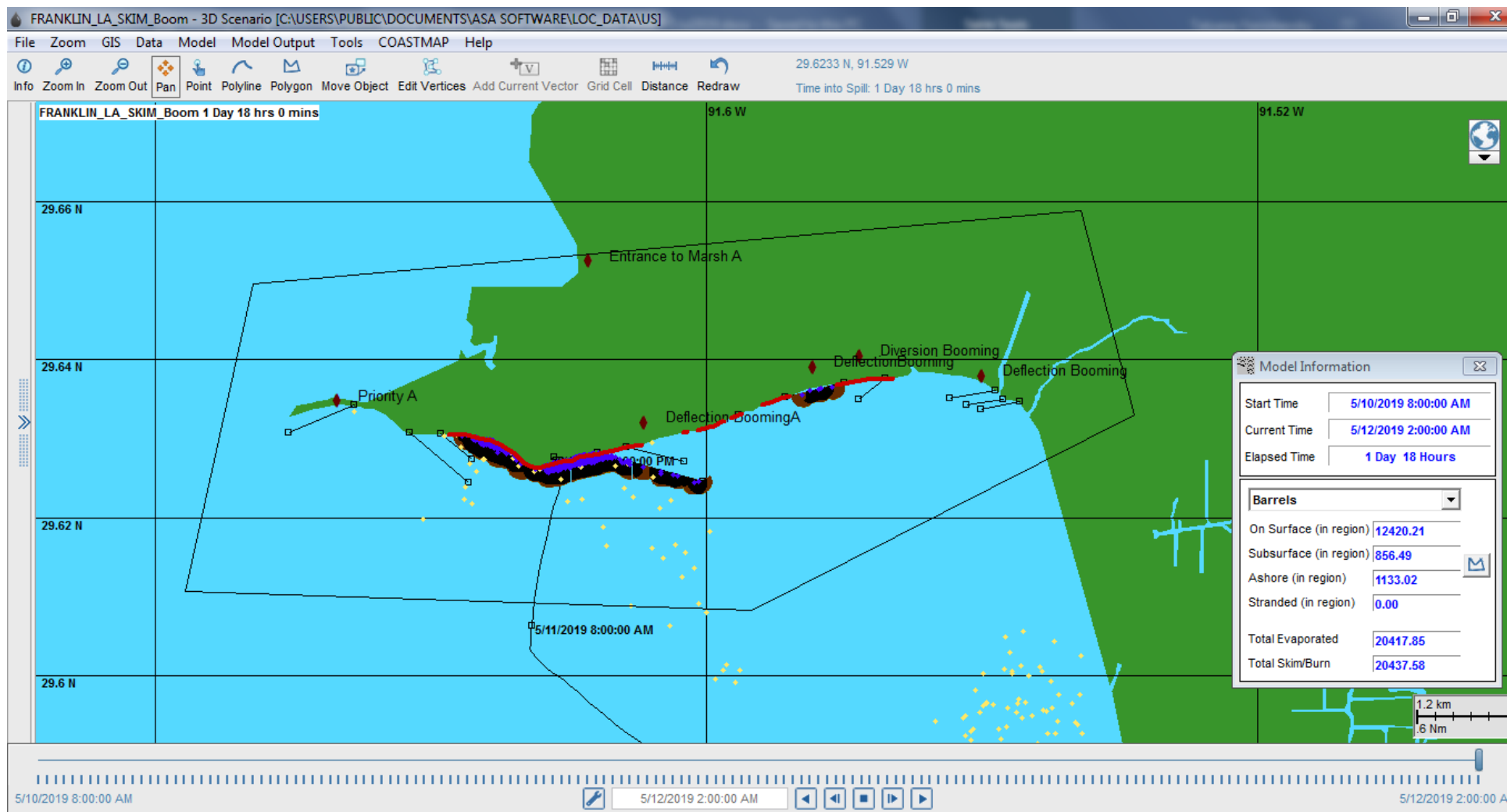
**1,772 barrels of  
shoreline impact  
28% reduction**





# Shoreline Impact: User-Adjusted Booming + Skimming

- South Louisiana Crude Oil
- Booming Strategy User-Defined
- Skimming Added



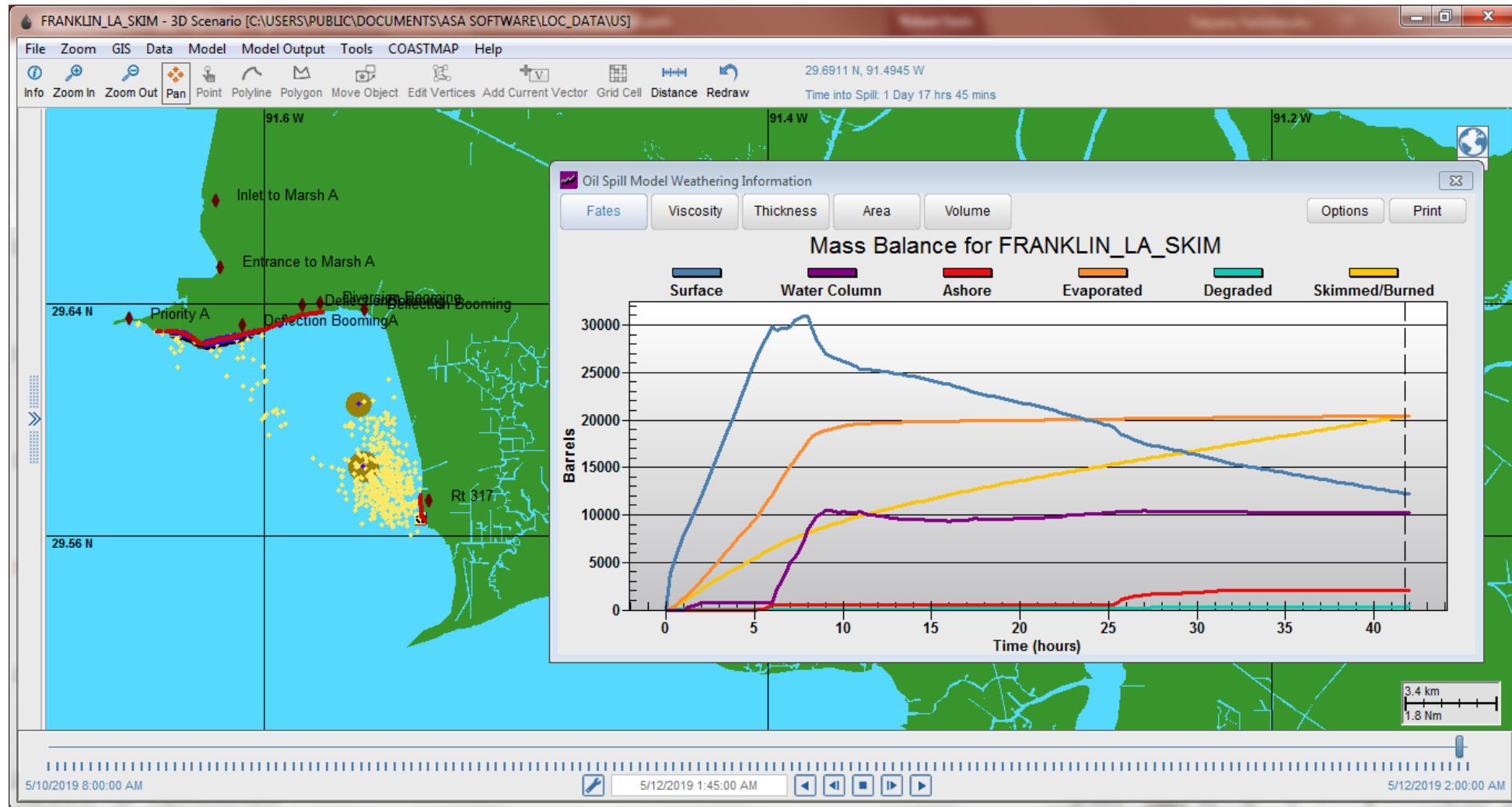
**RESULT:**

**1,133 barrels of  
shoreline impact**

**54% reduction  
compared to No  
Booming Scenario**



# Mass Balance for User-Defined Booming + Skimming Scenario





---

# Benefits of Testing GRS with Computer Simulations

- Quickly evaluate a wide range of response activities.
- Assess each response strategy under varying environmental conditions (winds, currents, temperature, salinity).
- Make edits to response strategy based on model results and re-test.
- Compare and assess all strategies.
- More cost-effective than field deployments.
- Better preparation for incidents by all responders.



# Questions?

**GABRIELLE McGRATH**

[Gabrielle.McGrath@rpsgroup.com](mailto:Gabrielle.McGrath@rpsgroup.com)

Senior Scientist / Senior Project Manager

Commander, U.S. Coast Guard (Retired)

**TATYANA YANISHEVSKY**

[Tatyana.Yanishevsky@rpsgroup.com](mailto:Tatyana.Yanishevsky@rpsgroup.com)

Senior Software Development Project Manager

**(401) 789-6224**

**55 Village Square Drive**

**South Kingstown, RI 02879**



# Environmental Health Support During Emergency Response

RRT R6

November 7, 2019



# Environmental Health Support During Emergency Response

CAPT Patrick Young

214-665-8562

214-577-3506 -cell





# Local Health Authority

**Ronnie Schultz**

**Director of Environmental Health**

Galveston County Health District

409-938-2314 (o)

409-392-0024 (c)

[gchd.org](http://gchd.org) | [facebook](https://www.facebook.com/gchd) | [twitter](https://twitter.com/gchd)





# Local Health Authority

**Dr. Wayne R. Snodgrass MD, PhD**

Professor-University of Texas Medical Branch;  
Galveston Texas

Medical Director - Texas Poison Control Center-Houston/Galveston

Past President - American Academy of Clinical Toxicology

**IN AN EMERGENCY:**  
Call the Poison Experts  
**1-800-222-1222**





# State Health Authority

**Dr. Heidi Bojes, PhD**

Director, Environmental Epidemiology and  
Disease Registries Section

Texas Department of State Health Services

Office: 512-776-6351

Cell: 512-289-0871



**TEXAS**

Health and Human Services



# HWCG – Fieldwood Energy Subsea Dispersant Injection Exercise Overview



**Roger Scheuermann**  
HWCG Fieldwood Energy



**Patrick Eiland**  
Fieldwood Energy



**Michael Sams**  
Eighth Coast Guard District

*RRT-6 Fall 2019 Meeting*



# Key Topics

- SSDI Team
- Exercise Overview
- RRT-6 Role in Subsea Dispersants Injection Approval Process
- Exercise History
- Incident Specific Activation Report & Job-Aid
- Path Forward



# SSDI Team

- Patrick Eiland – Fieldwood Energy
- Von Magee – Fieldwood Energy
- Marla Begnaud – Fieldwood Energy
- Roger Scheuermann – SSDI Operations Plan
- Dr. Jodi Harney – CSA – Monitoring Plan
- Robert Simmons – Environmental Unit
- Charlie Henry – NOAA – RAR - SIMA



# Exercise Scenario

While Fieldwood Energy was drilling their Orlov well in the Green Canyon block 200, they lost all riser tension when the riser parted at a depth of 2,480 feet. As a result, they lost well control and the well continued to flow at a discharge rate of approximately 55,664 bopd.

## 1. Assumptions:

- Fieldwood Energy activated their Oil Spill Response Plan (OSRP)
- Mechanical recovery underway
- The following pollution mitigation strategies and tactics are simultaneously being pursued: capping stack, aerial dispersants, and in-situ burn.
- The focus of the ISRRT call is on SSDI protocols only.

## 2. Artificialities:

- Incident date: 25 July 2019
- ISRRT call date: 28 July 2019, or day three of the incident.
- Industry is participating on the ISRRT call; however, during a real incident they would not.
- ISRRT call will be limited to one-hour, and there will only be one call. In a real incident, we anticipate that there would be a series of calls before the RRT would potentially provide concurrence.



27° 45' 49.9776" N  
90° 44' 34.1265" W

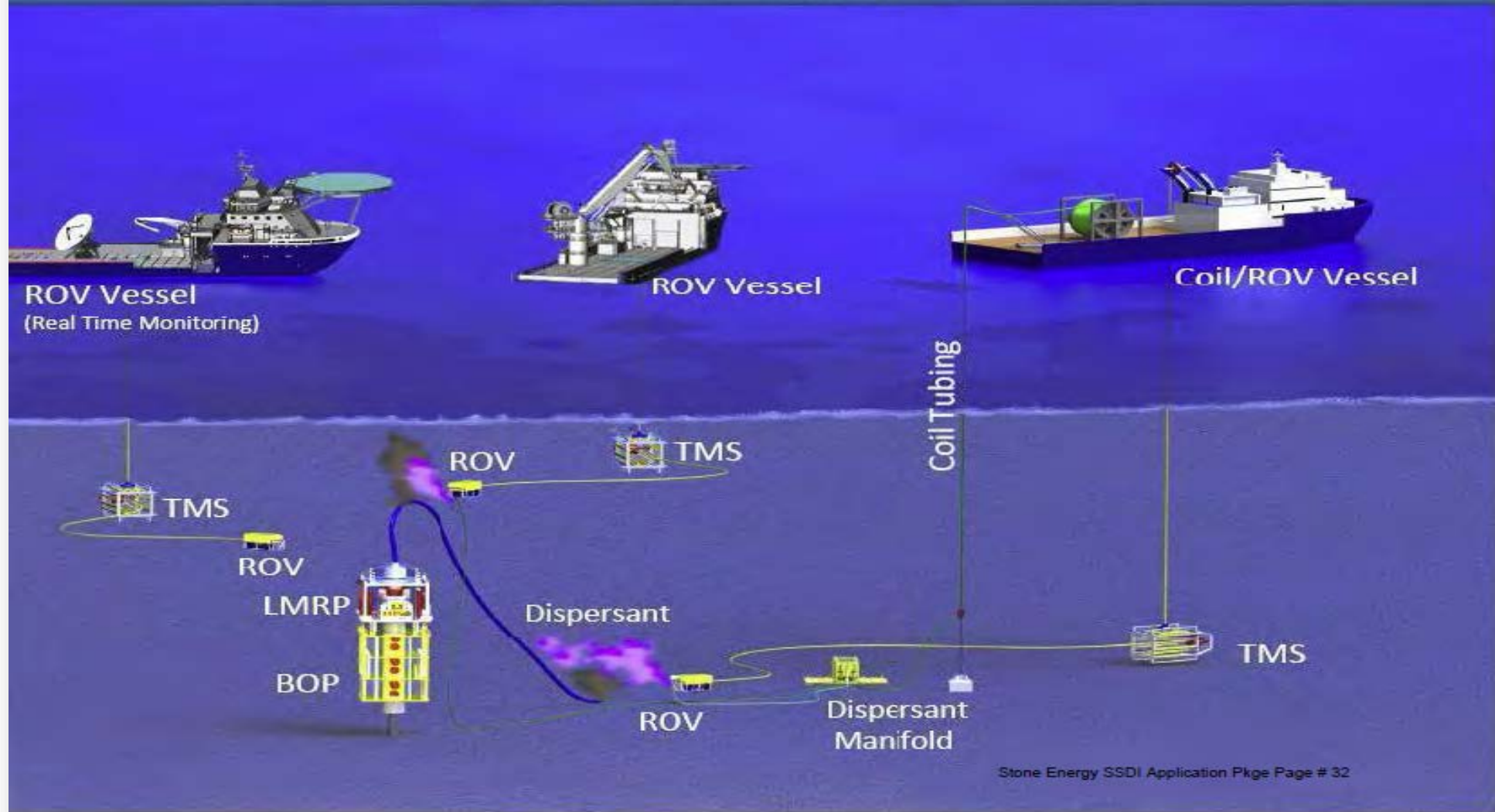




# M/V OCEAN EVOLUTION

## SSDI Operations Platform

Install Coil for Dispersant Supply and Monitor Well



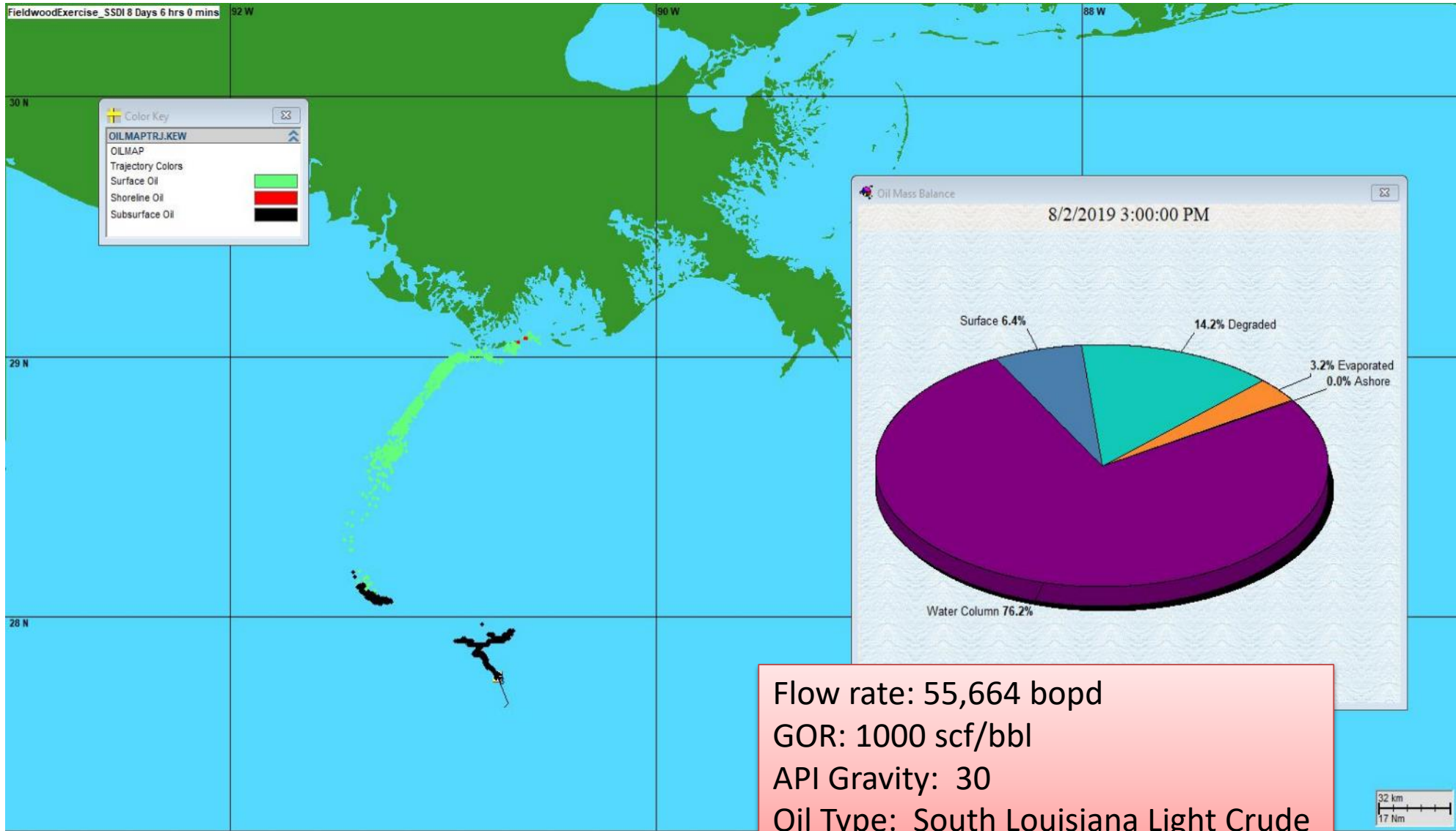


- Fieldwood Energy drill was held at PetroSkills Conference Center in Katy, TX.
- Fieldwood Energy utilized API #4719 “Industry Guidelines on Requesting Regulatory Concurrence for Subsea Dispersant Use”, dated June 2017 – First Edition.
- Rentsys was utilized for all phones, printers, internet, plotters, monitors, computers and emergency resources within the command post.



# Land Impact

03:00 PM 2 August 19





# Dispersant Utilization Rate

- Start SSDI on Day 3 – drill induced
- Initial Flow Rate: 55,664 bopd
- Injection rate at initial flow rate: 16.25 gal/min or 23,379 gal/day
- Dispersant to Oil Injection Ratio - 1 to 100 (start)





# M/V Ocean Evolution – SSDI Platform

- Vessel length – 356'
- 2 ROVs
- Large moon-pool
- Cranes
- 2 Coiled Tubing Units – 2-3/8"
- Ample in-deck storage-coated tanks
- 3,000 + bbls or 126,000 gallons of storage for dispersant.





# Support Vessels

- Two support vessels for transporting dispersant on SSDI platform vessel and utilized for sampling runs.
- Coated storage
- Approximately 3,000 bbls storage, can support Corexit, Finasol and Accell Clean DWD in separate tanks.



M/V RUSSEL ADAMS



M/V PAO DE ACUCAR



# Purpose for Requesting the RRT 6 Conference Call

To review, discuss and potentially approve the request to apply subsea dispersants to:



- Mitigate the discharge
- Reduce volatile organic compounds (VOCs) exposure to responders
- Reduce oil impacts to the shoreline and resources at risk





# Subsea Dispersants

## 40 CFR 300.910, Subpart J



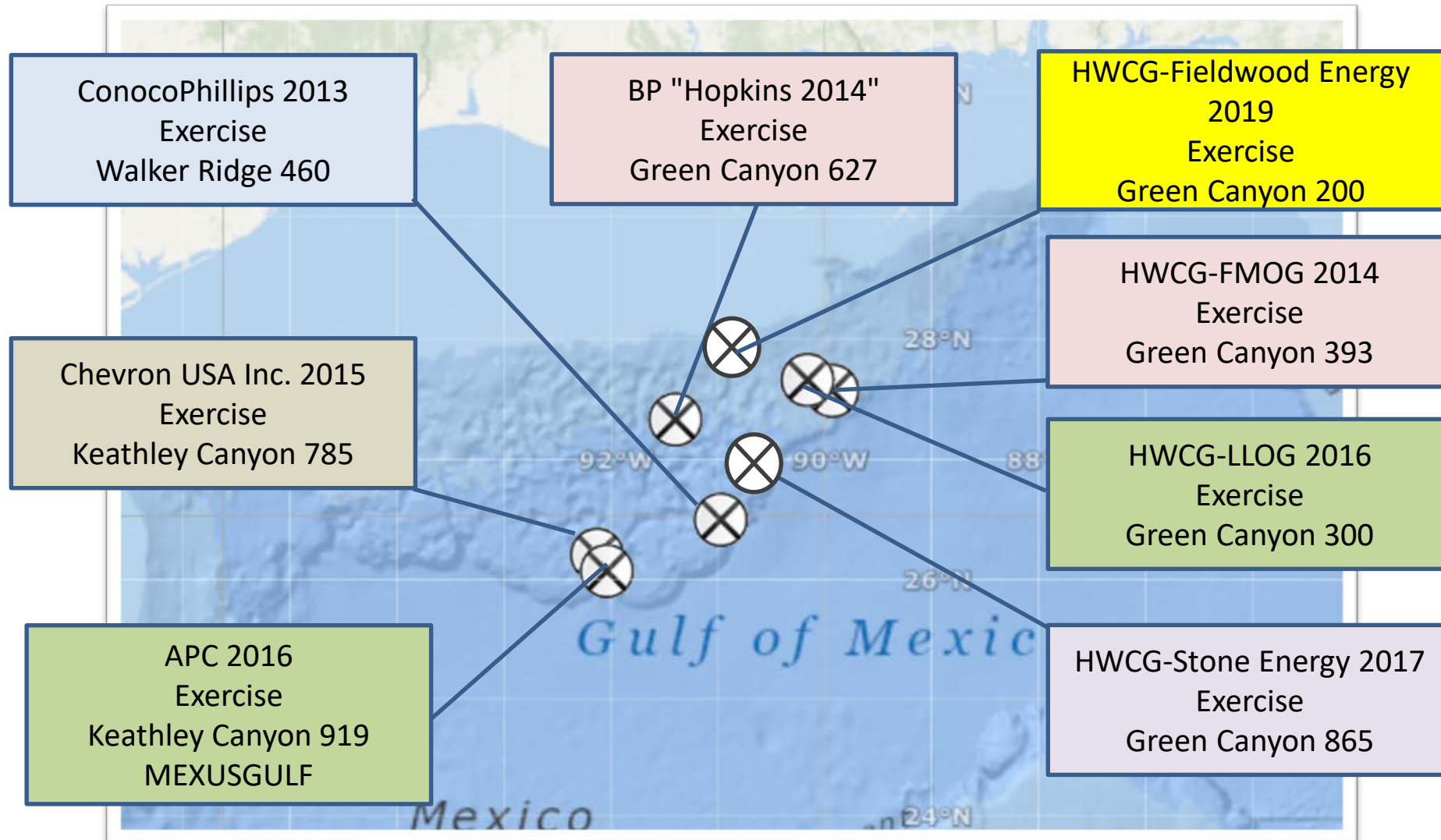
RRTs and Area Committees shall address, as part of their planning activities, the desirability of using appropriate dispersants, etc.

- Preauthorization plans
- Incident Specific
- Concurrence of the EPA
- As appropriate, the concurrence of the RRT representatives from the states with jurisdiction over the navigable waters threatened by the release or discharge
- Consultation with the DOC and DOI natural resource trustees, when practicable





# Exercise History






# Activation Summaries

Exercise  
Exercise  
Exercise

## Incident Specific Activation Report

ConocoPhillips Gulf of Mexico 2013 Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Morgan City, LA



**Regional Response Team 6**  
[Link](#)

**April 3, 2013**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

On 4-4 day period (2-4 April 2013), ConocoPhillips conducted their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, the Coast Guard PREP-jointed RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On 19 March 2013, the exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, the Coast Guard PREP-jointed RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On 7 April 2013, at 0900 LT, the incident-specific RRT-6 activation commenced. The activation commenced with a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard.

On 7 April 2013, at 1200 LT, the RRT-6 activation commenced. The activation commenced with a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard.

Exercise  
Exercise  
Exercise

Exercise  
Exercise  
Exercise

## Incident Specific Activation Report

HWCG-Freepoint-McMoran Oil & Gas (HWCG-FMOC) Gulf of Mexico 2014 Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Morgan City, LA



**Regional Response Team 6**  
[Link](#)

**April 30 & May 1, 2014**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

HWCG-FMOC conducted their annual industry-led Preparedness for Response Exercise Program (PREP) exercise on 29 Apr and 1 May 2014. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On 11 April 2014, the exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise on 29 Apr and 1 May 2014. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On 11 April 2014, the exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise on 29 Apr and 1 May 2014. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.


Exercise  
Exercise  
Exercise

Exercise  
Exercise  
Exercise

## Incident Specific Activation Report

BP Hoggan 2014 Gulf of Mexico Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Morgan City, LA



**Regional Response Team 6**  
[Link](#)

**November 5, 2014**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

BP conducted their annual industry-led Preparedness for Response Exercise Program (PREP) exercise on 5 November 2014. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On 27 October 2014, the exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise on 5 November 2014. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On 27 October 2014, the exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise on 5 November 2014. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.


Exercise  
Exercise  
Exercise

Exercise  
Exercise  
Exercise

## Incident Specific Activation Report

Chesapeake USA Inc. 2015 Gulf of Mexico Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Morgan City, LA



**Regional Response Team (RRT) 6**  
[Link](#)

**August 19, 2015**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

On May 14-15, 2015, Chesapeake USA Inc. conducted their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On August 19, 2015, Chesapeake USA Inc. conducted their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

On August 19, 2015, at 1000 LT, the incident-specific RRT-6 activation commenced. The activation commenced with a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard.


Exercise  
Exercise  
Exercise

Exercise  
Exercise  
Exercise

## Incident-Specific Activation Report

HWCG-LLGO 2016 Gulf of Mexico Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Morgan City, LA



**Regional Response Team (RRT) 6**  
[Link](#)

**May 10, 2016**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

1. On May 10-11, 2016, HWCG-LLGO conducted their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

2. On April 29, 2016, HWCG-LLGO's exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

3. On May 10, 2016, at 1400 CT, the incident-specific RRT-6 activation commenced. The activation commenced with a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard.


Exercise  
Exercise  
Exercise

Exercise  
Exercise  
Exercise

## Incident-Specific Activation Report

APC 2016 Gulf of Mexico Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Morgan City, LA



**Regional Response Team (RRT) 6**  
[Link](#)

**October 24, 2016**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

1. On October 24, 2016, Anadarko Petroleum Corporation (APC) conducted their annual Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

2. On October 13, 2016, APC's exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

3. On October 24, 2016, at 0800 CT, the incident-specific RRT-6 activation commenced. The activation commenced with a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard.


Exercise  
Exercise  
Exercise

Exercise  
Exercise  
Exercise

## Incident-Specific Activation Report

Stone Energy 2017 Gulf of Mexico Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Houma, LA



**Regional Response Team (RRT) 6**  
[Link](#)

**August 2, 2017**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

1. On May 8, 2017, Stone Energy conducted their annual Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

2. On July 14, 2017, Stone Energy's exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

3. On August 2, 2017, at 0800 CT, the incident-specific RRT-6 activation commenced. The activation commenced with a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard.


Exercise  
Exercise  
Exercise

Exercise  
Exercise  
Exercise

## Incident-Specific Activation Report

Fieldwood Energy 2019 Gulf of Mexico Exercise

**Simulated Major Oil Spill – Coastal Zone**  
U.S. Coast Guard, Marine Safety Unit Houma, LA



**Regional Response Team (RRT) 6**  
[Link](#)

**August 21, 2019**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

1. On July 25, 2019, Fieldwood Energy conducted their annual Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

2. On August 7, 2019, Fieldwood Energy's exercise planners provided their annual industry-led Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT-6 activation to use various dispersants, specifically COREXT EC5500, ACCCELL, and ACELL, as an effective means to minimize environmental impact.

3. On August 21, 2019, at 0800 CT, the incident-specific RRT-6 activation commenced. The activation commenced with a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard, followed by a meeting between the RRT-6 members and the Coast Guard.

Exercise  
Exercise  
Exercise



# Incident Specific Activation Report & Job-Aid

Exercise  
Exercise  
Exercise

## Incident-Specific Activation Report

Fieldwood Energy 2019  
Gulf of Mexico Exercise

**Simulated Major Oil Spill – Coastal Zone**  
**U.S. Coast Guard, Marine Safety Unit Houma, LA**

Exercise  
Exercise  
Exercise

### Regional Response Team (RRT) 6

[Link](#)

**August 21, 2019**  
(RRT-6 Activation Date)

**Brief Timeline of Events:**

- On July 25, 2019, Fieldwood Energy conducted their annual Preparedness for Response Exercise Program (PREP) exercise. As part of the exercise, they requested RRT consultation and concurrence to use subsea dispersants, specifically COREXIT EC9500 and ACCELL Clean DWD, as a means to minimize environmental impact.
- On August 9, 2019, Fieldwood Energy's exercise planners provided their subsea dispersant injection package (SSDI) to RRT-6 and MSU Houma (Federal On-Scene Coordinator (FOSC)) for review/comment.
- On August 21, 2019:
  - 0830 CT, key RRT-6 members convened to discuss the package and align with the RRT-6 job-aid checklist. Call adjourned at 0849.
  - 0900 CT, the incident-specific RRT (ISRRT) teleconference commenced; call adjourned at 0941.

**Exercise Scenario:** While Fieldwood Energy was drilling their Orville well in the Green Canyon block 200, they lost all riser tension when the riser parted at a depth of 2,480 feet. As a result, they lost well control and the well continued to flow at a discharge rate of approximately 55,664 bopd.

**1. Assumptions:**

- Fieldwood Energy activated their Oil Spill Response Plan (OSRP)
- Mechanical recovery underway

### RRT-6 ART Evaluation Job-Aid - Dispersants

**Incident Name:** Fieldwood Energy Subsea Dispersant Injection (SSDI) Exercise  
**NRC #:** 1253162  
**Incident date:** July 25, 2019  
**Date of RRT incident-specific call:** Aug 21, 2019

**Spill Zone (Check all that apply and use one form per Spill Zone):**  
☐ OFFSHORE/SURFACE Dispersant Application  
☐ NEARSHORE/SURFACE Dispersant Application  
☒ OFFSHORE/SUBSEA Dispersant Application

**REF: 40 CFR 300.905**

	Y	N	N/A	Key Components
1	✓			Have the applicable forms been appropriately filled out and been submitted to the RRT?
2	✓			Is the spilled product dispersible?
3	✓			Is the dispersant listed on the NCP Product Schedule?
4	✓			Are other options for product removal considered inadequate?
5	✓			Will dispersant application achieve the desired environmental benefit for identified RARs?
6	✓			Is sufficient dispersant available?
7	✓			Can the dispersant be deployed in a timely manner?
8	✓			Did the dispersant application contractor have a pre-existing contract to support the operation?
9	✓			Has the contractor handled this dispersant before?
10	✓			Are weather conditions conducive for the proposed operation?
11			✓	Are operations to be conducted during daylight hours?
12	✓			Are operations to be conducted on 24hr basis?
13	✓			Will application personnel be using the required PPE?
14	✓			Are the personnel applying dispersants properly trained and qualified?
15	✓			Does the Dispersant Application System meet applicable guidelines? a) Aircraft spray systems in accordance with manufacturer and ASTM standards. b) Boat application equipment in accordance with ASTM standards. c) Fire monitor and or nozzle equipment meet ASTM application standards. d) Subsea application systems in accordance with Best Available Technology (BAT).
16			✓	Has the FOSC activated the SMART Program monitoring team?
17	✓			Will the SMART observer fly over to monitor dispersant applications?
18	✓			Is the subsea monitoring plan in accordance with BAT?
19	✓			Will DOI/DOC provide an aerial survey specialist to accompany the SMART observer?
20	✓			Have ESA, EFH, and NHPA Section 106 consultations been initiated?
21	✓			Have all potentially affected jurisdictions been notified? States, BOEM, BSEE

**Recommendation:**  
☒ Approve  
☐ Don't approve  
☐ Approve under the following stipulations: \_\_\_\_\_

20 COTP Houma simulated consultations

\_\_\_\_\_

\_\_\_\_\_

RRT6-ART JA

Ver. 16 May 2018



# Path Forward

- Committed to refining Subsea Dispersant Protocols and Processes
- Up to two exercises per year
- Collaborate with Region 4 for maximum consistency within the Gulf of Mexico
- Collaborate with the NRT for future exercises
- Refine Job Aid as necessary





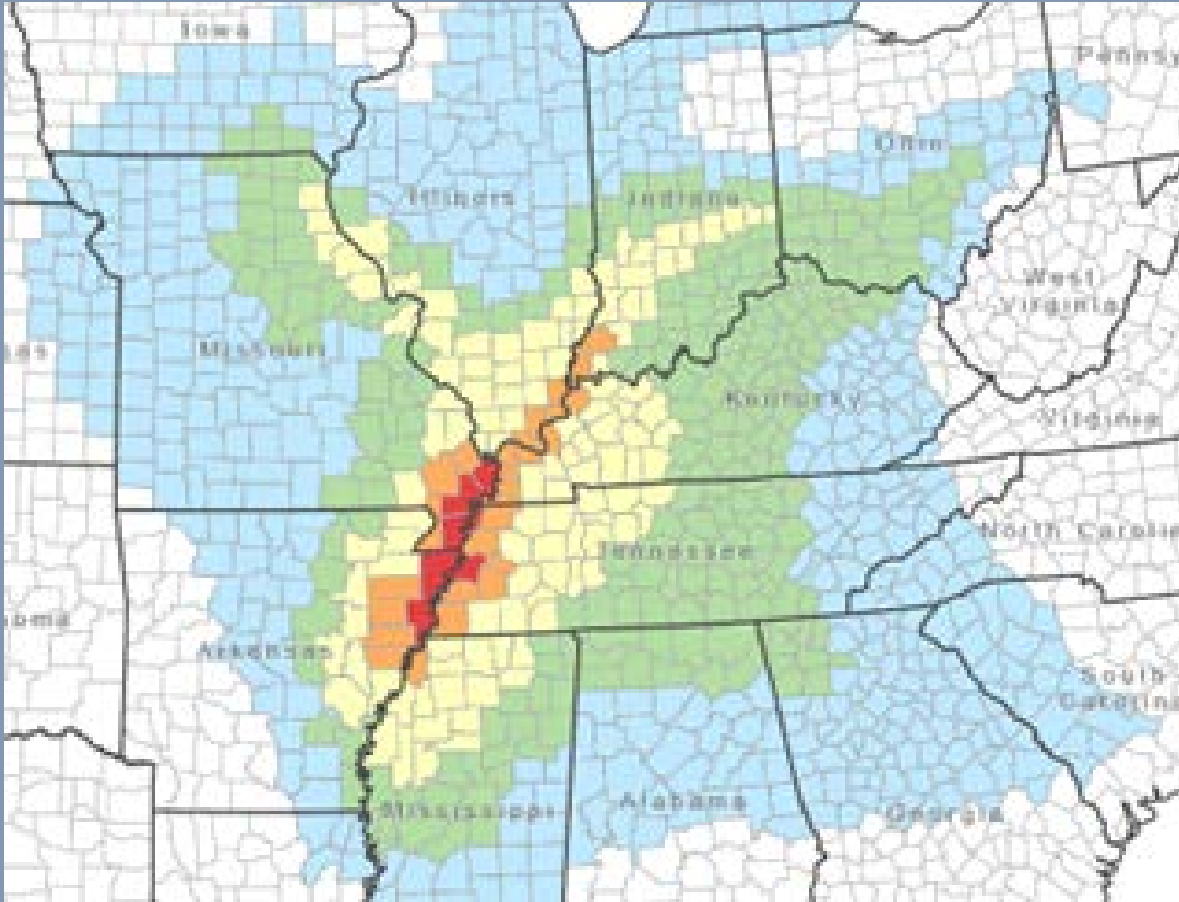


FEMA

# **New Madrid Seismic Zone Planning & Shaken Fury 2019 Lessons Learned**



# Background



- **Threat assessment**
- **Planning efforts**
- **Exercise design**







## LINKED EXERCISES

Shaken Fury 2019 is a part of a series of linked exercises conducted by other Federal Agencies and partners throughout the year. Learn more about those exercises below.

### Ardent Sentry 2019

The major annual U.S. Department of Defense (DOD) exercise focuses on Defense Support of Civil Authorities.

### Vigilant Guard 19-3

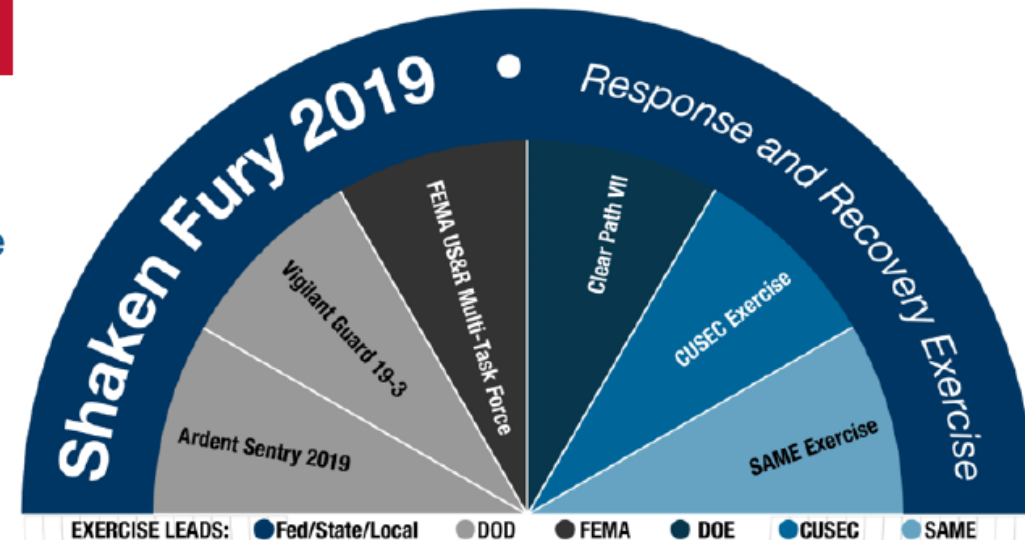
DOD and the National Guard Bureau's annual exercise focuses on improving emergency coordination, response, and recovery management with federal, regional, state, local, and military partners.

### FEMA Urban Search and Rescue (US&R) Multi-Task Force Exercise

The FEMA Operational Readiness Exercise and Evaluation Program Deployment Exercise focuses on preparing FEMA's US&R task forces to meet system operational requirements and proficiency standards.

### Clear Path VII

Department of Energy's annual exercise focuses on testing and evaluating energy sector response plans.



### Central United States Earthquake Consortium (CUSEC)

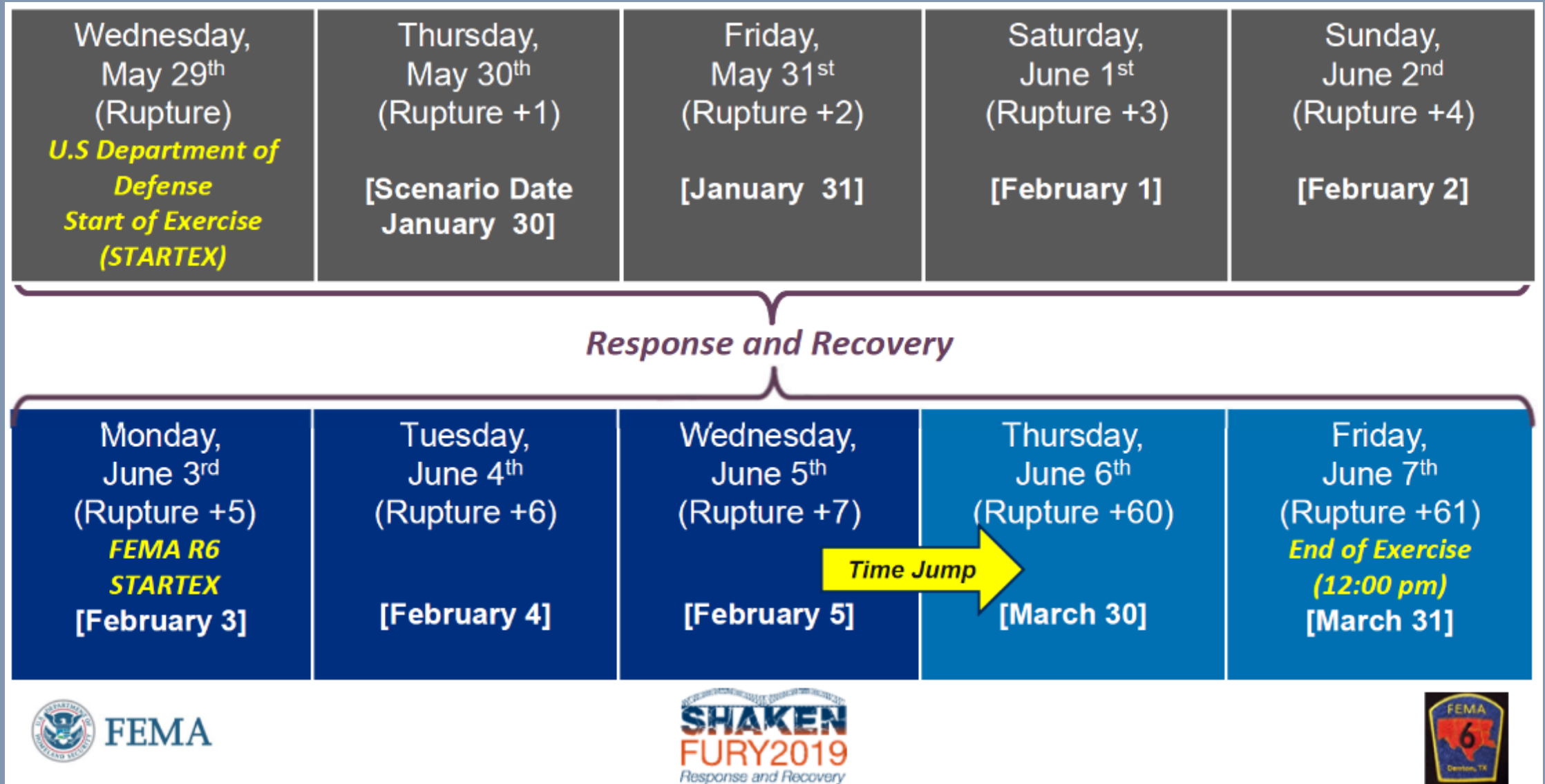
The CUSEC exercise is designed to discuss and assess plans, policies, and procedures related to information sharing integration and Emergency Management Assistance Compact operations during a NMSZ specific event.

### Society of American Military Engineers (SAME) Exercise

The SAME TTX will place emphasis on the response and recovery commodities managed and/or provided by the SAME community during a NMSZ event.



# Exercise Timeline





# Scenario Review



Earthquake Shaking  Red Alert



**USAID**  
FROM THE AMERICAN PEOPLE



**PAGER**  
**Version 1**

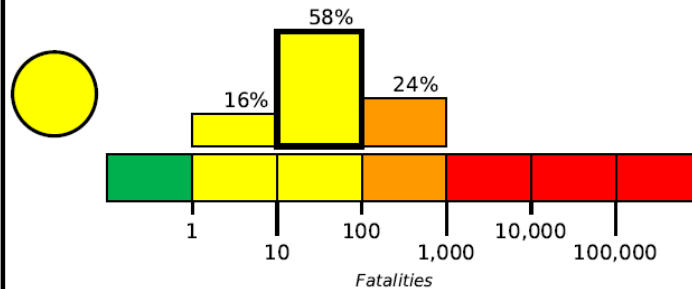
## M 7.7, Scenario New Madrid southern fault

Origin Time: 2019-01-29 18:00:00 UTC (Tue 12:00:00 local)

Location: 35.5426° N 90.4365° W Depth: 15.0 km

**FOR TSUNAMI INFORMATION, SEE: [tsunami.gov](https://tsunami.gov)**

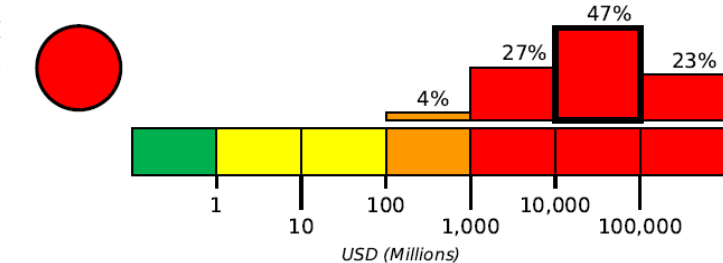
### Estimated Fatalities



Red alert for economic losses. Extensive damage is probable and the disaster is likely widespread. Estimated economic losses are less than 1% of GDP of the United States. Past events with this alert level have required a national or international level response.

Yellow alert for shaking-related fatalities. Some casualties are possible.

### Estimated Economic Losses



## Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k=x1000)		—*	—*	4,676k*	18,834k	6,499k	2,053k	213k	92k	2k
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	None	None	None	V. Light	Light	Moderate	Mod./Heavy	Heavy	V. Heavy
	Vulnerable Structures	None	None	None	Light	Moderate	Mod./Heavy	Heavy	V. Heavy	V. Heavy



# Exercise Participation



US Army Corps  
of Engineers®



CISA  
CYBER+INFRASTRUCTURE





# Successes



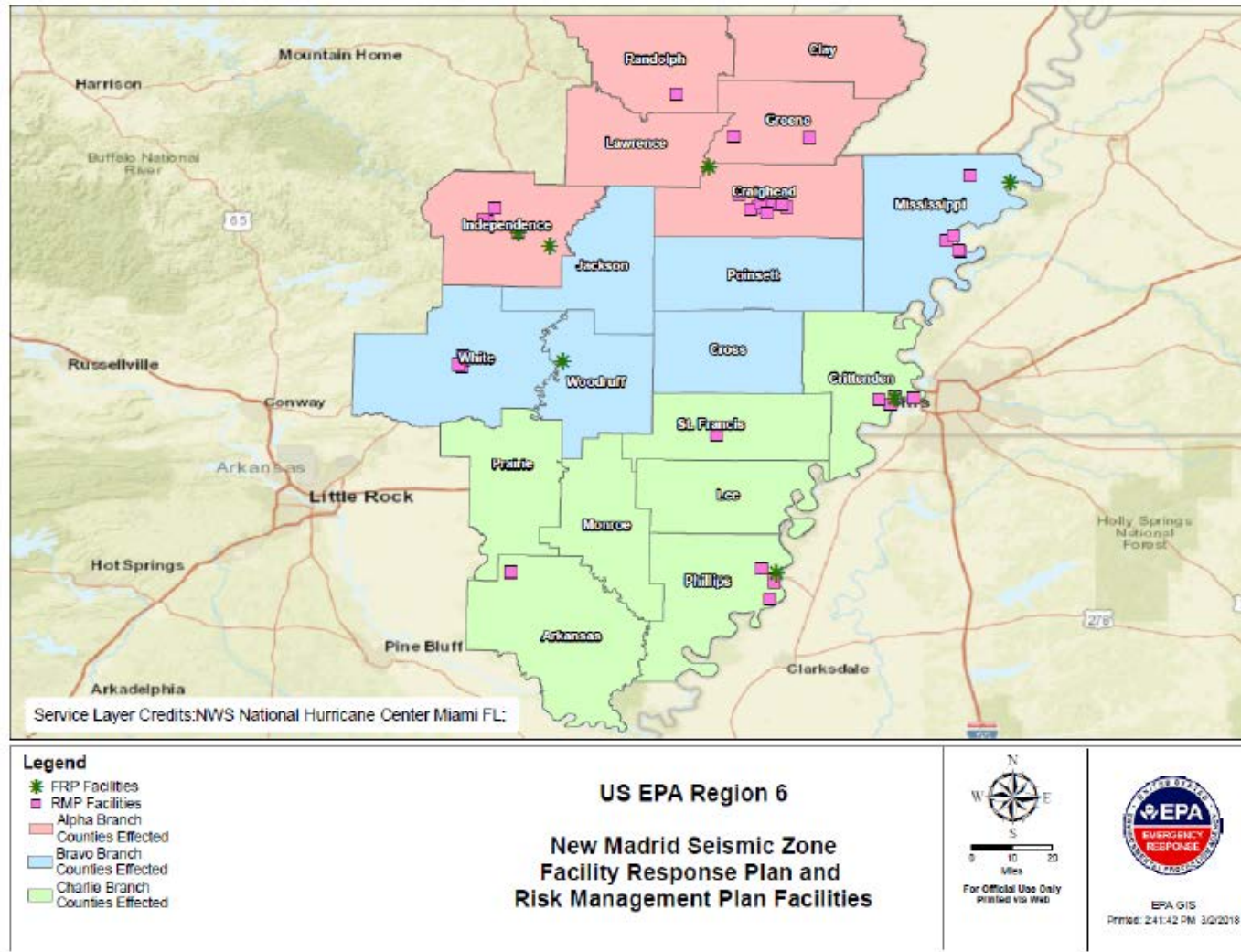
- Increased focus on planning
  - Capability gaps
  - Resource prioritization & phasing
  - Unresolved issues
  - Initial & Midterm Planning Meetings
- Relationships
- Inject development
  - Joint Master Scenario Event List (JMSEL)
- Hands-on training



FEMA



# Challenges



**Figure 3 – Facility Response Plan (FRP) and Risk Management Plan (RMP) Facilities in Northeast Arkansas**

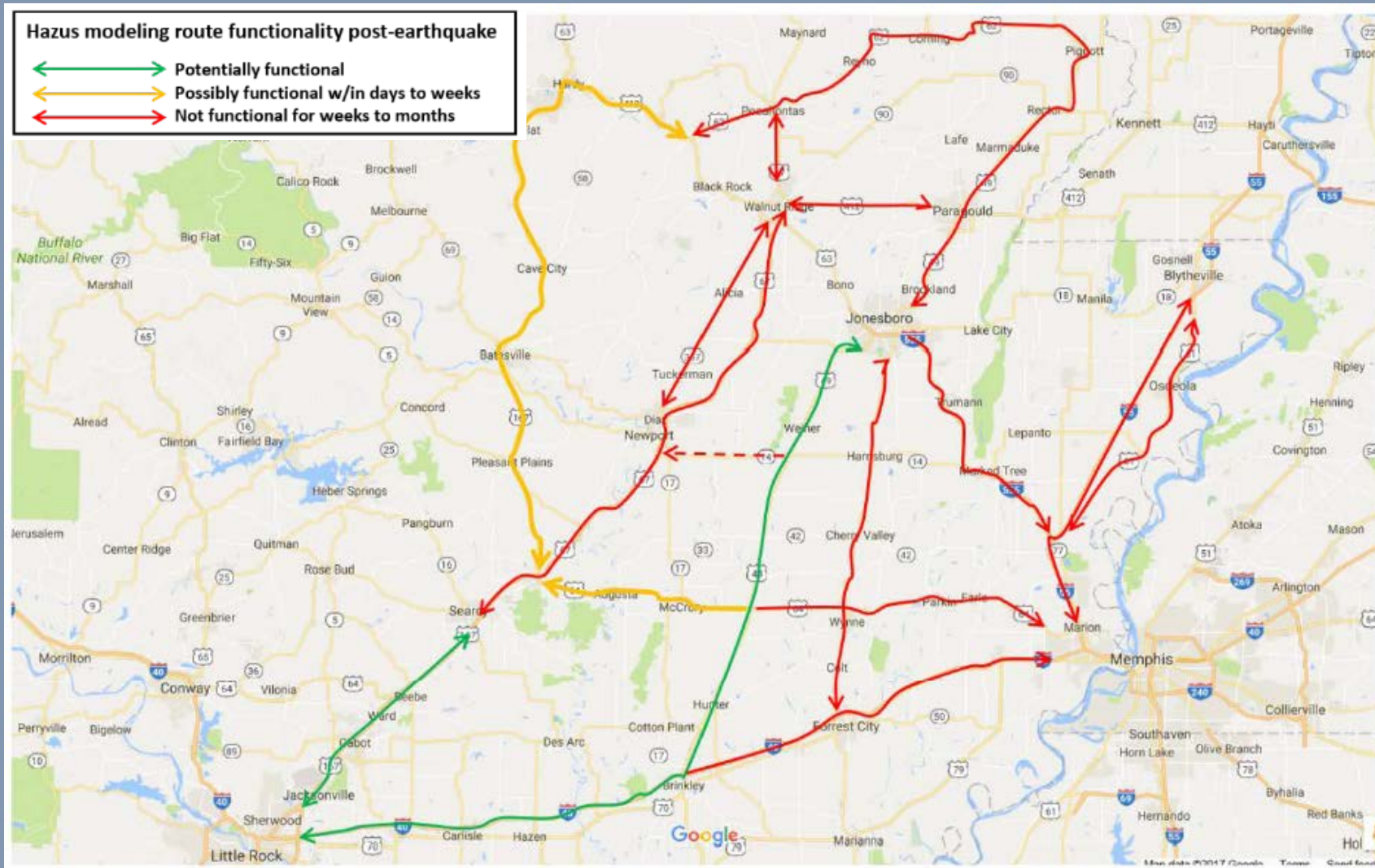
- Exercise design/timeline
- Data Concerns
- Inject development
  - Joint Master Scenario Event List (JMSEL)
  - Ground truth



FEMA



# Challenges



- **Assumptions**
  - **Communications**
  - **Movement**
  - **Staging**
- **Atypical response**
  - **Delayed ingress**
  - **2-wave evacuation**
- **Relationships**



FEMA



# Next Steps



- **Planning--training--exercising**
- **Drills versus full-scale exercises**
- **Workshops with ESFs/OFAs**



FEMA



# Questions?

**Christine Mae Hanson**

Operations Team Lead

Emergency Services Branch Director

DHS/FEMA Region 6

940-218-3445

[christine.hanson@fema.dhs.gov](mailto:christine.hanson@fema.dhs.gov)



FEMA



**ADVANCES IN ISB: Surface  
Collecting Agents (aka Herders)  
using Remotely Manned Surface  
Vehicles**





# BACKGROUND ON IN-SITU BURNING (IPIECA / IOGP, 2016)

## BASIC REQUIREMENTS

- Oil layer thickness must be at least 2 to 3 mm (0.08–0.12 in) to sustain combustion
- Oil must have some volatiles and not contain too much water

## EFFICIENCY OF IN-SITU BURNING

- Efficiency of a burn depends on the oil thickness
  - “Chimney effect” (convective wind herding) thickens oil during burn
- Thick oil layers can burn at a rate of 2.5 mm/minute (1 inch in 10 minutes).
- Burn rate limits burn times to 10 – 30 minutes for free-floating oil slicks thereby mitigating potential hazard of uncontained oil fires
- Combustion normally continues until the final thickness is approximately 1 mm, burn efficiencies in excess of 90% can be achieved



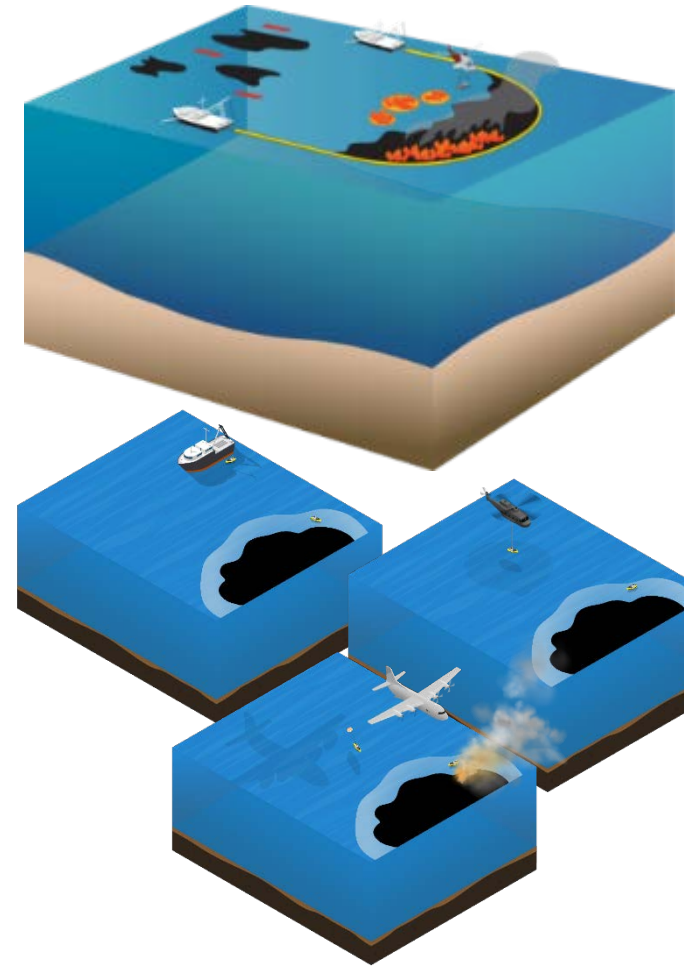
# TECHNOLOGY DESCRIPTION

SCAs use a 'surfactant boom' to thicken slicks—no boundary required (Garrett & Barger, 1972)

SCAs typically require at least an order of magnitude less product than treating slicks with dispersants (Buist et al., 2014)

SCA technology originally developed for open water (Garrett & Barger, 1972); in 2000's research focused on marine applications with ice; but more recent research has again concentrated on open water (Cooper et al., 2017; SL Ross, 2012; Buist et al., 2011)

The goal is to develop another tool that can be rapidly applied to make ISB a routinely used response option



- Buist, I., & Nedwed, T., 2011. Using Herders for Rapid *In situ* Burning of Oil Spills on Open Water, International Oil Spill Conference Proceedings, Mar 2011, Vol. 2011, No. 1 pp. abs231.
- Buist, I., Nedwed, T., Tidwell, A., Lane, P., Newsom, P., & Flagg, K., 2014. Update on Developing and Commercializing Oil Herders for In-Situ Burning, International Oil Spill Conference Proceedings, May 2014, Vol. 2014, No. 1 pp. 1441-1456.
- Cooper, D., Buist, I., Potter, S., Daling, P., Singaas, I., Lewis, A., 2017. Experiments at Sea with Herders and *In Situ* Burning, International Oil Spill Conference Proceedings, May 2017, Vol. 2017, No. 1 pp. 2184-2203.
- Garrett, W.D. and Barger, W.R., 1972. Control and Confinement of Oil Pollution on Water with Monomolecular Surface Films, Naval Research Laboratory, Washington, D.C., NRL Memorandum Report 2451.
- SL Ross, 2012. Research on Using Oil Herding Agents for Rapid Response *In situ* Burning of Oil Slicks on Open Water, U.S. Dep. Of the Interior Bureau of Safety and Environmental Enforcements Oil Spill Response Research (OSRR) Program, Herndon, VA.

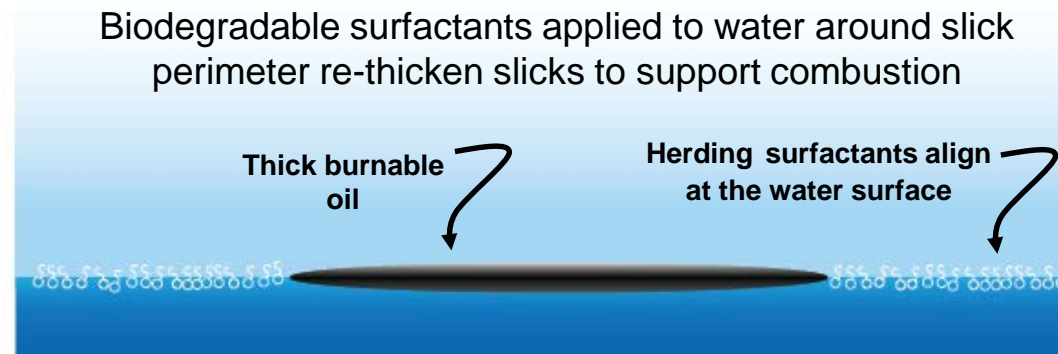


# TECHNOLOGY DESCRIPTION

SCAs sprayed on water around perimeter of slick via aircraft, boat, USV

SCAs rapidly spread to form monolayer of surfactant on water surface

SCAs change surface tension of water forcing slick into smaller area





# SCA's AND MECHANICAL RECOVERY

- 70's research focused on enhancing skimming with SCA's, however
  - SCA's do not eliminate the logistical issues associated with mechanical recovery
  - Skimming herded but free-floating oil slicks is inefficient
    - Skimmers have to be continuously repositioned in free-floating oil slicks
    - Skimmers were developed for thick oil (multi centimeters thick) (ASTM F2709-18; McKinney et al., 2017).
- SCA's can remove oil / sheens under structures in marinas and away from nearshore areas

- ASTM F2709-18, Standard Test Method for Determining a Measured Nameplate Recovery Rate of Stationary Oil Skimmer Systems, ASTM Book of Standards Volume 11.08. Accessed online at <https://www.astm.org/Standards/F2709.htm>, on September 24, 2019.
- McKinney, K., Caplis, J., DeVitis, D., and Van Dyke, K., 2017. Evaluation of Oleophilic Skimmer Performance in Diminishing Oil Slick Thicknesses. International Oil Spill Conference Proceedings May 2017, Vol. 2017, No. 1 (May 2017) pp. 1366-1381.



# PRIOR RESEARCH

Over 15 years of research has proven that SCA for ISB works

- Much development performed under temperate, open-water conditions

SCAs have been formulated to be low toxicity and rapidly biodegradable, e.g., Thickslick™ 6535 SCA

SCAs may work in sea states greater than boom as the surfactants reduce wave cresting – Garrett & Barger (1972) kept a slick herded for 2.5 hours in 6 foot seas with numerous white caps

Two SCAs (ThickSlick™ 6535 and OP-40) are listed on the EPA NPL for potential use in US waters

Results of EPA Required Toxicity Testing for NCP Listing

SCA	Menidia beryllina (minnow) 96 hr LC <sub>50</sub>	Mysidopsis bahia (shrimp) 48 hr LC <sub>50</sub>
Thickslick™	138 ppm (practically non-toxic <sup>a</sup> )	286 ppm (practically non-toxic <sup>a</sup> )

<sup>a</sup>as defined by the US EPA aquatic toxicity ranking system  
(<http://www.epa.gov/espp/litstatus/effects/redleg-frog/naled/appendix-i.pdf>)

Results of Biodegradation Testing

SCA	% biodegradation Day 1	% biodegradation Day 20
Thickslick™	14.8	>99



# PRIOR LABORATORY TESTING





# FIELD RESULTS IN ICE (Buist, 2010)

## PERFORMED UNDER A PRIOR JOINT INDUSTRY PROJECT



*Oil release &  
spread  
(15 minutes)*

*630 liters of fresh  
crude*



*SCA applied &  
contracts  
slick  
(9 minutes)*



*Ignition & ISB  
(9 minutes)*

*Courtesy of Ian Buist/SL Ross*



## FIELD RESULTS IN ICE - VIDEO





# Field Testing – Fairbanks, Alaska 2015

(Potter, 2017)

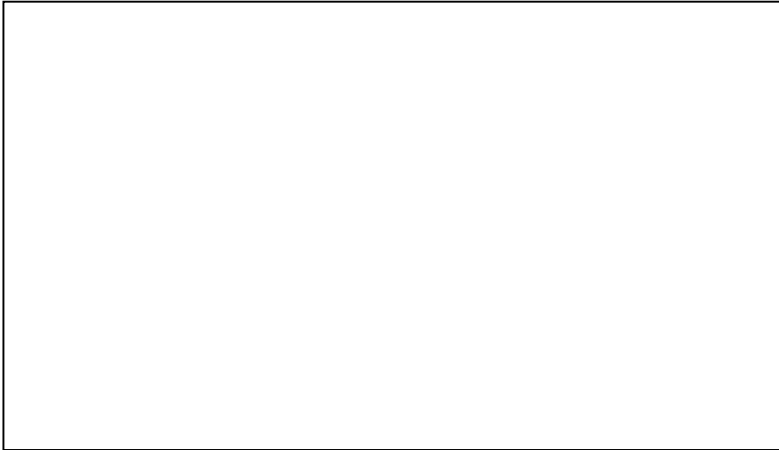


- Oil released in the centre of the basin and allowed to spread (~ 1 barrel).
- A helicopter sprayed SCA (approximately 1/150 barrel).
- Helicopter ignited slick with Helitorch.
- Two successful burns

Potter, S., Buist, I., Aggarwal, S., Schnabel, W., Garron, J., Bullock, Perkins, R., & Lane, P., 2017. Aerial Application of Herding Agents can Enhance *In-situ* Burning in Partial Ice Cover, International Oil Spill Conference Proceedings, May 2017, Vol. 2017, No. 1 pp. 2955-2975.



# Field Testing – Offshore Norway 2016 (Cooper, 2017)



Control slick with no SCA application  
50 minutes after release



Slick after SCA application  
/ before burn



Slick burning

- Field test conducted June 14, 2016
- First known study to successfully burn free-floating marine oil slicks in open water
- Herded slick burned for total of ~30 min.
- Control slick (no SCA) burned for ~12 min.

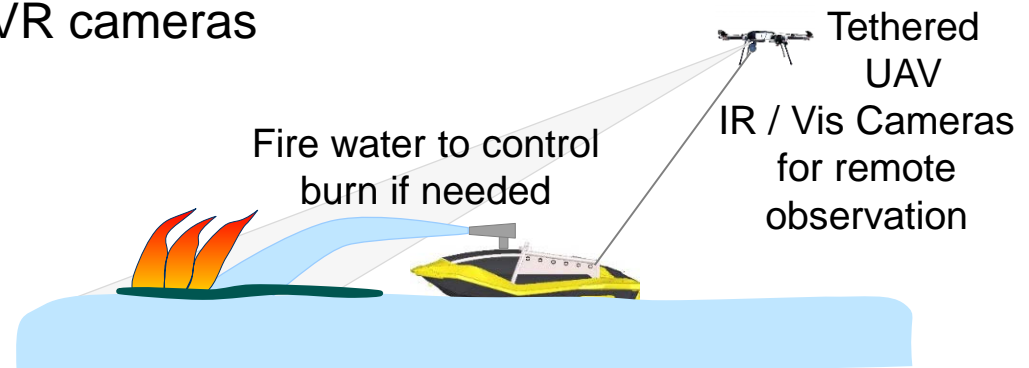
Cooper, D., Buist, I., Potter, S., Daling, P., Singaas, I., Lewis, A., 2017. Experiments at Sea with Herders and *In Situ* Burning, International Oil Spill Conference Proceedings, May 2017, Vol. 2017, No. 1 pp. 2184-2203.



# Remotely Manned Surface Vehicle (USV) for OSR

ExxonMobil is developing a multifunctional USV for OSR

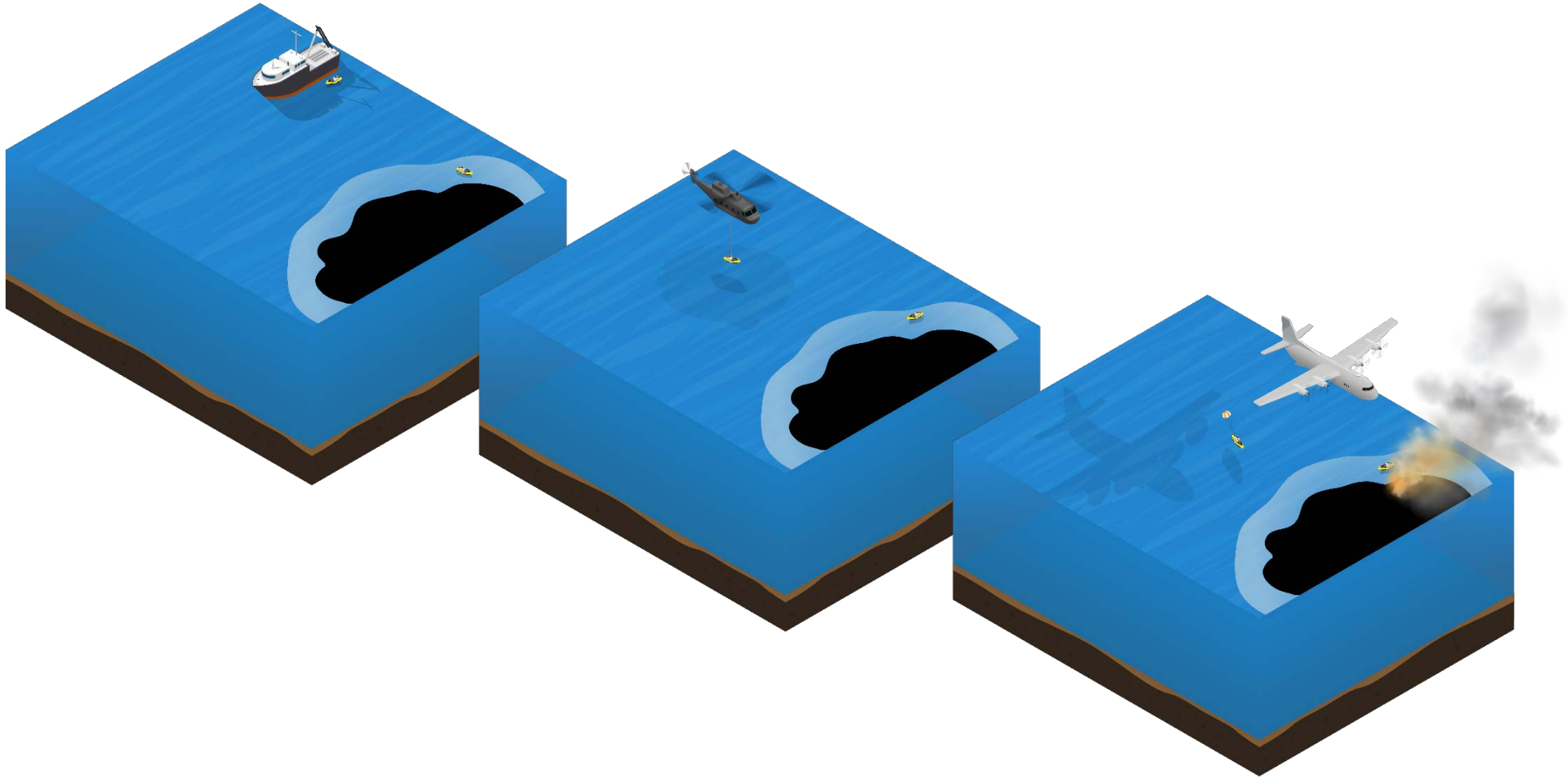
- Deployable from ship, helicopter, airplane
- Autonomous operation or remote (virtual reality) operator
  - GPS / long range radio / satellite communications
- Speeds up to 65 mph / 500 mile range / 12+ hrs operation
- Collision avoidance system
- SCA application / slick ignition
- VOC monitoring
- Aerial remote sensing with tethered UAV (visible / IR / other sensor)
- 4 surface / 2 underwater / 1 360° VR cameras
- Oil Slick sampling
- Underwater Lighting
- Modular sensor platform
- 350 lbs payload capability
- Fire control using jet pumps





# ExxonMobil Unmanned Surface Vehicle (USV) for OSR

Deployable from ship, helicopter, airplane





# Other Recent Developments

- Successful field demonstration in Kazakhstan in fall 2018
- Chevron drill in May requested endorsement to use SCA
  - RRT 6 endorsement not given
    - Concerned about safety of burning free-floating oil slicks
    - Concerned about SCA effectiveness in temperate environment
- SCA / ISB field test planned for Canadian Multi-partner Research Initiative in 2020 / 2021



# Summary on SCAs for ISB

- SCAs to enable *in situ* burning have undergone over 15 years of study
- Field / lab tests demonstrated they work in open temperate water
- ISB of oil slicks is fast (burn rates of 2.5 mm / minute) mitigating potential hazard of uncontained oil fire
- Herding typically requires very small quantities of a very low toxicity surfactant
- SCAs commercially available and on the US EPA NCP Product Schedule
- USV SCA delivery / ignition system in final development
- US OSR organizations have stockpiles of SCAs & ignitors
- SCA technology ready for first use



**QUESTIONS?**



# Institutionalizing Knowledge Building & Engagement for Readiness and Response: RRT6 and the Academic Community

Thomas Douthat, JD, PhD  
Louisiana State University  
College of Coast and the Environment  
Department of Environmental Sciences





- A multi-state university-based research consortium collaborating to promote scientific knowledge, workforce development, and understanding that informs natural resource management decisions at state, regional, national, and international levels. ([gomurc.org](http://gomurc.org))
- 80 Member Institutions
- 5 Gulf States



# GOMURC WORKSHOP AT GOMOSES 2018

---

- Organizer: Dr. Christopher D'Elia (cdelia@lsu.edu), Dean, College of Coast and Environment, Louisiana State University; GOMURC Board member
- PURPOSE: *“to capture lessons learned from the BP spill that can be used to improve OPA when the opportunity arises”*
- ONLINE RESOURCES AT <http://gomurc.fio.usf.edu/index.php/about-us/docs/category/8-reports?download=42:opa-ws-summary>





# Objectives

- What are the priority science and research needs for responding to a spill like DHOS and how did OPA succeed or fail to address these needs?
- What are longer term legal and social issues that may be improved in OPA?

Panelists*	URL
Alyssa Dausman, Vice President for Science, The Water Institute of the Gulf and Chief Scientist, Louisiana RESTORE Act Center of Excellence	<a href="#">Web page</a>
Charlie Henry, Director, NOAA GoM Disaster Response Center	<a href="#">Web page</a>
Scott Lundgren, Chief, NOAA OR&R Emergency Response Division	<a href="#">Web page</a>
Keith Rizzardi, St. Thomas University, Law faculty	<a href="#">Web page</a>
Pat Roscigno, BOEM: Chief of the Office of Environmental Studies for the GoM OCS Region	<a href="#">Web page p. 31</a>
Cyn Sarthou, Executive Director, Gulf Restoration Network	<a href="#">Web page</a>

\*- Note that panelists' presentations and report comments are personal views and do not reflect agency policies.



# First Recommendations

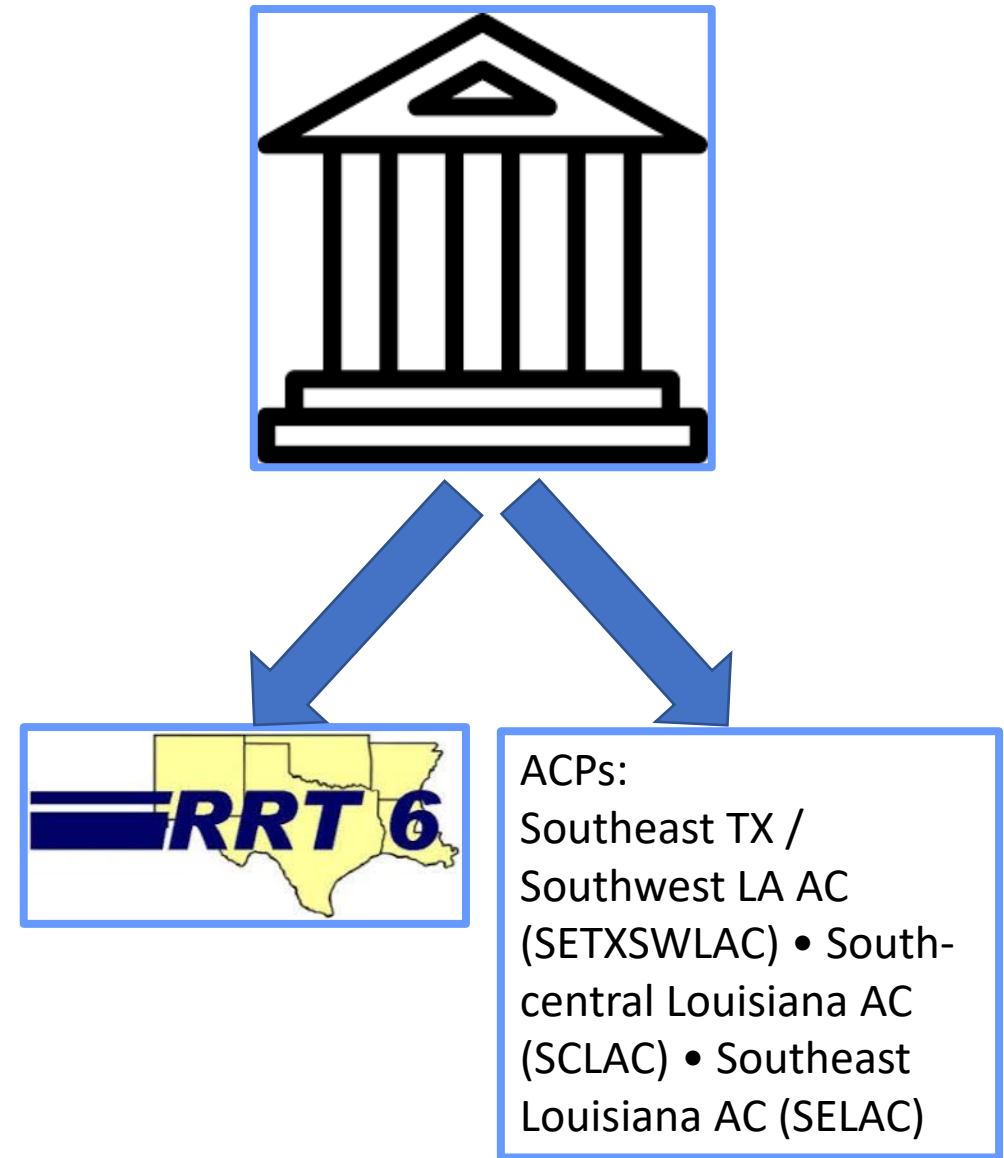
- Adhere to original intent of OPA by ensuring majority of civil penalties are applied to ecosystem response and restoration and that these efforts are science-based.
- Engage industry in environmental monitoring as a pre-condition for lease sales, including measurement of key indicators relevant to the spill location (biology, chemistry and physics), and building on existing observing and monitoring infrastructure





# Management Takeaways

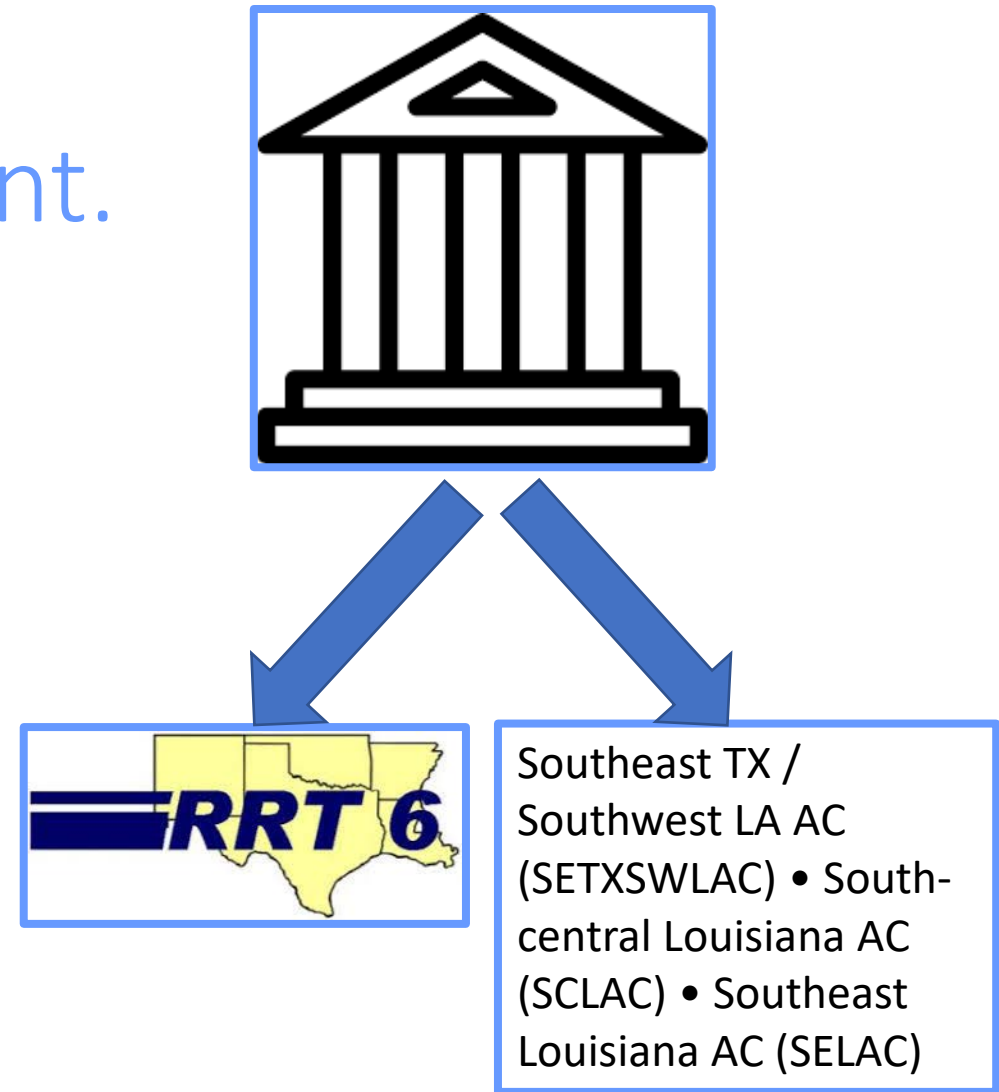
- Contingency Plans (facilities and regional) should:
  - Be relevant to the region and type of operations
  - Include a rapid response engineering plan for containment and clean-up
  - Undergo science review by appropriate experts in and outside government
  - Be approved by more than one trustee; and made easily accessible to the public





# Management Takeaways Cont.

- Academia should promote engagement of science community and with government leadership:
  - **Participate** in RRT meetings and exercises
  - **Establish** a permanent Gulf Research Council to help sustain engaging academia with resource and response managers
  - **Target** *ad hoc* expertise to assist in scientific response effort
  - **Assist** in applying established decision analysis tools to guide priorities





# Opportunities for Science Bases Approaches to Human & Social Aspects of Response



- Target enhanced efforts on **social and human health impacts** in all phases (prevention to restoration) of the Coast Guard's Interagency Coordinating Committee on Oil Pollution Research's (ICCOPR) [\*Oil Pollution Research and Technology Plan, 2015-2021\*](#)
- Establish a Gulf Regional Citizens Advisory council to engage in regional contingency planning, as well as post-disaster decision-making
- Systemic collection of biospecimen and other health data during the spill

[Am J Orthopsychiatry](#). 2014 Mar;84(2):142-51. doi: 10.1037/h0099382.

**The Deepwater Horizon Oil Spill and the Mississippi Gulf Coast: Mental health in the context of a technological disaster.**

[Drescher CE](#)<sup>1</sup>, [Schulenberg SE](#)<sup>1</sup>, [Smith CV](#)<sup>1</sup>.

## **The Development of Long-Term Adverse Health Effects in Oil Spill Cleanup Workers of the Deepwater Horizon Offshore Drilling Rig Disaster**

 [Mark A. D'Andrea](#) and  [G. Kesava Reddy](#)\*

University Cancer and Diagnostic Centers, Houston, TX, United States

**Background:** The purpose of this study was to assess the long-term adverse health effects of the 2010 *Deepwater Horizon* Gulf oil spill exposure in workers who participated in its cleanup work.



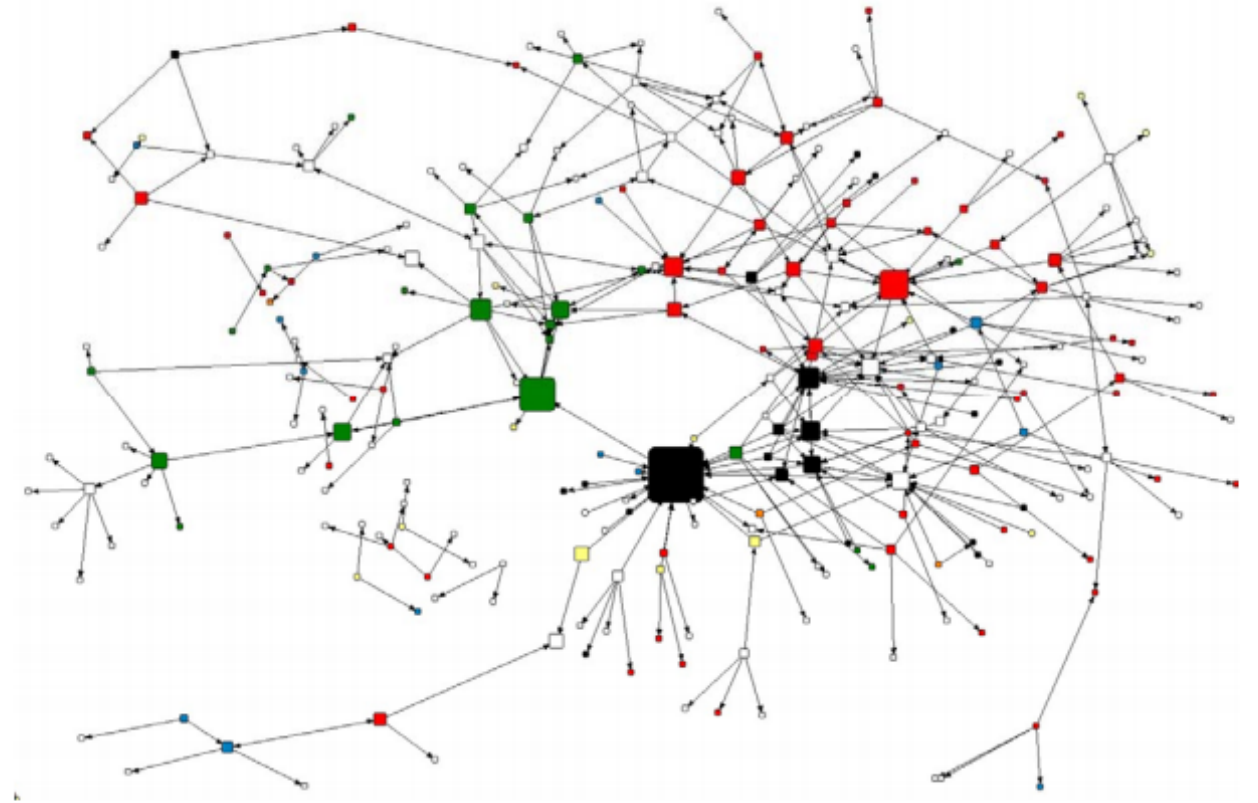


## Legislative Conclusions for OPA 2.0

- Change OPA to mandate the Restore Act's dedication of 80% of civil penalties from spills to the affected region
- Prioritize funding for restoration based on independent scientific criteria
- Safeguard scientific responders against litigation regarding sharing of existing knowledge and data (see, [Camilli, Bowen, Reddy, Seewald, & Yoerger, 2012](#))



# University Researchers are Not Highly Embedded in the Response Community



Professional Affiliation	
<span style="color: red;">■</span>	University/College Researcher
<span style="color: green;">■</span>	Emergency Responder/Manager
<span style="color: yellow;">■</span>	Natural Resource Manager
<span style="color: blue;">■</span>	Environmental Non-Profit
<span style="color: black;">■</span>	Outreach Specialist, Sea Grant, or GoMRI
<span style="color: orange;">■</span>	Fisher
<span style="color: white;">■</span>	Other or Unknown

Figure 3. Sociogram depicting the betweenness centrality (node size) of people that provide credible, relevant and timely oil spill science information, and associated professional affiliation (node color).



# The Federal Network Is Very Knowledgeable



## History of Oil and Oil Spills at Louisiana State University

OCTOBER 7, 2019 — Gary Shigenaka, an OR&R biologist, was invited to present to the College of the Coast and Environment (CC&E) at Louisiana State University on the history of oil and oil spills.

The CC&E Seminar Series is diverse seminar series that serves to scientifically educate the CC&E community by inviting speakers from a variety of disciplines and career levels. A second goal of the CC&E Seminar Series is to promote interactions and collaborations between members of CC&E and between CC&E members and scientists from other institutions.

The talk covered the difficulty of separating the history of oil from the history of oil spills, and why understanding these histories can improve how we respond to oil spills in the future. The Emergency Response Division within OR&R has a long association and working relationship with Louisiana State University, and chemists at CC&E provide support during oil and chemical spills.

For more information, contact [Gary.Shigenaka@noaa.gov](mailto:Gary.Shigenaka@noaa.gov).

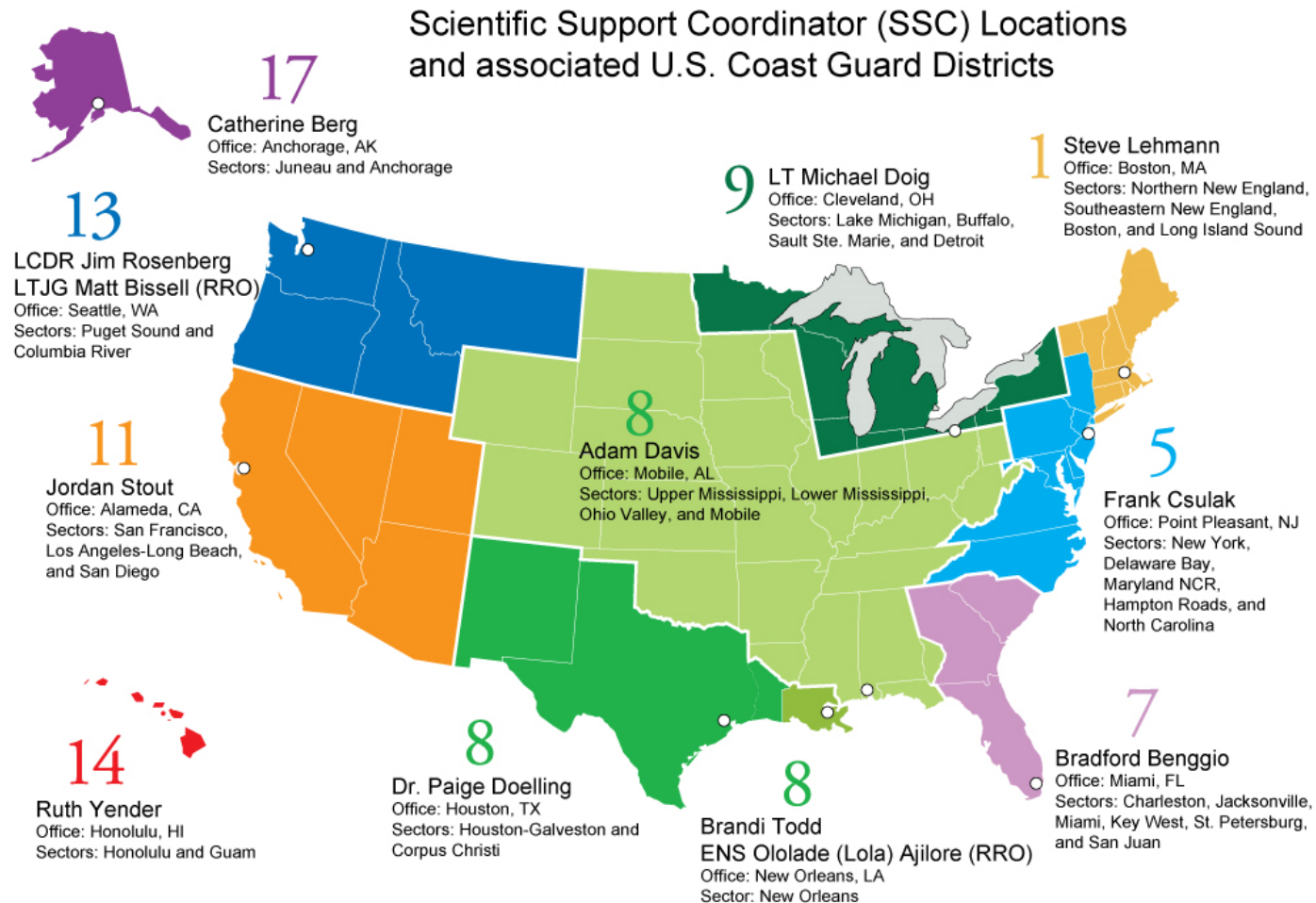
[Return to OR&R Weekly Report.](#)



*Current Louisiana State University chemistry support scientists, Tyler Mauney and Laura Basirico; former Louisiana State University chemist and NOAA Scientific Support Coordinator, and current OR&R Disaster Response Center director Charlie Henry, OR&R biologist Gary Shigenaka, and Professor Emeritus Ed Overton. Image credit: NOAA.*



# Scientific Support Coordinators are Highly Qualified



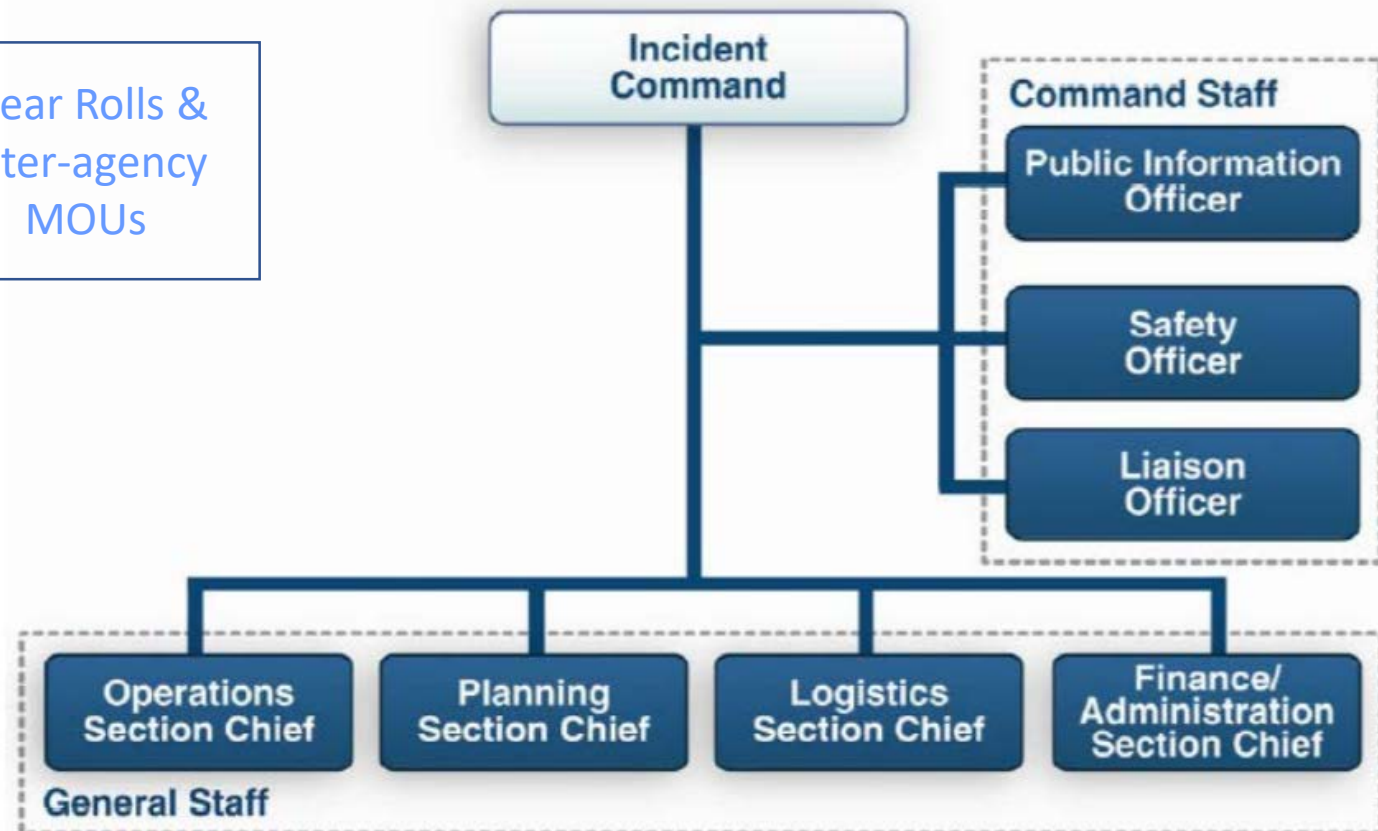
RRO (Regional Response Officer): ENS Lola Ajilore (Gulf Coast), LTJG Matt Bissell (West Coast)



# Response Requires Highly Structured Organizational Relationships



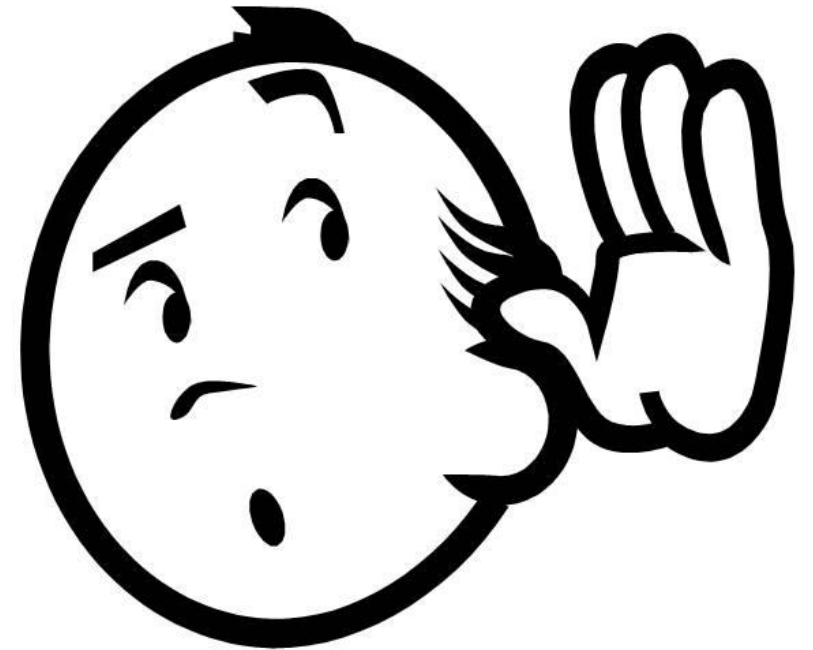
Clear Rolls &  
Inter-agency  
MOUs





# Conversations with RRT6 Coordinators: Challenges to engagement

- Level of commitment from academia low due to many reasons
  - Funding
  - Lack of topical interest
  - Time commitments
  - Tenure and promotion
- Most hazard events that RRT must deal with are small
  - Academic interest clusters around larger events
- When unpredictable big high-profile events occur
  - Need to institutionalize sustainable structures for collaboration and forums for learning that engage science community to help address use of best available science





# Why create a larger scientific knowledge network?

- Knowledge is diffuse & what is valuable knowledge is unpredictable

*If* we possess all the relevant information,  
*if* we can start out from a given system of [pre-planned scenarios], and  
*if* we command complete knowledge of available means, the problem which remains is purely one of logic.

This, however, is emphatically *not* the [response] problem which [major oil spills pose].



# What datasets are needed for response?

- University researchers may be able to help inform this question
  - Or address gaps that agencies identify
- University researchers may have useful long-term datasets
  - Or be potential partners in developing them
- Examples of domains of knowledge in the contingency plans that map common areas of university research?
  - Communications
  - Coastal hydrology and climatology (potentially in unusual circumstances)
  - Environmental fates and toxicology
  - Ecology of local systems
  - Transportation networks
  - Decision science & uncertainty



# Elements of a sustainable learning network

## Rules:

- Create clear structures for coordinating roles, rules of engagement, expectations
- Transparent application and vetting for advisory roles in Regional and Area planning

## Relationships:

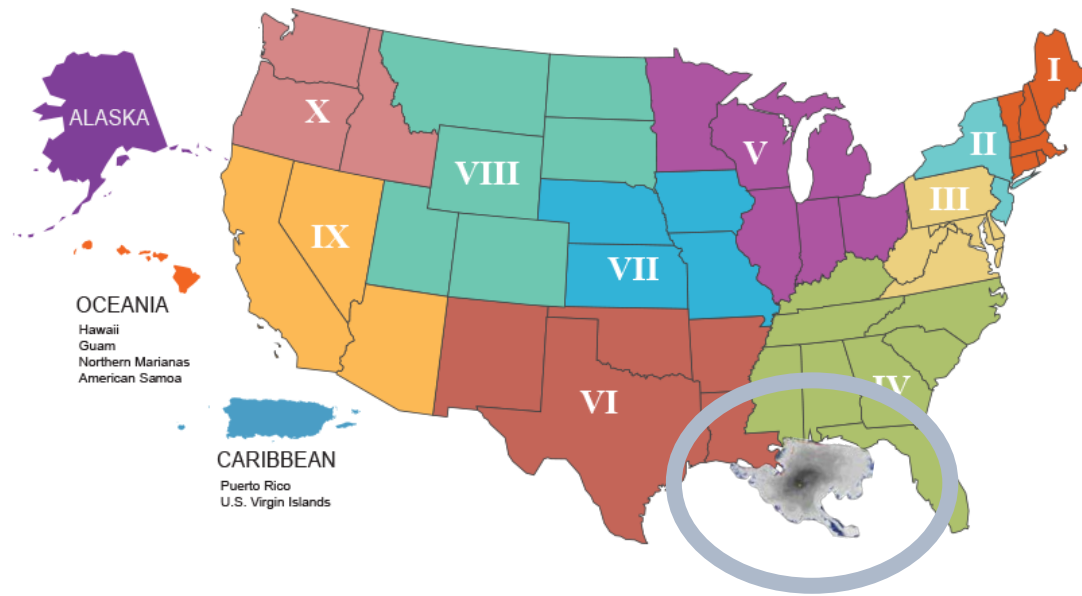
- Creating formal “brokerage” roles linking responders and communities of practice in universities in priority areas for RRT-6 on an ongoing basis
- Institutionalize participation structures for ongoing knowledge sharing and repetitive interactions in shared forums
  - Trust builds over time

## Resources:

- Stable sources of funding for responder-academia linkage role
- Mechanisms to incent long-term commitment to service



# Knowledge is Needed At Different Scales, In Diverse Contexts, and Across Boundaries



National Contingency Plan

Regional Response Plan

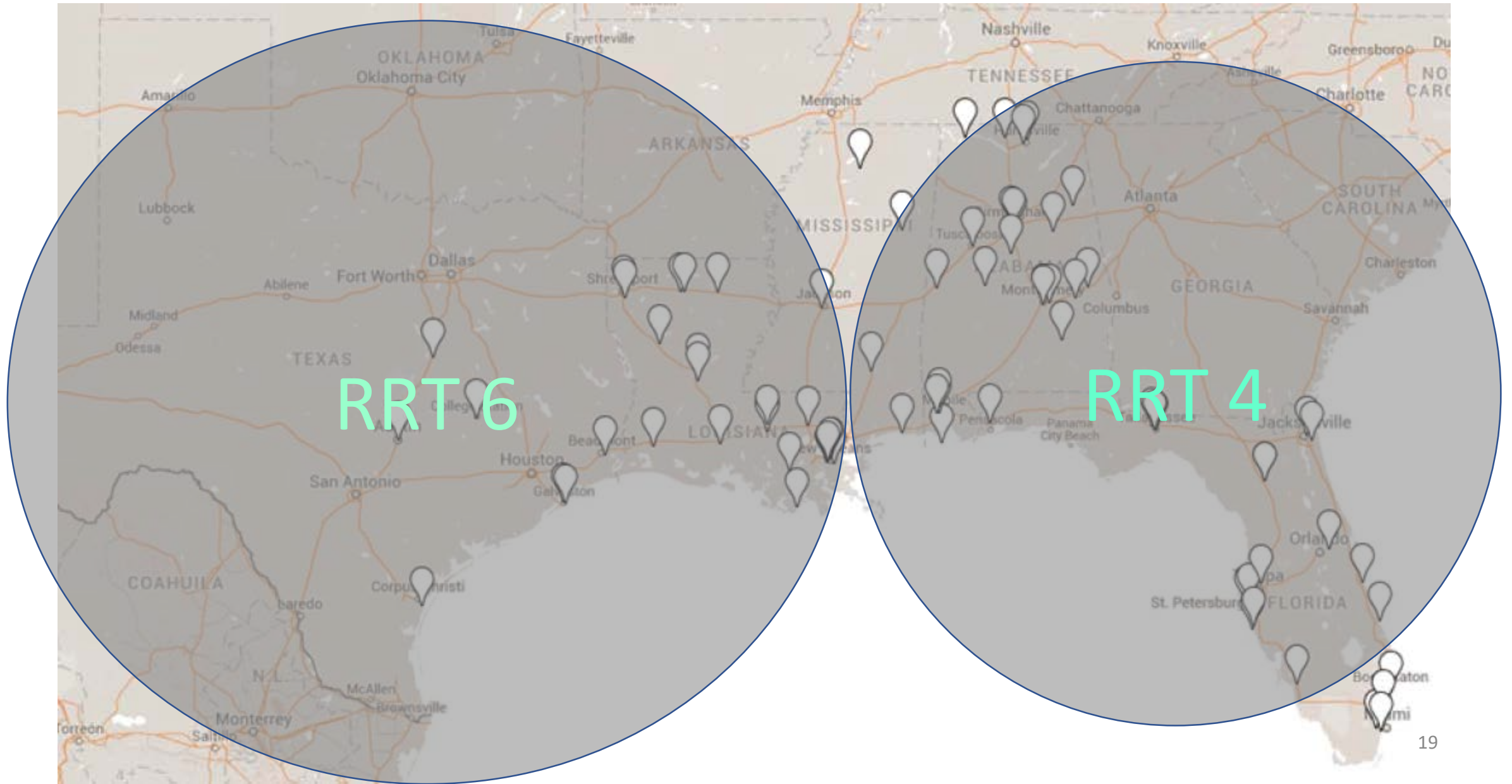
Area Contingency Plans

Geographical Response Strategies



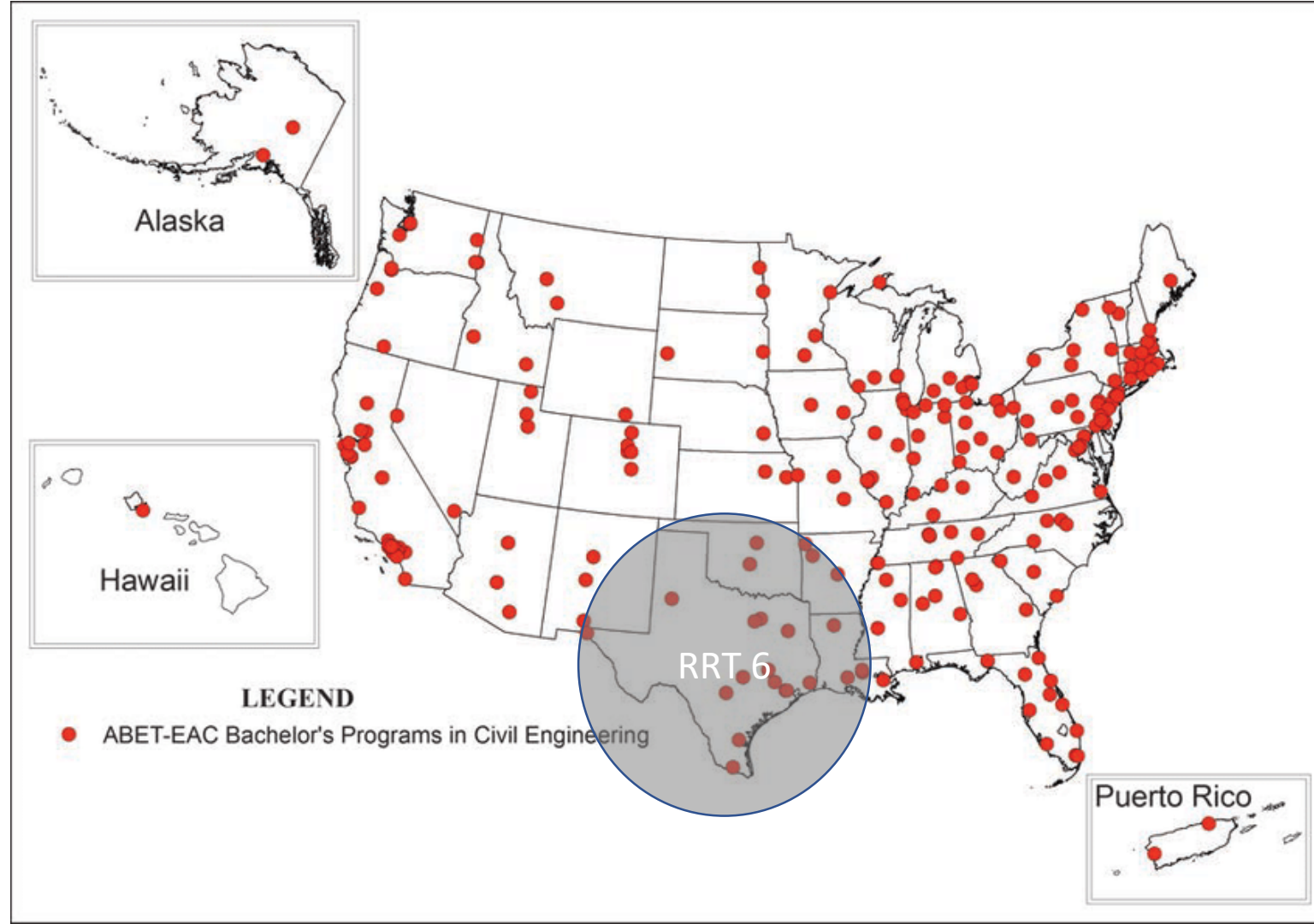


# GOMURC Member Institutions Span Scales





A deep reservoir of potential assets (These are just engineering degree granting institutions)





# 2019 RRT6 RCP Appendix 41—*Science and Technology Advisor* [coastal zone focused]

## Rules

- National Incident Management System (NIMS) Incident Command System (ICS)-- S&T advisors are technical specialists
  - Engaged in preparedness
  - Or assigned to any part of the IMT based on incident needs
- “Provide an adaptable, scalable means to access and organize S&T advisors, primarily academia, which will help assure that complex response decisions are informed by the best available science and information.”
- Job-Aid may include:
  - Directory or network of interested scientists and technical specialists
  - Process for coordinating meetings among organizations interested in participating in S&T advisor activities to exchange information on research, new activities, etc.
  - Coordinating with S&T advisor personnel pre-spill in RRT-6 or AC meetings, drills, projects, etc.
  - Practicing rapid access to the university assets during spills
  - Participating in review boards on proposed research



## 2019 RRT6 RCP Appendix 42— *Seafood Liaison Specialist*

- Provides “guidance to ACs on ways to engage academia and other technical specialists during oil and/or hazmat spill preparedness and response”
- “Example entities which could provide personnel to serve as SLS include Sea Grant Marine Extension Programs, e.g., Sea Grant Area Fishery Extension Agent, LSU Seafood Industry Liaison Agent, Sea Grant GOM Oil Spill Science Outreach Team. . .”



# Overcoming Challenges: Continuous Exchange and Engagement

## Relationships

- Structured Relationship Building Can Reduce Transaction Costs in Knowledge Creation and Collaboration
  - We see that in this meeting
- How to implement this with actors whose role will be more peripheral?
  - Permanent Linkage Agents / Relationship Brokers/ Job Aid or Extensionists
  - Recruitment of incident specific talent should be a long-term process of asset identification
  - Engagement and relationship building for scientific advisors should consider scale
    - How to engage outside knowledge for area planning versus regional scales
  - Repetitive interactions with responders in shared forums
- Even if a S&T advisor is only formally called upon in IMT incident scenarios, prior relationship, trust, and expectations building will facilitate the effective execution of their role in an emergency situation



## Extension Model



### Oil spill science outreach team

The Sea Grant oil spill science specialists work together on multiple oil spill related research topics. Although each is based in a different state, they work regionally throughout the Gulf of Mexico.

## University Network Model



## Agency Led Model

Gulf of Mexico Disaster  
Response Center (DRC);  
Scientific Support  
Coordinators

- Manage existing network of relationships
- Embedded in university settings
- Offices linked to universities in all Gulf States (RRT-6 and RRT-4)
- Not funded post GOMRI – 2020
- Directly connected to universities and departments (knowledge of internal assets)
- Already embedded in response framework
- May have best understanding of RRT needs



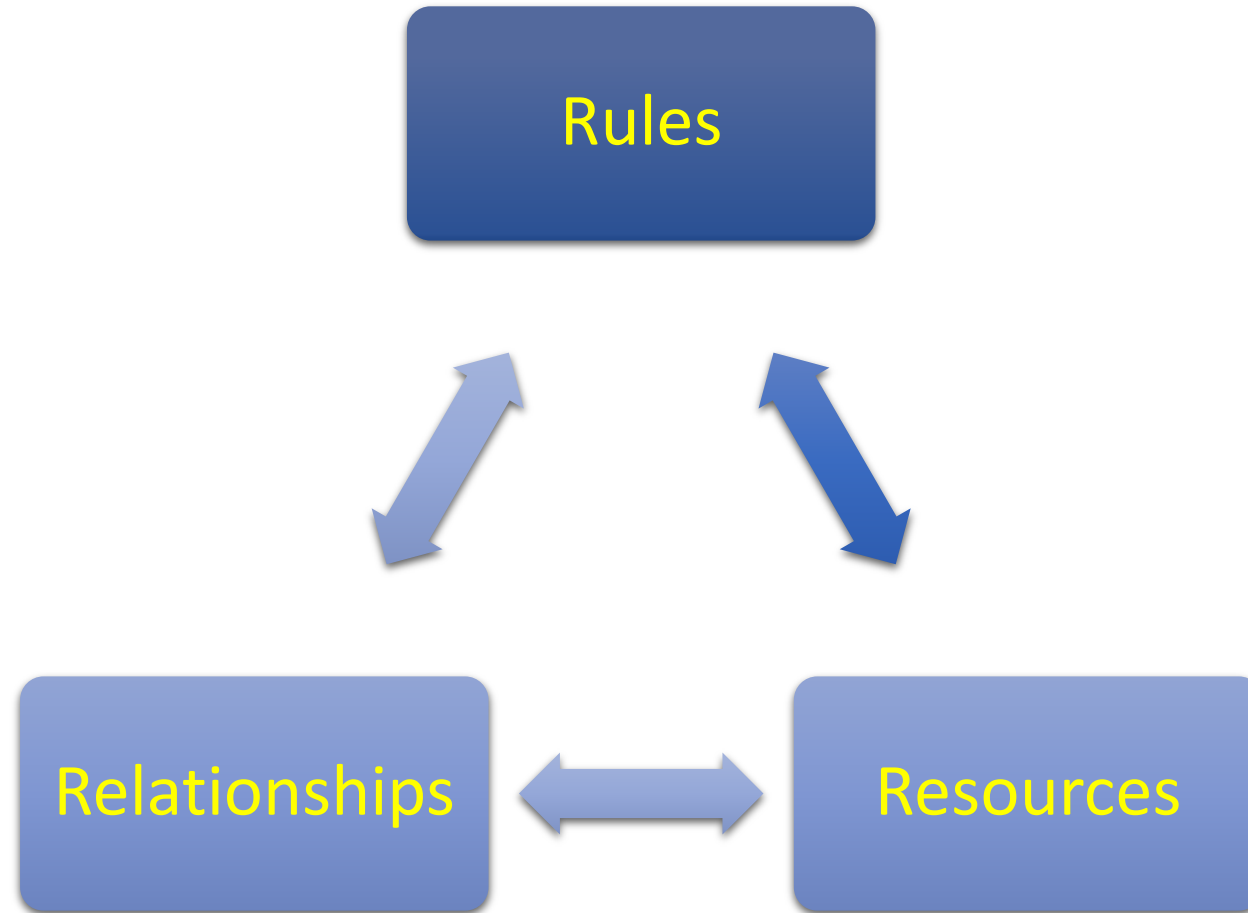
# Sustainable relationships need resources

## Resources

- Identify steady funding for a permanent job-aid or coordinator to act as a linkage agent with SSCs, NOAA, OR&R, or other agencies
- Universities must provide incentives (potentially in terms of evaluation and promotion) for service in an S&T advisor role
  - This may be an area where the federal government has persuasive power
- S&T advisors may need some assistance to participate in RRT, or travel to area meetings
  - Even if service is not remunerated, advisors should not be expected to pay their way
- Training and participation can lead to developing synergies with faculty research agendas



# Elements of a sustainable learning network





# Closing Questions for the RRT-VI Science Advisor Program

- How will the program effectively build lists of potential contacts in emergency situations without prior relationships?
- Can universities (via groups, such as GOMURC) work with agencies to find resources to support a stable corps of technical advisors?
- How will the role of the Job Aid or coordinator work?
  - How will he or she link universities to the OPA response process at different scales?
- Can collaboration lead to research and joint learning, or is the S&T position exclusively advisory?
- Can existing MOA and collaboration frameworks for interagency work apply to universities?



# Concluding Thoughts

- GOMURC and academic community would like to contribute to the important work done by RRT-6
- The S&T Advisory position is potentially an attractive service opportunity for environmental researchers in the Gulf of Mexico region
- The configuration of the program around the 3-R's may help institutionalize greater participation from academic researchers and universities
- Please tap me on the shoulder and tell me about what research needs your group may have, and perspectives on past academic collaborations



## PRINCIPAL MEMBER CONSORTIA:

### AL– Alabama Marine Environmental Sciences Consortium

**John Valentine**, Executive Director

[Dauphin Island Sea Lab](#)

101 Bienville Blvd.

Dauphin Island, AL 36528

251-861-2141 (x2376)

[jvalentine@disl.org](mailto:jvalentine@disl.org)

**Tina Miller-Way**

[Dauphin Island Sea Lab](#)

101 Bienville Blvd.

Dauphin Island, AL 36528

251-861-2141x225

[tmiller-way@disl.org](mailto:tmiller-way@disl.org)

### FL– Florida Institute of Oceanography (FIO)

**Jim Garey**, Interim Director

[Florida Institute of Oceanography](#)

830 First Street South

St. Petersburg, FL 33701

727-553-3542

[garey@usf.edu](mailto:garey@usf.edu)

**Julie Morris**, Associate VP Academic Affairs

[New College of Florida](#)

5800 Bay Shore Rd.

Sarasota, FL 34243

941-914-0149

[morris@ncf.edu](mailto:morris@ncf.edu)

### LA– Louisiana State University and Agricultural and Mechanical College (LSU System)

**Christopher F. D'Elia**, Dean

College of the Coast and Environment

[Louisiana State University](#)

93 South Quad Drive

Baton Rouge, LA 70803

225-578-7188

[cdelia@lsu.edu](mailto:cdelia@lsu.edu)

**Craig McClain**, Director

[Louisiana Universities Marine Consortium \(LUMCON\)](#)

8124 Highway 56

Chauvin, LA 70344

985-851-2803

[cmccain@lumcon.edu](mailto:cmccain@lumcon.edu)

### MS– Mississippi Research Consortium

**Monty Graham**

[University of Southern Mississippi](#)

1020 Balch Blvd.

Stennis Space Center, MS 39529

228-688-3179

[monty.graham@usm.edu](mailto:monty.graham@usm.edu)

**Kelly Lucas**, Director

Thad Cochran Marine Aquaculture Center

The University of Southern Mississippi

[Gulf Coast Research Laboratory](#)

703 East Beach Drive

Ocean Springs, MS 39564

228-872-4200

[kelly.lucas@usm.edu](mailto:kelly.lucas@usm.edu)



## TX– Texas Research Consortium

**Larry McKinney**, Senior Executive Director  
[Harte Research Institute for Gulf of Mexico Studies](#)  
Texas A&M University – Corpus Christi  
6300 Ocean Drive, Unit 5869  
Corpus Christi, TX 78412  
361-825-2070  
[larry.mckinney@tamucc.edu](mailto:larry.mckinney@tamucc.edu)

**Antonieta Quigg**  
Texas A&M University – Galveston  
200 Seawolf Parkway  
Galveston, TX, 77553  
409-740-4990  
[quigga@tamug.edu](mailto:quigga@tamug.edu)

## MEMBER INSTITUTIONS:

GOMURC unites and represents [80 public and private institutions](#), all members of their state's Principal Member consortium.

**Research Capabilities:** members have critical assets for support of marine research– please visit consortia web sites below and GOMURC's [Ocean Asset Inventory database](#) to learn more.





Thank you for interest  
and opportunity!

[tdouthat1@LSU.EDU](mailto:tdouthat1@LSU.EDU)





# Delek Logistics Diesel Spill

OSC Gary Moore  
11/07/2019



# Spill Report and EPA Arrival

- Oct 3 (1600 hrs): Discharge of approximately 1000 bbls of diesel from a 6 inch line into East Fork of Turkey Creek.
- Oct 3 (1730 hrs): Discharge amount updated to between 1000 bbl up to maximum 15,000 bbls
- Oct 3 (1845 hrs): EPA arrived on-site.
  - Entities Involved: On-site - Delek Logistics (E3, CTEH), Hopkins County, TCEQ, TPWD, SRA, PHMSA, TRRC and EPA; Off-site: DOI (USFWS), THC



Date

Oct 3, 2019

Latitude

33.066677

Time

6:45:20 PM

Longitude

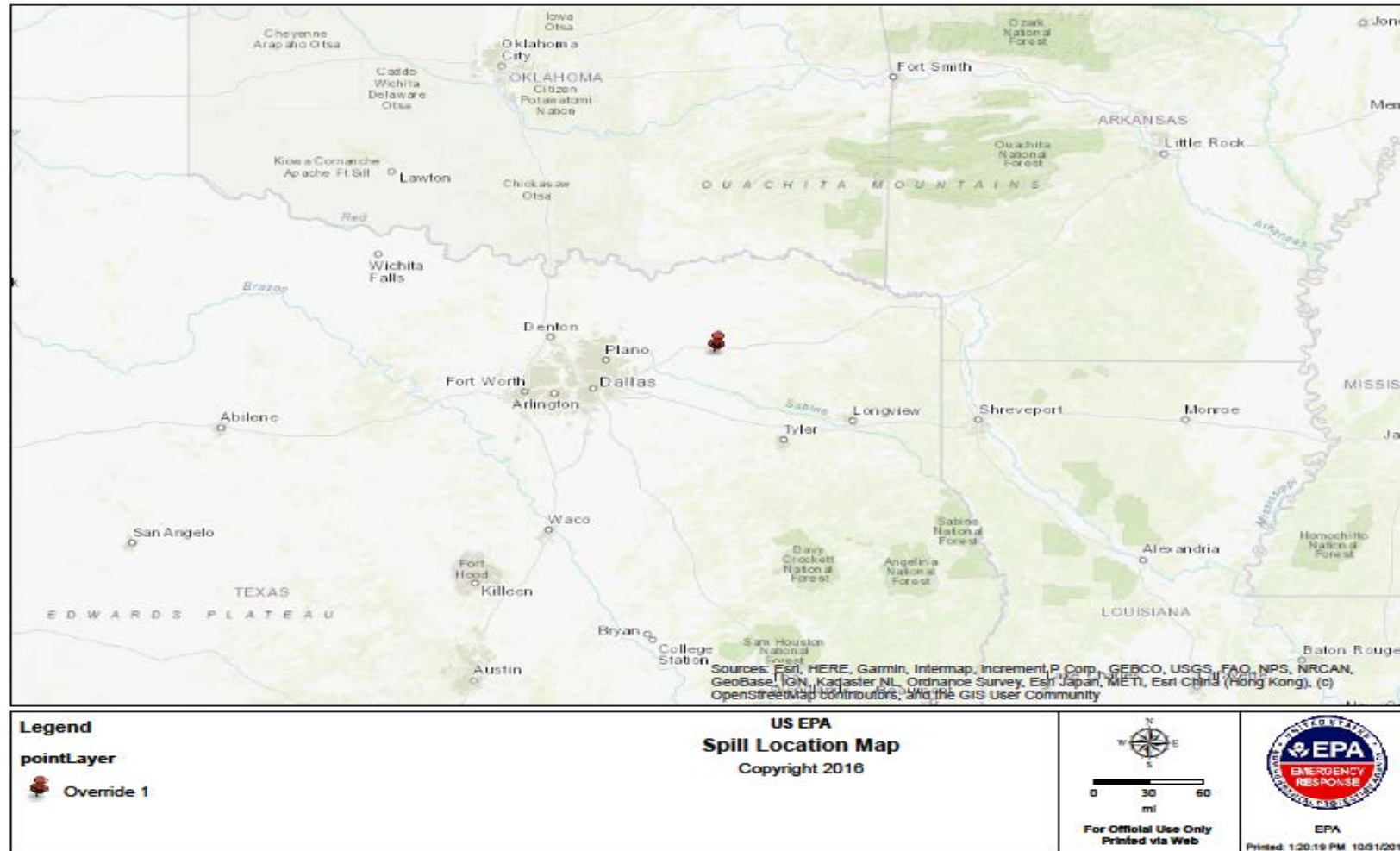
-95.856925



Enter your message here

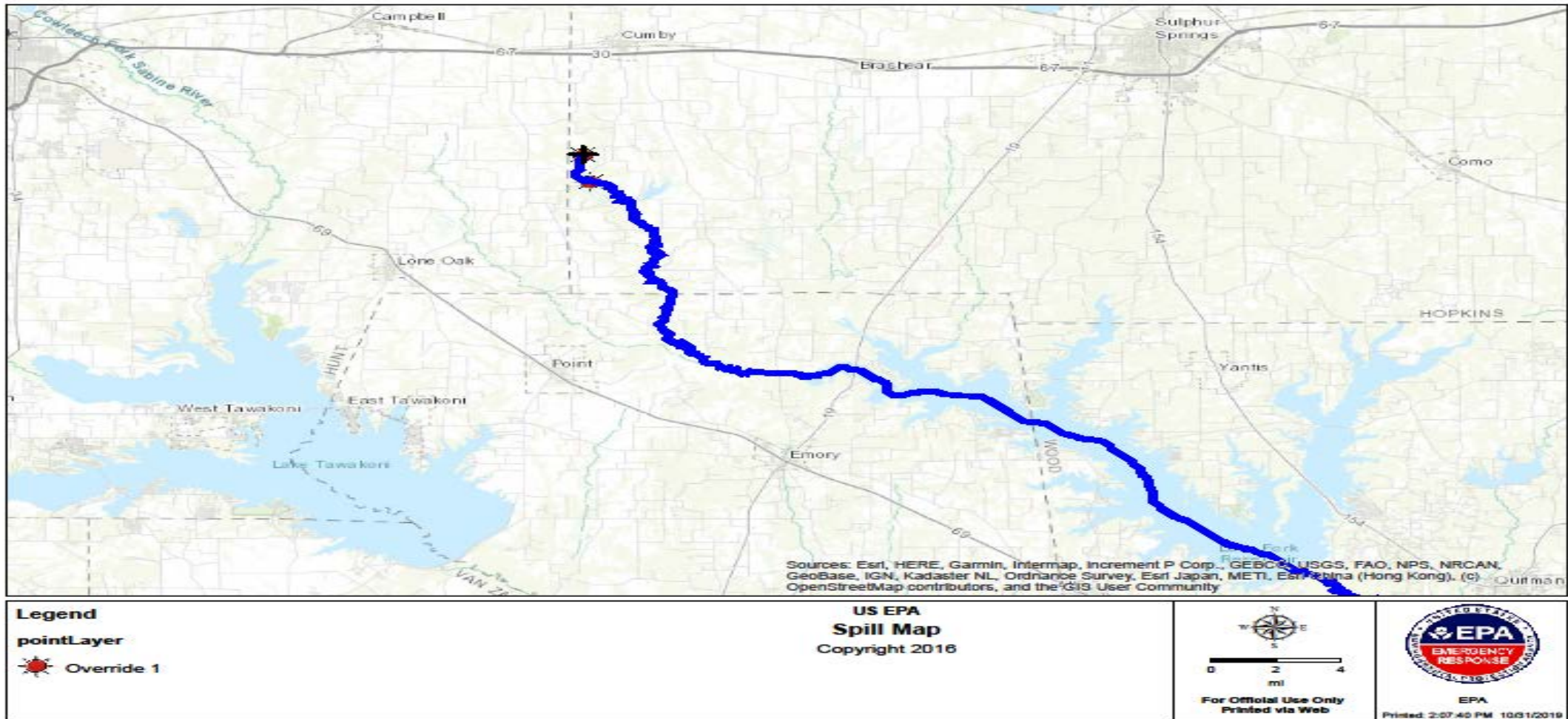


# Spill Location – Cumby, Hopkins County, TX



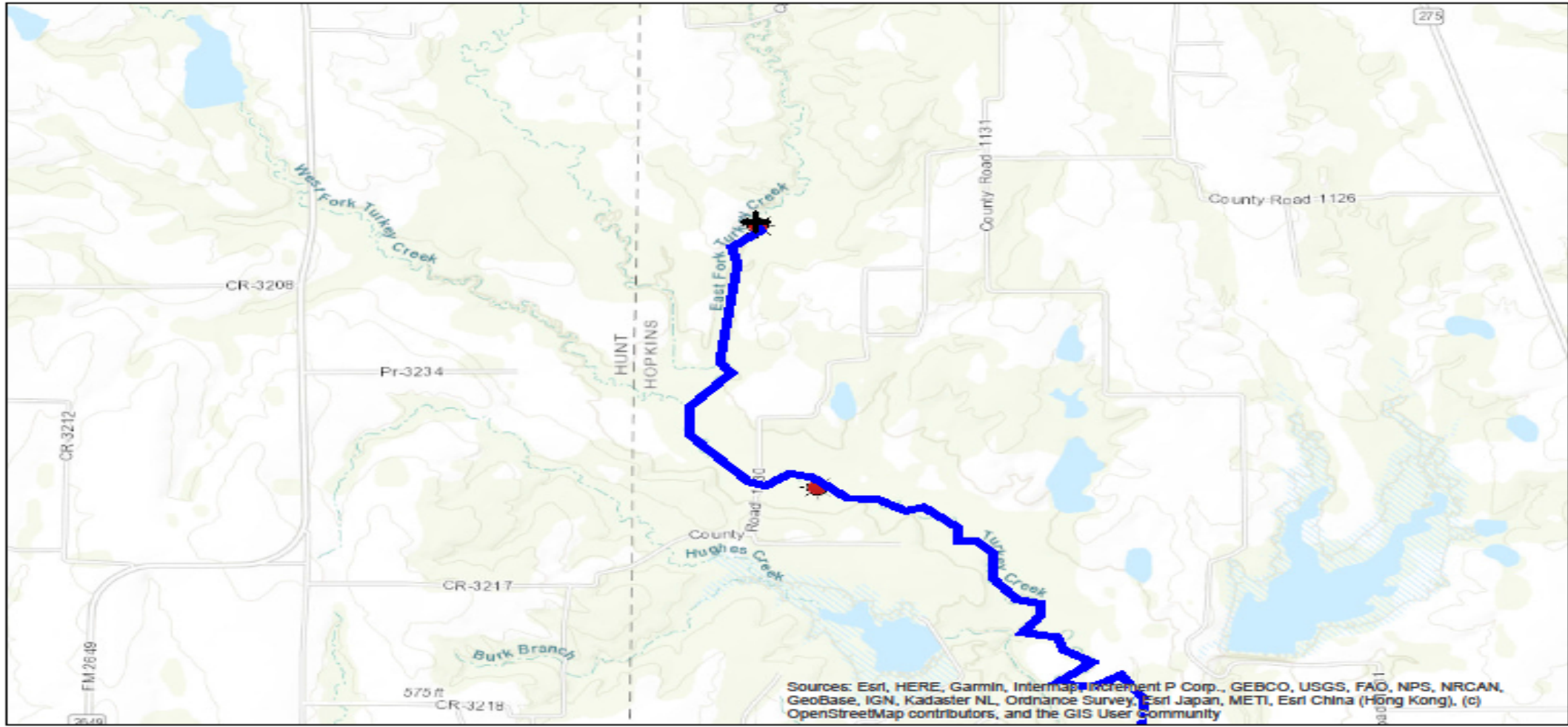


# Spill Pathway: 15.1 miles to Lake Fork





# Spill Extent: 1.7 miles



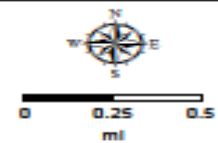
## Legend

pointLayer



Override 1

US EPA  
Spill Map 2  
Copyright 2016



For Official Use Only



EPA



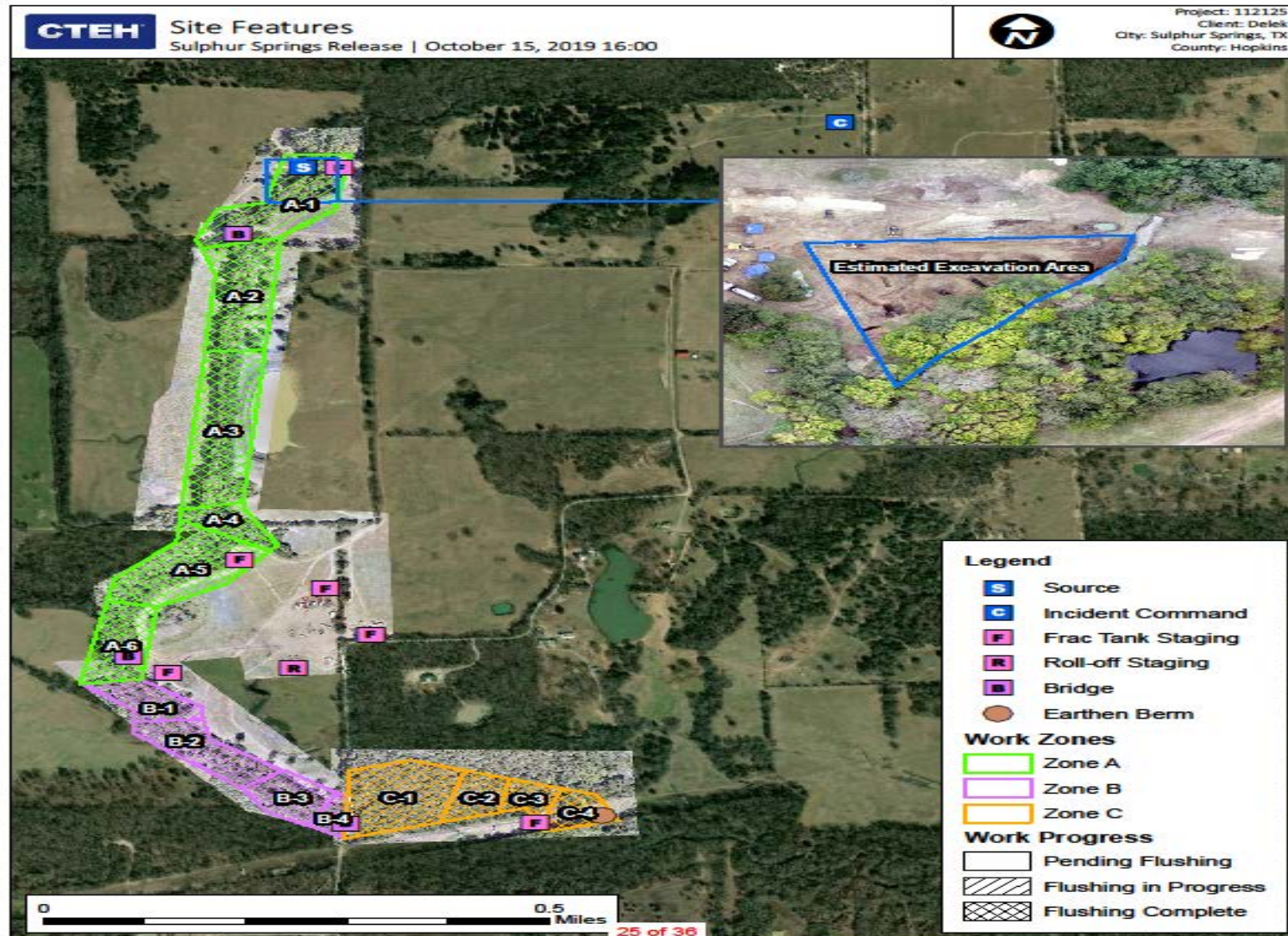
# Initial Response

- Oct 3 (1900 hrs): DOI informed by USFWS that no trust resources were at risk and communicated that to EPA.
- Oct 3 (1750 hrs): Boom deployed to contain spill.
- Oct 4 (0000 hrs): Earthen containment constructed at spill extent (performed by Hopkins County).
- Oct 4 (0000 hrs): Pipeline was clamped.
- Oct 4 (0000 hrs): 2 vac trucks and 2 Frac Tanks in place recovering diesel (more personnel/equipment mobilizing)





# Established Response Zones









# Flush and Recovery

- Oct 7: EPA notified SHPO (Indian artifacts known site 1.5 miles upstream) – archaeologist hired by RP and no artifacts found in work area.
- Oct 8: All visible diesel recovered off creek.
- Oct 8 – 15: RP began fresh water flushing of the creek with transported water from Lake Fork and onsite ponds to collection points (dams).
- Oct 15: RP begins excavation of diesel contaminated soils (excavation continues today)









# Current Creek Conditions

- Oct 15 – 31: RP continues recovering emulsified diesel at collection points (maintenance) and excavation of diesel contaminated soils.
- Nov 1 onward:
  - complete excavation of diesel-contaminated soils;
  - perform maintenance recovery within the creek;
  - restore excavated areas to pre-existing conditions.







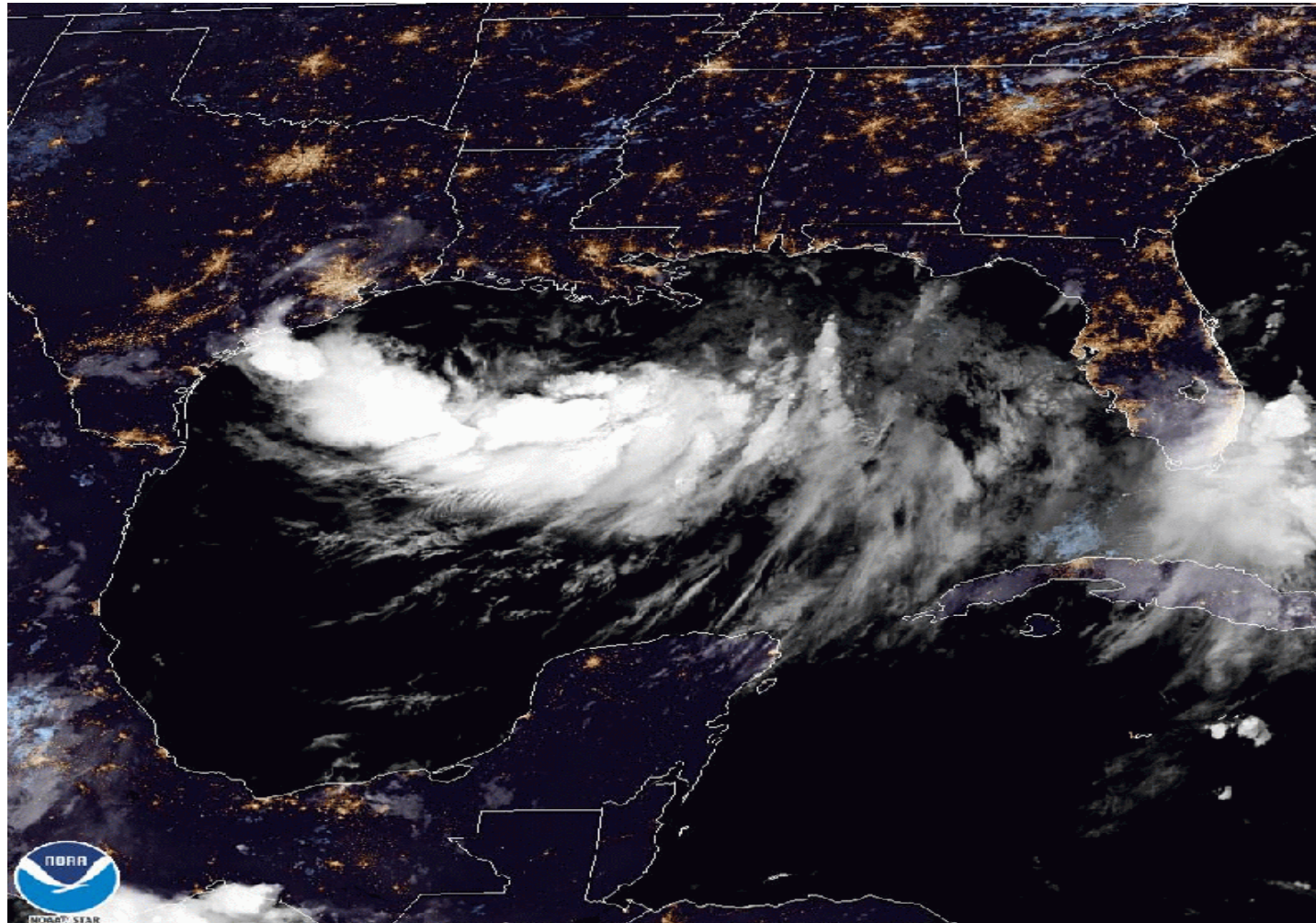


# Totals

- Diesel released: 11,494 bbls (estimate)
- Diesel/Water Mix Recovered: 28,357 bbls
- Diesel/Water Mix Shipped to Delek Tyler Refinery: 20,964 bbl
- Diesel Cut (straight diesel) Recovered: 9056 bbl
- Soil disposed at Pleasant Oaks/Turkey Creek: 7,816.7 tons
- Diesel Water Mix disposed at ASI: 2,649 bbl
- Flush Water Received from Lake Fork: 22,620 bbl



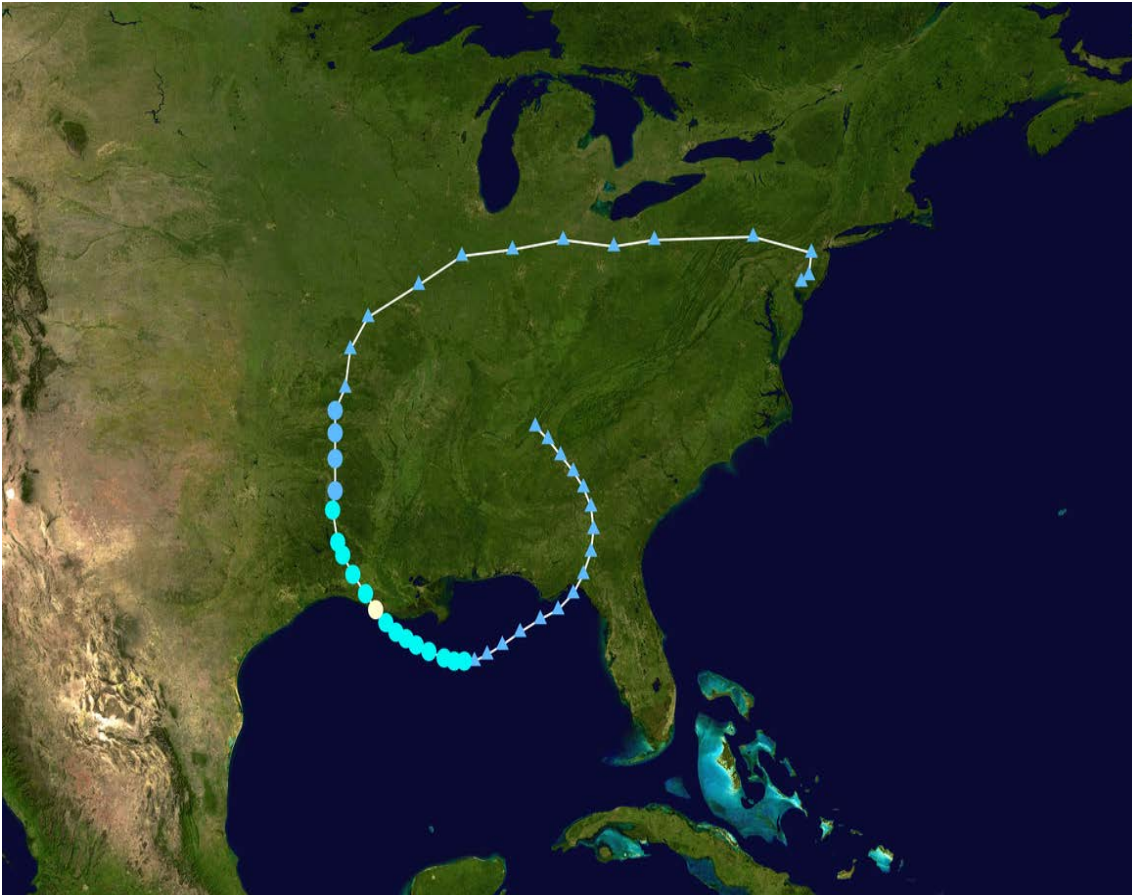
# HURRICANE BARRY



12 Jul 2019 10:16Z NOAA/NESDIS/STAR GOES-East GEOCOLOR



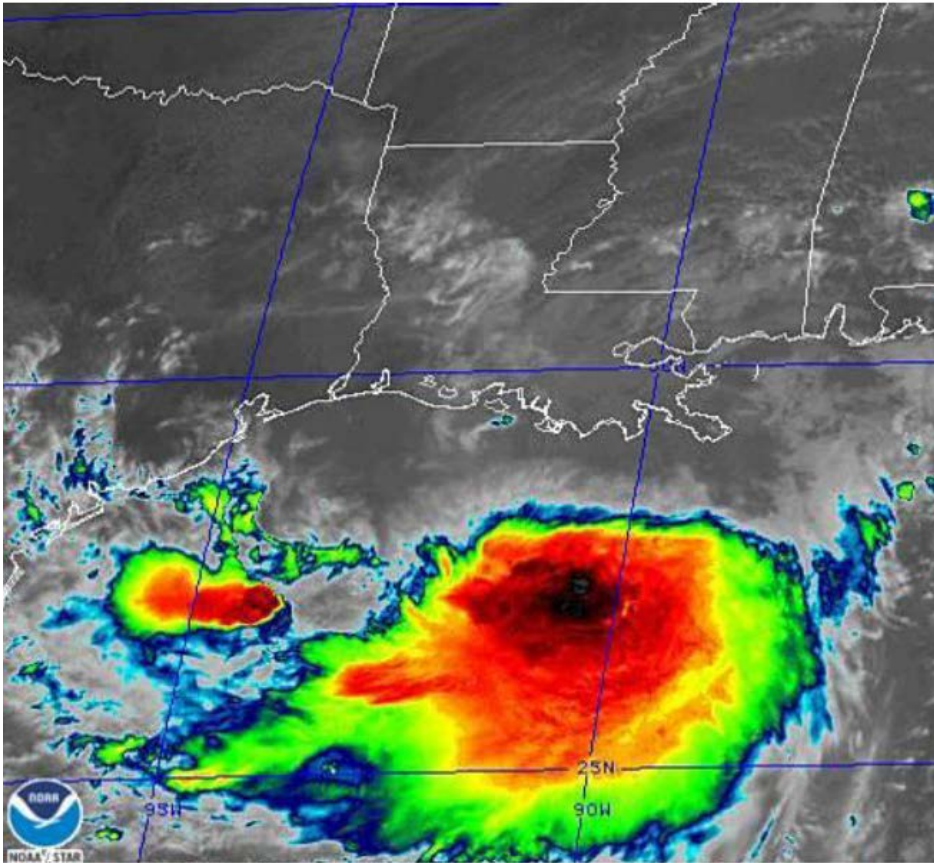
# HURRICANE BARRY



- First Hurricane of the 2019 Atlantic Hurricane Season
- Began as a storm over the midwestern U.S.
- Emerged into Gulf on July 10 and was a Tropical Storm on July 11.
- Reached hurricane status on July 13 (cat 1) and made landfall at Marsh Island and Intercoastal City, LA.
- Heavy rain (up to 23.5 inches), flooding, storm surge, levee overtopping, tornados, and waterspouts
- Damage estimates from the storm approximately \$600 million.
- Other states impacted by the storm include Arkansas, Mississippi and Alabama,



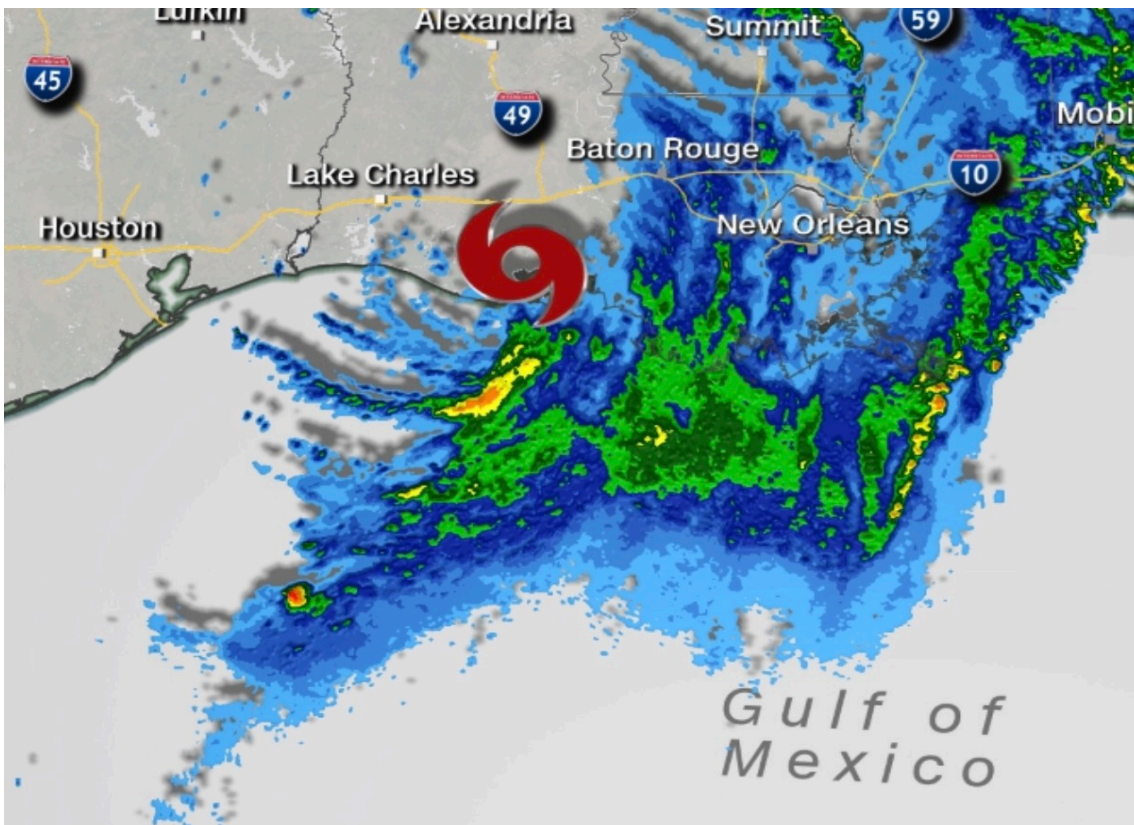
# STORM MONITORING, COORDINATION (COMMON OPERATIONAL PICTURE), AND FEMA ACTIVATIONS



- July 9 - 14 : EPA began monitoring the system by following NWS Advisories and listening in on UCG/GOHSEP calls.
- July 10: EPA requested availability of Region 6 Personnel (OSCs, RSCs, TAGA, ASPECT).
- July 10 - 14: EPA participated in daily ESF-10 coordination calls with LDEQ, LOSCO, and USCG.
- July 11: FEMA activated EPA/USCG to the RRCC (Denton) and IOF (Baton Rouge).
- July 12: EPA requested NRC begin providing all spill reports (USCG/EPA) to EPA PDO.
- July 11 - 14; EPA conducts calls with OSCs in the field and briefed Regional Senior Management



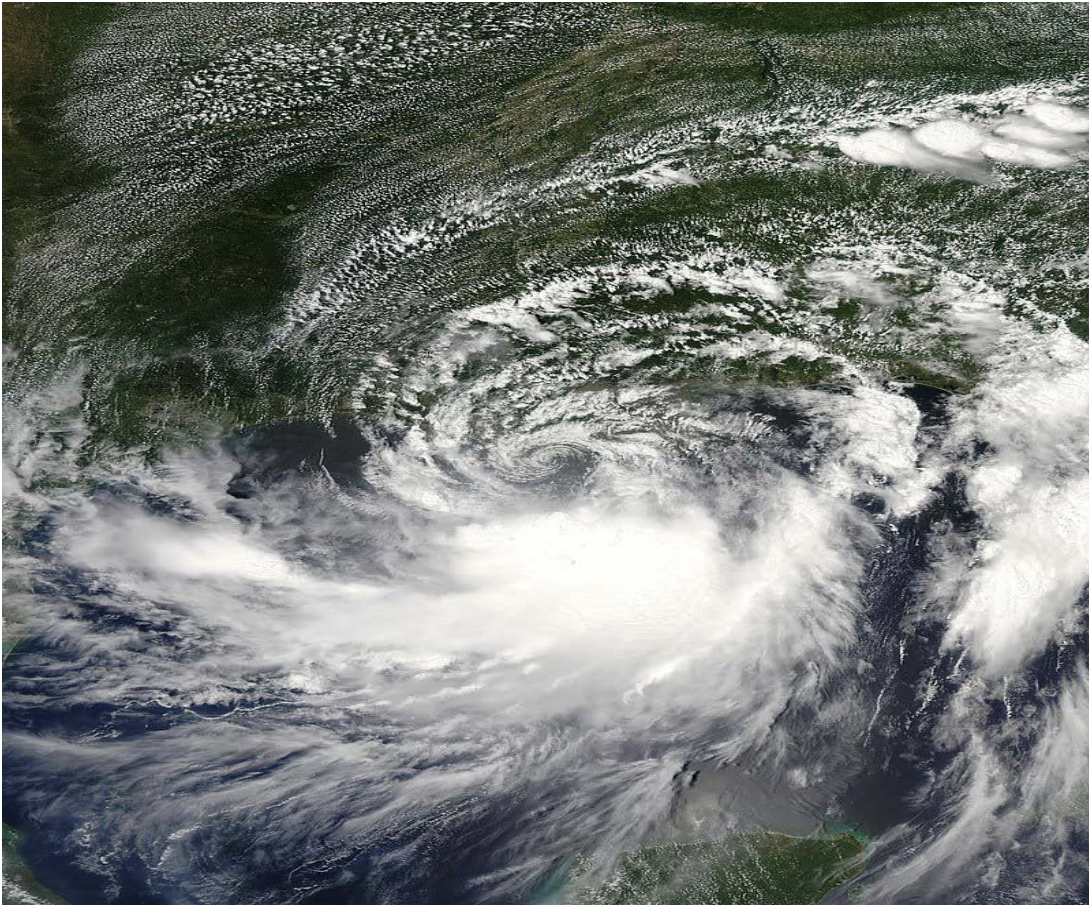
# STORM MONITORING AND COORDINATION



- July 13: Barry makes landfall as category 1 hurricane resulting in heavy rainfall, flooding, levee overtopping, and tornados.
- July 13 - 15: EPA coordinates with LDH on potentially impacted Drinking Water facilities and LDEQ on Wastewater and Industrial facilities.
- July 15: EPA coordinates with ADEQ on potentially impacted Drinking Water and Waste Water facilities.
- July 15: FEMA released EPA/USCG personnel from the RRCC (Denton, TX) and the IOF (Baton Rouge, LA).
- July 15: EPA REOC returned to normal operations.



# TAKE AWAYS



- ESF-10 coordination was good between LDEQ, LOSCO, USCG, and EPA.
- ESF-3 coordination was good between EPA Drinking Water and LDH.
- ESF-10 needs to discuss:
  - where incident/unified command will likely be located (typically LDEQ Baton Rouge).
  - where branches may be located (typically LDEQ Regional Offices)
  - what ICS support may be needed from EPA or USCG.
  - what other EPA/USCG support may be needed (ie. TAGA, ASPECT, etc.)
- PLEASE PROVIDE ESF-10 PARTNERS WITH UPDATES ON PREPAREDNESS/RESPONSE ACTIVITIES RELATED TO THE EVENT (FACILITIES, WWTP, WTP)

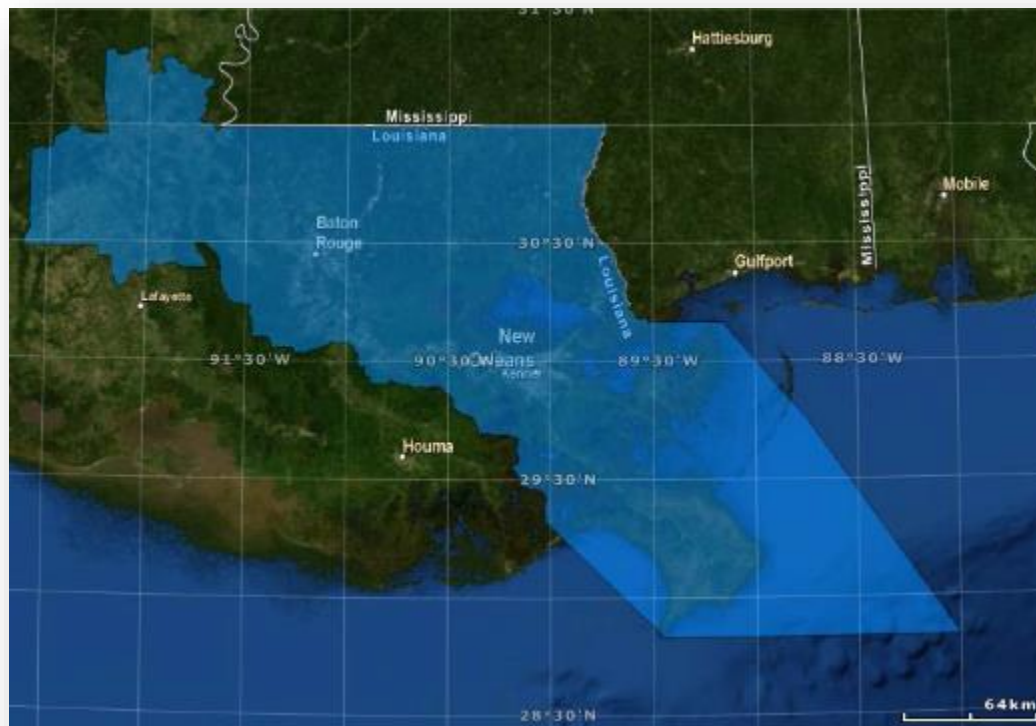




# Sector New Orleans



Captain Kristi Luttrell  
Sector Commander



CY19 NRC Notifications	RRT Activations	Federal Projects	CERCLA Projects
1,477	00 Surface Washing Agents 01 In-situ Burns 00 Dispersants	10	00





# Executive Summary

## Challenges

- There is a growing emphasis on the need for CG personnel to initiate environmental consultations and engage appropriate resource trustees to conduct the legally mandated consultation processes.
- There is need for training and standardized Emergency Consultation (District or enterprise wide) TTP at field level for consultations.

## Lessons Learned

- In reference to the newly updated RRT-6 ISB policy, an update was made to the checklist to address feasibility factors relating to water depth over vegetation.

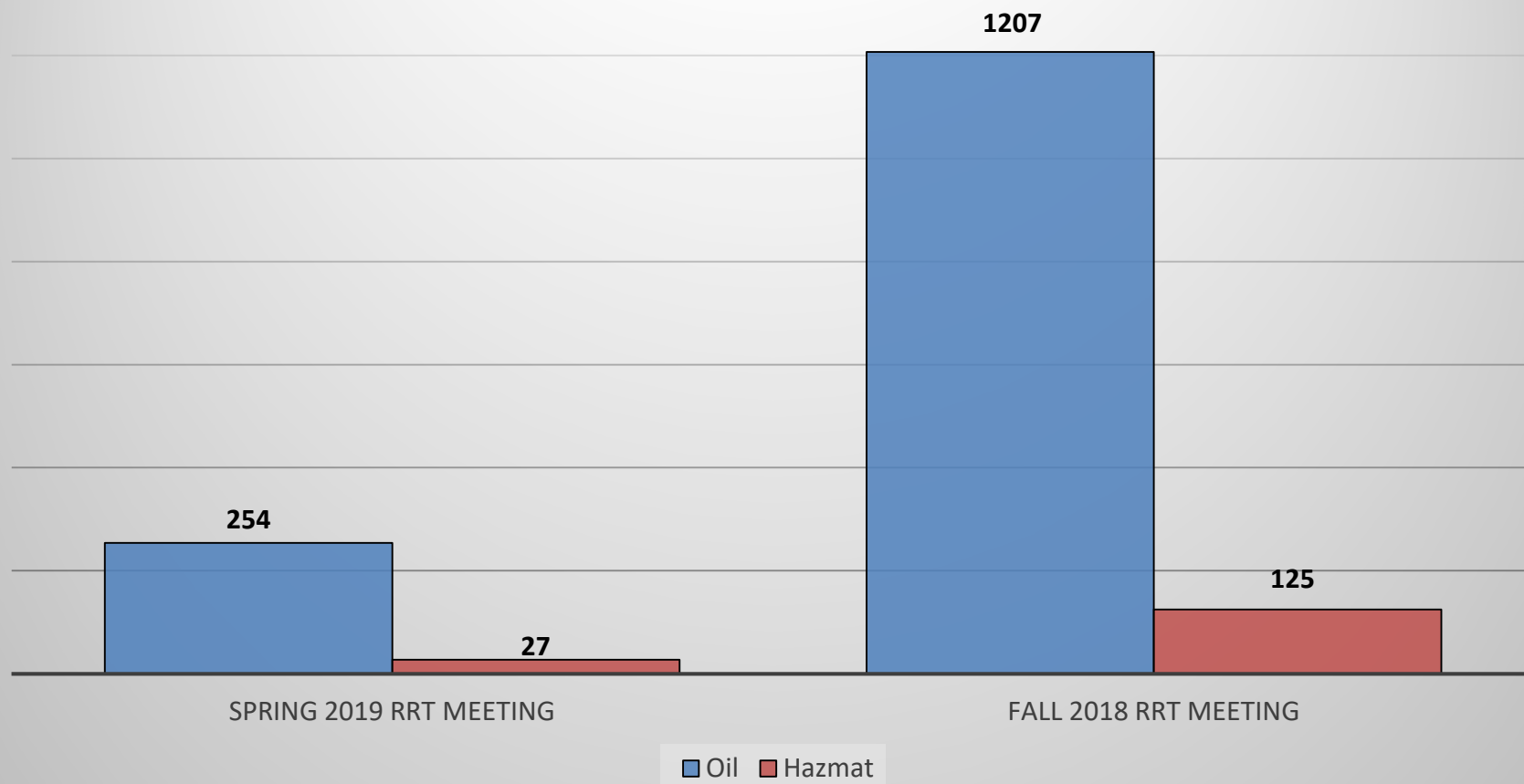
## Best Practices

- The Feb, 2019 RRT-6 ISB policy located in the SE Louisiana ACP was very valuable during a recent incident response - the check-list greatly streamlined the RRT concurrence process.





## NRC Notifications



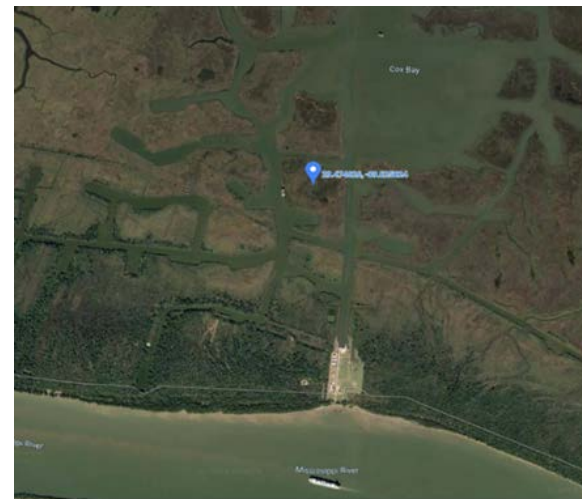




# RRT Activation



<b>Date:</b>	08/15/2019	RRT Region 6 Activation
<b>Incident Name:</b>	Cox Bay South Bulk Line	
<b>Issue/Concern:</b>	USCG SEC NOLA received notification of an estimated 20 barrels of oil discharge into the waterway and adjacent marshes of Cox Bay, tributary to Breton Sound.	
<b>Agencies Involved:</b>	NOAA, LOSCO, LADEQ, LADWF, LADNR, DOI, SHPO, GOHSEP Region 1 and Plaquemines Parish. OSRO: OMI with Forefront support	
<b>Decisions Made:</b>	Actions taken/Monitor: <ul style="list-style-type: none"><li>• FOSC initiated RRT, requested concurrence for use of burning agents in conjunction with in-situ burn technique.</li><li>• Conducted successful in-situ burn</li><li>• Continuing to monitor site for vegetation recovery.</li></ul>	



Incident Location







# MC-20 Response - Update



Date:	October, 2019 Update	Sector NOLA
Incident Name:	MC-20 – Active Discharge	
<b>Response:</b> <ul style="list-style-type: none"><li>• APR – OCT 19: 8 pump-off evolutions completed,</li><li>• 201,783 gals of resalable product recovered to date;</li><li>• 05 NOV: Pump-off #9 mobilization;</li><li>• SEC NOLA CMD &amp; IMD Division staff IC, Deputy IC, Ops, Planning &amp; Logistics sections in IMT;</li><li>• Southern Seaplane overflights of site continue – 2 per week;</li><li>• NOAA National Environmental Satellite, Data, and Information Service (NESDIS) continues to take routine satellite imagery of site – capturing anomalies on the water’s surface.</li></ul>		
<b>Way Ahead:</b> <ul style="list-style-type: none"><li>• The FOSC’s primary role remains minimizing environmental impacts at the surface stemming from the MC-20 site through oversight of the Rapid Response System – ops &amp; maintenance.</li><li>• The FOSC continues to support BSEE as it leads efforts to pursue a long-term source control option.</li></ul>		



Southern Seaplane (TEC)

M/V BRANDON BORDERLON



Southern Seaplane (TEC)

10/29/19: 4.6 mi x .5 mi sheen





# Consultations



Incident Name	Start Date	Stop Date	With	Phase	For	Species (Common Name)	Type	Federal Listing Status	Critical Habitat	Total Cost
Lake Washington	12/9/2018	3/4/2019	USFWS/NOAA	Planning & Response	Booming	Laughing Gull, Clapper Rail, Brown Pelican	ESA	Threatened	YES	\$86
LOBO Tank Battery 1	4/1/2019	5/3/2019	USFWS/NOAA	Planning & Response	Booming	N/A	ESA	N/A	YES	\$86
TPIC Delta Duck Facility	4/10/2019	4/11/2019	USFWS/NOAA	Planning & Response	Booming	N/A	ESA	N/A	YES	\$86
ITV Degeanne Maria	4/15/2019	4/24/2019	NOAA	Planning & Response	Booming	Pallid Sturgeon	ESA	N/A	YES	\$86
TPIC Delta Duck Facility	7/25/2019	7/30/2019	USFWS/NOAA	Planning & Response	Booming	Manatee	ESA	N/A	YES	\$86
TPIC MP Central Facility	10/7/2019	11/01/2019	USFWS/NOAA	Planning & Response	Booming/ Skimming	Manatee; Sea Turtles	ESA	Endangered/ Threatened	YES	\$86
<b>Total</b>										<b>\$516</b>





# Accomplishments

Since last RRT meeting  
27-28 Mar 2019



## Training

Description	Dates
ICS 300 Unit	14 – 17 May 2019
Oil Spill Response Course	22 – 25 Jul 2019
FOSCR College	16 – 20 Sep 2019
NOAA SCAT Training	15 – 17 Oct 2019

## Exercises/Workshops

Description	Dates
St. Rose IMTT GIUE	21 Mar 2019
Full-Scale PREP	20 – 24 May
Gulf Strike Team AERW	17 – 21 Jun 2019
Chevron Oak Point GIUE	31 Jul 2019
J. W. Stone GIUE	14 Aug 2019
SCA Workshop	24 Oct 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
Louisiana Statewide AC Meeting	5 Jun 2019
LEPCs (St. Tammany, St. Charles, St. John, St. James, St. Bernard, Jefferson, Plaquemines)	Ongoing
Region 1 Emergency Coordinators Meeting	Monthly
New Orleans Federal Executive Board	Monthly
SE Louisiana Area Committee Meeting	2 per year (last held on 05 SEP 19)
29 <sup>th</sup> Annual Clean Gulf Conference	29-31 Oct 2019





# Outlook

Until Next RRT meeting  
6-7 May 2020



## Training

Description	Dates
District Response Advisory Team (DRAT) Consultation Training	Early/Mid December

## Exercises/Workshops

Description	Dates
SPCC Workshop	12 – 13 Nov 2019
Industry led functional PREP	Week of 18 May 2020

## Federal, state, and local planning and coordination efforts

Description	Dates
LEPCs (St. James, St. Charles, St. John, Plaquemines, Jefferson, St. Tammany, St. Bernard)	Ongoing
SE Louisiana ACM	23 Jan 2020
LA Statewide Area Committee Executive Steering Group Meeting	5 Feb 2020
LA Statewide Area Committee Meeting	6 Feb 2020







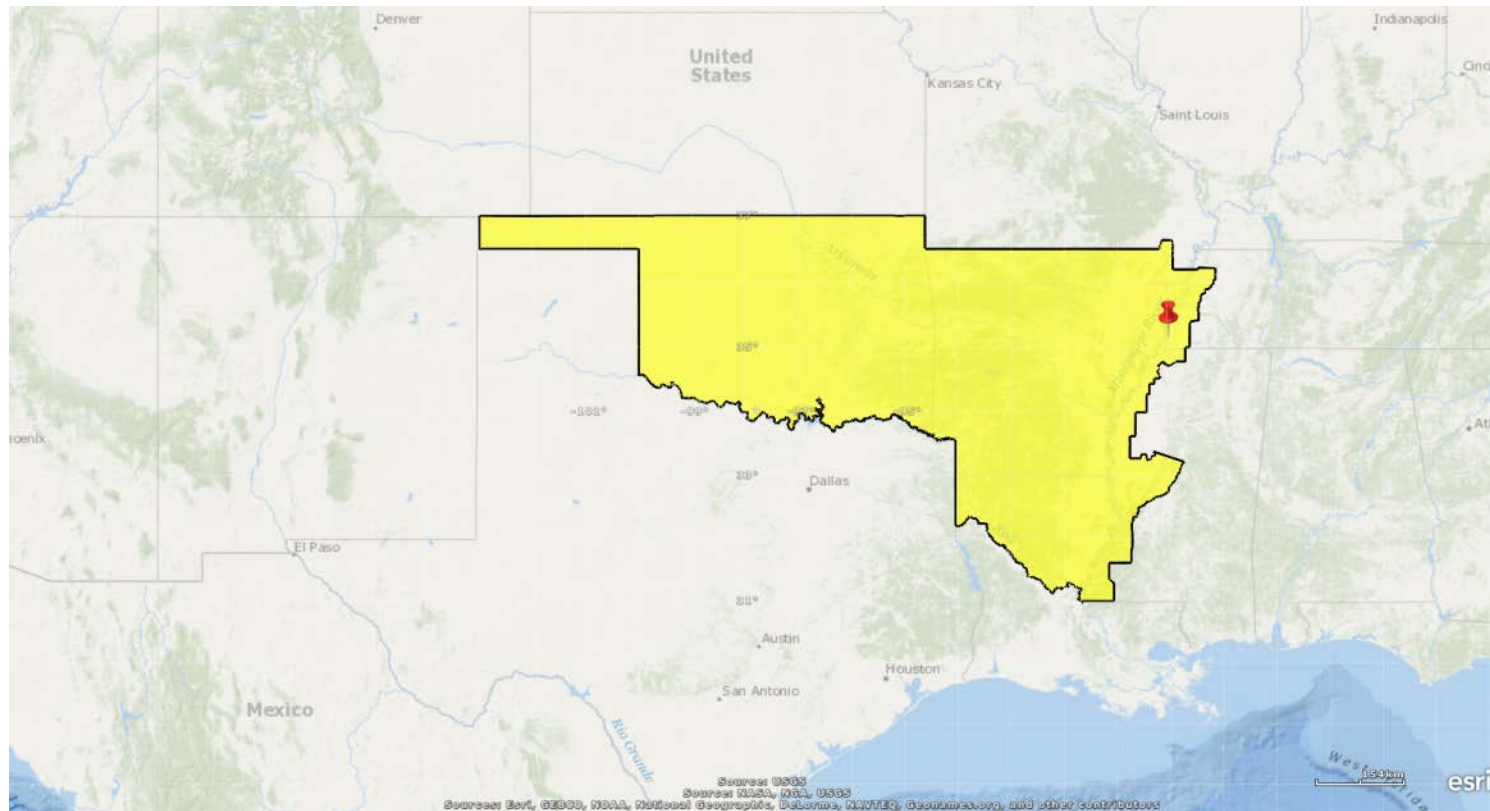


# Sector Lower Mississippi River



Captain Roxanne Tamez

Sector Commander

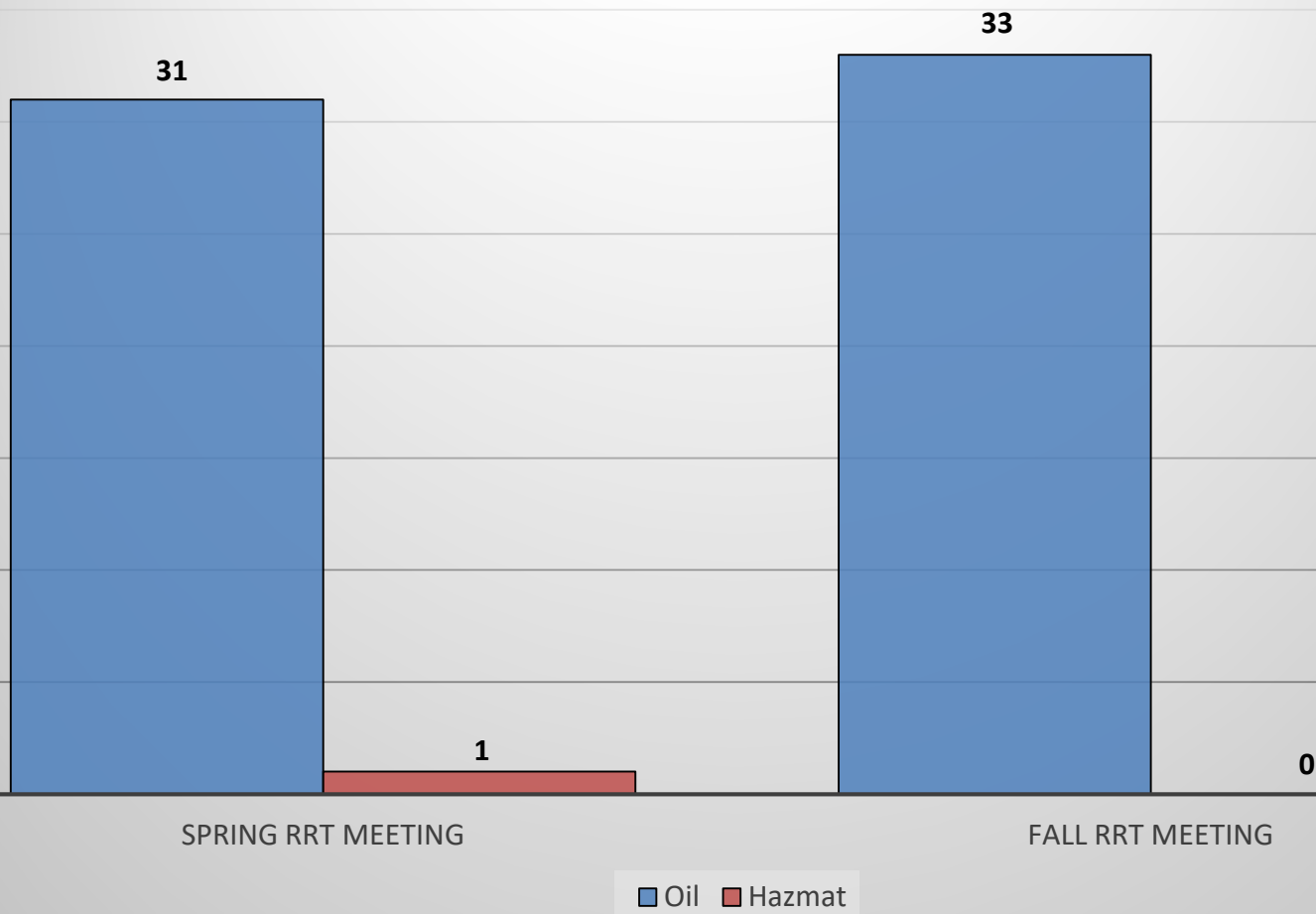


NRC Notifications	RRT Activations	Federal Projects	CERCLA Projects
33	00 Surface Washing Agents 00 In-situ Burns 00 Dispersants	00	00





## NRC Notifications







# Consultations

Incident Name	Start Date	Stop Date	With	Phase	For	Species (Common Name)	Type	Federal Listing Status	Critical Habitat	Total Cost
NONE										
Total										





# Accomplishments

Since last RRT meeting  
27-28 March 2019



## Training

Description	Dates
RADSeeker Training	1-3 Apr 2019
FOSCR College – Sector UMR	29 Apr-03 May 2019
ICS-400 Online Pilot Course	19-21 Aug 2019
NPFC & ESA Section 7 Consultation Trng	27-28 Aug 2019
IATA DGR Training	17-19 Sep 2019

## Exercises/Workshops

Description	Dates
Auxiliary Tabletop Exercise	13 Apr 2019
IMAT Workshop	24-26 Apr 2019
Shaken Fury	2-5 Jun 2019
GIUE – Sector LMR	25 Jul 2019
Valero Refinery Exercise	26 Jul 2019
Owens Corning TTX	7-8 Oct 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
LEPC Meetings	Monthly
3 <sup>rd</sup> Annual Clean Waterways Conference	16-18 Apr 2019
BOA Capabilities Site Visits	Apr – May 2019
RRT-4 Meeting	6-9 May 2019
High-water Operations – Little Rock EOC	30 May-02 Jun 2019
RRT-7 Meeting	25-26 Sep 2019
Hawkins/Vertex Open House and Training	10 Oct 2019





# Outlook

Until Next RRT meeting  
6-7 May 2020



## Training

Description	Dates
ICS-300	17-20 Dec 2020
CBRN Training	13-14 Jan 2020

## Exercises/Workshops

Description	Dates
GIUE – Sector LMR	TBD
GIUE – DD Fort Smith	TBD
CBRN Drill	28 Jan 2020

## Federal, state, and local planning and coordination efforts

Description	Dates
LEPC Meetings	Monthly
RRT-4 Meeting	4-6 Feb 2020
RRT-7 Meeting	25-26 Mar 2020
4 <sup>rd</sup> Annual Clean Waterways Conference	7-9 Apr 2020









# Sector Corpus Christi

Captain Edward Gaynor

Sector Commander

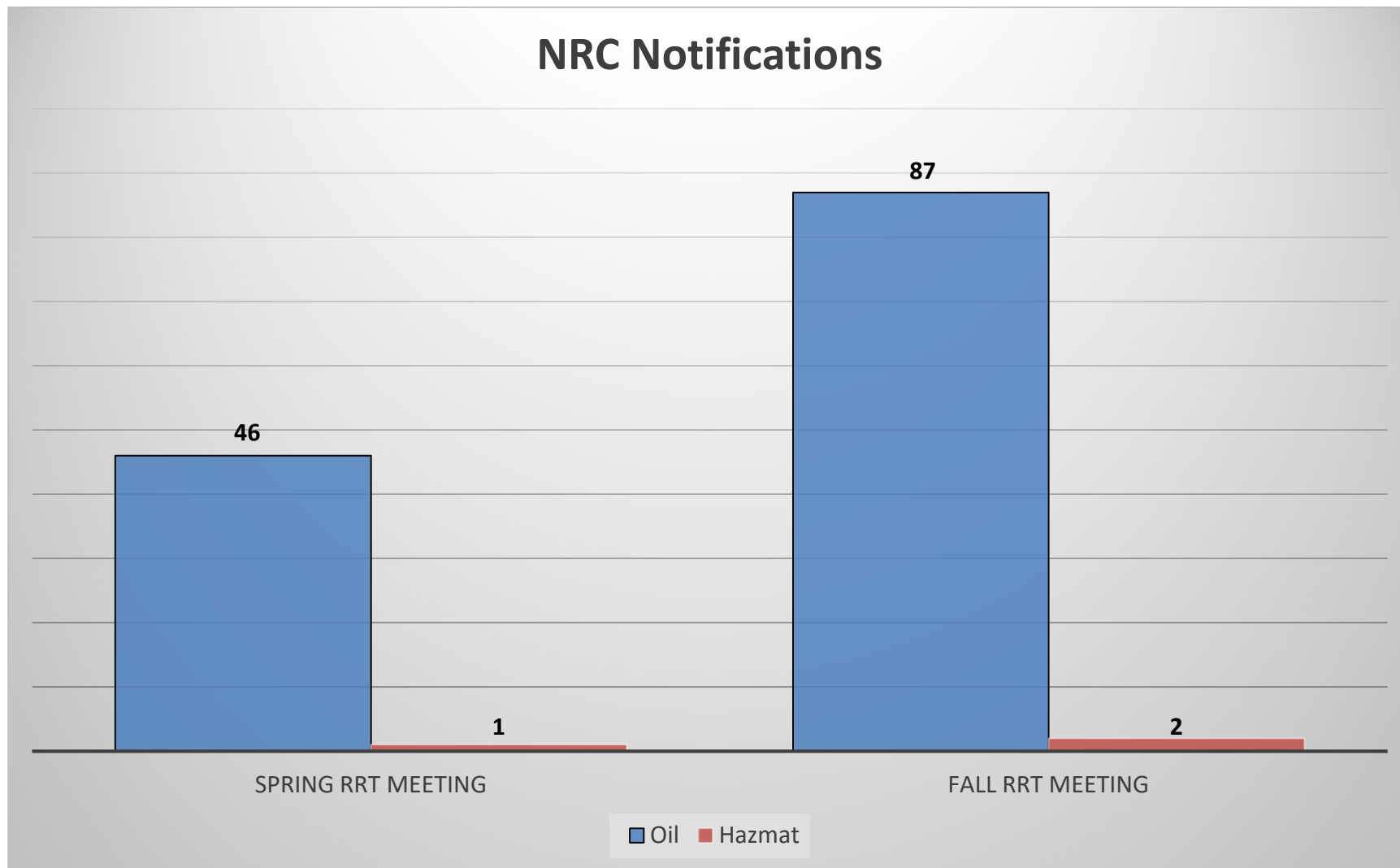


NRC Notifications	RRT Activations	Federal Projects	CERCLA Projects
89	0 Surface Washing Agents 0 In-situ Burns 0 Dispersants	6	2





## NRC Notifications







# RRT Activation / Notification

<b>Date:</b>	06 Jun 19	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	NA ZDROWIE (TX 8550-AU)				
<b>Issue / Concern:</b>	Partially submerged recreational vessel actively discharging gasoline into the navigable waterway.				
<b>Agencies Involved:</b>	U. S. Coast Guard and Texas General Land Office				
<b>Decisions Made:</b>	Suspected owner informed USCG that vessel had been sold, USCG utilized OSLTF to remove 200 gallons of gasoline, and recover gasoline in water. USCG and TGLO utilized Texas Parks and Wildlife database to access owner information for responsible party.				



*Sunken Vessel*



*OSRO raising vessel to recover oil*





# RRT Activation / Notification

<b>Date:</b>	09 Jul 19	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	F/V VERA CRUZ				
<b>Issue / Concern:</b>	Equipment failure on a vessel caused the #3 fuel tank to overflow, discharging diesel through the tank vent and overboard through a scupper. Approximately 400 gallons was discharged into the Brownsville Shrimp Basin.				
<b>Agencies Involved:</b>	U. S. Coast Guard & Texas General Land Office				
<b>Decisions Made:</b>	Cleanup was conducted by 20+ Zimco Marine employees with Coast Guard and TGLO oversight. A contractor was hired to dispose of all wastes.				



*Recovery Operations*



*Containment Efforts.*





# RRT Activation / Notification

<b>Date:</b>	17 Jul 19	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	T/V NEW PELICAN discharge				
<b>Issue / Concern:</b>	Unknown bilge oil slick of approximately 40-50 gallons in Port Aransas Marina recovered with OSLTF until oil sampling provided a responsible party.				
<b>Agencies Involved:</b>	U. S. Coast Guard & Texas General Land Office				
<b>Decisions Made:</b>	Unknown oil impacted 14 pleasure crafts that were decontaminated onsite, and later submitted for claims to NPFC for oil damages. Oil samples taken onsite were compared to potential responsible party after cleanup operations. Samples matched, leading to advertising and oil claims.				



*Product in Water*



*Rec Vessel Decon*





# Consultations



Incident Name	Start Date	Stop Date	With	Phase	For	Species (Common Name)	Type	Federal Listing Status	Critical Habitat	Total Cost
NSTR										
Total										0





# Accomplishments

Since last RRT meeting  
27-28 Mar 2019



## Training

Description	Dates
SCAT Training	9-11 Apr 2019
GST Workshop	18-20 Jun 2019
District Response Advisory Team (DRAT) Consultation Training	11 Sep 2019
Pipeline Spill Management	04 Oct 2019

## Exercises/Workshops

Description	Dates
Integrated Advanced ICS Exercise	15-18 Apr 2019
NDOW Full-Scale Exercise	06-10 May 2019
Q3 GIUE	12 Sep 2019
Sector Corpus Christi IMT Exercise	27 Sep 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
Texas Statewide AC Meeting	21 May 2019
NDOW Quarterly Meeting	25-27 Jun 2019
LEPC	03 Sep 2019
STCZAC Meeting	23 Oct 2019





# Outlook

Until Next RRT meeting  
6-7 May 2020



## Training

Description	Dates
ICS 300	10-13 Mar 2019

## Exercises/Workshops

Description	Dates
Q1 GIUE	Nov 2019
Prep Notification Drills	Nov 2019
Cheniere WCD Exercise	Nov 2019
Prep Notification Drills	Feb 2020

## Federal, state, and local planning and coordination efforts

Description	Dates
LEPC	5 Nov 2019
STCZAC Meeting	Jan 2020 May 2020
Texas Statewide AC Meeting	16 Apr 2020









# MSU Port Arthur

Captain Jacqueline Twomey

MSU Commanding Officer

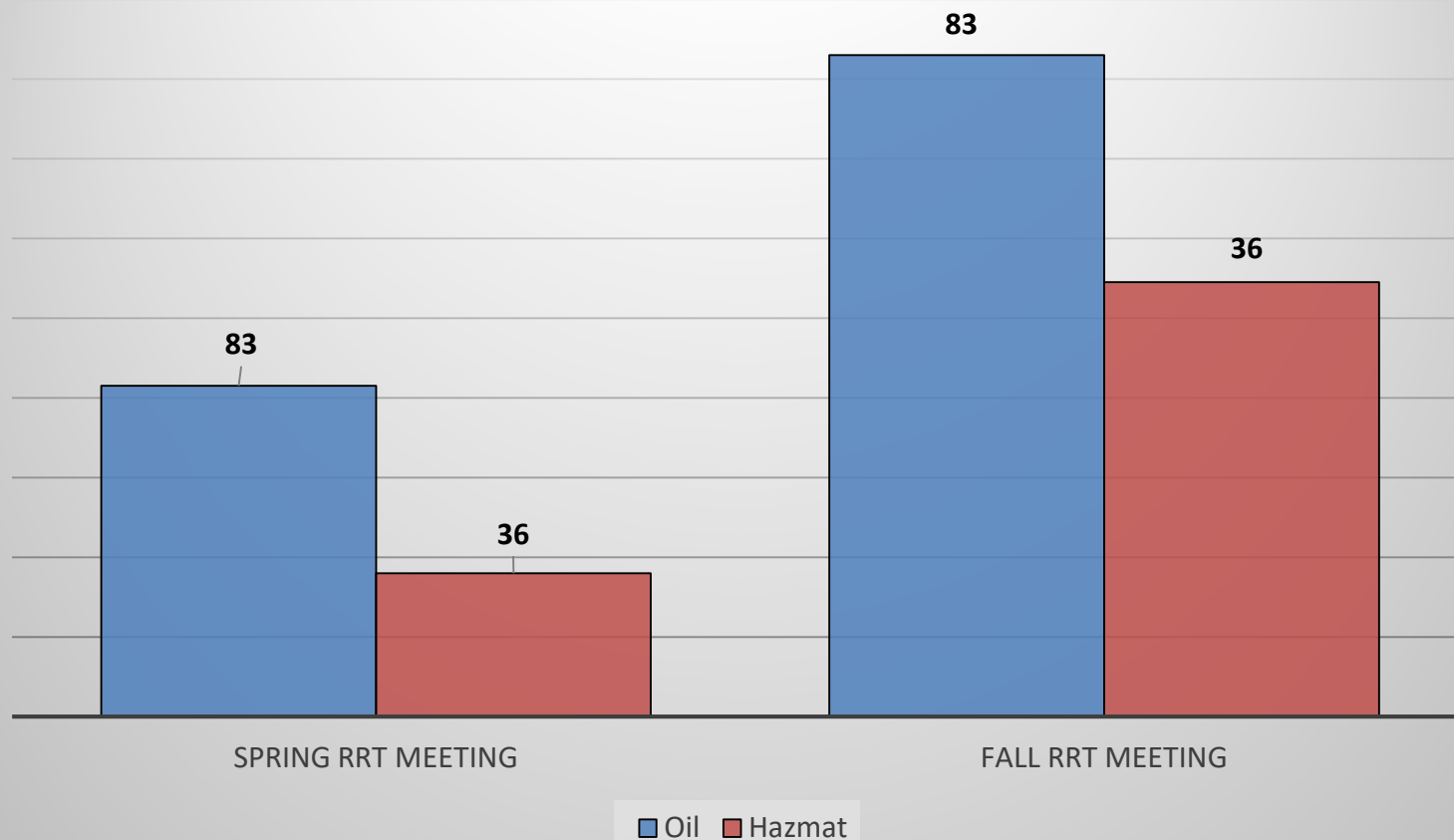


NRC Notifications	RRT Activations	Federal Projects	CERCLA Projects
275	00 Surface Washing Agents 00 In-situ Burns 00 Dispersants	03	03





## NRC Notifications







# RRT Activation / Notification



<b>Date:</b>	15 Aug 2019	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	Mystery Oil Spill - Sabine Pass, TX.				
<b>Issue / Concern:</b>	50+ gallons of waste oil discharged from unknown source and covered entire Jefferson County Sheriff Marine Division docks. Oil gathered around pier trapping response boats at moorings, prohibiting deputies from conducting patrols. Culvert connecting drainage ditch on other side of road proved susceptible to spread of oil during high tide.				
<b>Agencies Involved:</b>	USCG, TGLO, Jefferson County Sheriff's Department, Sabine Pass Port Authority				
<b>Decisions Made:</b>	CG contracted OSRO and opened OSLTF for \$40K. Samples were taken but did not match primary suspect vessel. Cleanup spanned multiple days. \$13K+ in resource allocation with 50% estimated product recovery. Culvert was blocked off from channel until cleanup was completed to prevent spread of oil outside of JeffCo Marina.				







# RRT Activation / Notification

<b>Date:</b>	28 Jun 2019	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	Crude Pinhole Leak – Lake Charles, LA.				
<b>Issue / Concern:</b>	Pinhole leak discovered in main crude oil dump line associated with multiple wells on a lake. Pinhole leak appeared to be a recurrence of a pre-existing pinhole leak due to an old clamp failure at the spot. Estimated discharge – 5 barrels.				
<b>Agencies Involved:</b>	RP, OSRO, USCG, LDEQ, LOSCO, LDNR				
<b>Decisions Made:</b>	Facility depressurized the line, clamped the leak and hired OSRO. Began conducting containment and cleanup operations. Spill impacted both lake, RP property, and property near Strategic Petroleum Reserve. LOSCO provided drone overflight pictures of spill site. Booming was effectively used to contain remaining point source product and protection boom was used along southern shoreline. RP to replace the damaged section of line.				







# RRT Activation / Notification

<b>Date:</b>	03 Oct 2019	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	Gas Collection Line – Lake Charles, LA.				
<b>Issue / Concern:</b>	Pinhole leak in gas collection line with cross contamination of crude oil. Initially during the response it was believed that there was minimal oil product in the line, but approximately 5 barrels discharged. The line was not well documented on the facility's plans and rather than being a few feet below the mudline was 22 feet below requiring extensive work to be reached and clamped.				
<b>Agencies Involved:</b>	RP, OSROs (3), USCG, LDEQ				
<b>Decisions Made:</b>	Facility depressurized the line, hired OSRO, and diver. Began conducting containment and cleanup operations. Diver spent 1 full day using jetting to work 22 feet below mud bed to get to leak in gas collection line. Line clamped and facility plans to replace entire section of line before resuming operations and to raise the relative height of the line to the mudline/water surface. Assessments conducted on effectiveness of sorbent/skimmer recovery. Remoteness of site and demands on OSROs in area following TS Imelda and Houston cases decreased resource availability slowing response.				







# Consultations



Incident Name	Start Date	Stop Date	With	Phase	For	Species (Common Name)	Type	Federal Listing Status	Critical Habitat	Total Cost
NONE										
Total										





# Accomplishments

Since last RRT meeting  
27-29 Mar 2019



## Training

Description	Dates
SCAT Training	8-12 Apr 2019
FOSCR Course	6-17 May 2019
ICS 430/440 – PSC/OSC	17-21 Jun 2019
Oil Spill Course – Morgan City	22-25 Jul 2019
Oil Spill Course – MSU PA	12-13 Aug 2019
District Response Advisory Team (DRAT) Consultation Training	10 Sep 2019
DOT HM Shipper's Course	8 Oct 2019

## Exercises/Workshops

Description	Dates
GIUEs: 1xMSUPA/2xMSULC	17 Apr 2019 11-12 Jun 2019
MSUPA Severe WX Exercise	13-16 May 19
NDOW TTX – Corpus Christi	24-27 Jun 2019
LAMAR- Environmental Science	19 Jul 2019
MOTIVA Spill Exercise	25 Jul 2019
LC AC TTX	17 Oct 2019
AMSC Cyber Workshop	30 Oct 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
NDOW Meeting	8 May 2019
Texas Statewide AC Meeting	21 May 2019
Louisiana Statewide AC Meeting	5 Jun 2019
SETX/SWLA AC Meeting	12 Jun 2019
SETX/SWLA AC Meeting	17 Oct 2019
29 <sup>th</sup> Annual Clean Gulf Conference	28-31 Oct 2019





# Outlook

Until Next RRT meeting  
6-7 May 2020



## Training

Description	Dates
PR College – MSU PA	Oct-Dec 2019
PREP Exercise Course	2 Dec 2019
Pollution Incident Response	3 Feb 2020
Federal OSC Rep	2 Mar 2020
NOAA SCAT Course	TBA
NOAA SOS Course	TBA

## Exercises/Workshops

Description	Dates
DIVS Functional Drill	13 Nov 2019
CITGO Equipment Drill	21 Nov 2019
TEEX ICS 314	2 Dec 2019
FY20 GIUE (2 of 2)	2 <sup>nd</sup> & 4 <sup>th</sup> Quarters
FY20 GIUE (2 of 2)	1 <sup>st</sup> & 3 <sup>rd</sup> Quarters

## Federal, state, and local planning and coordination efforts

Description	Dates
Orange County LEPC	13 Nov 2019
Orange County LEPC	11 Dec 2019
Louisiana Statewide AC Meeting	6 Feb 2020
Texas Statewide AC Meeting	16 Apr 2020
GRS Verification Strategy Meeting	TBD
Staging Area Verification/Update	Ongoing





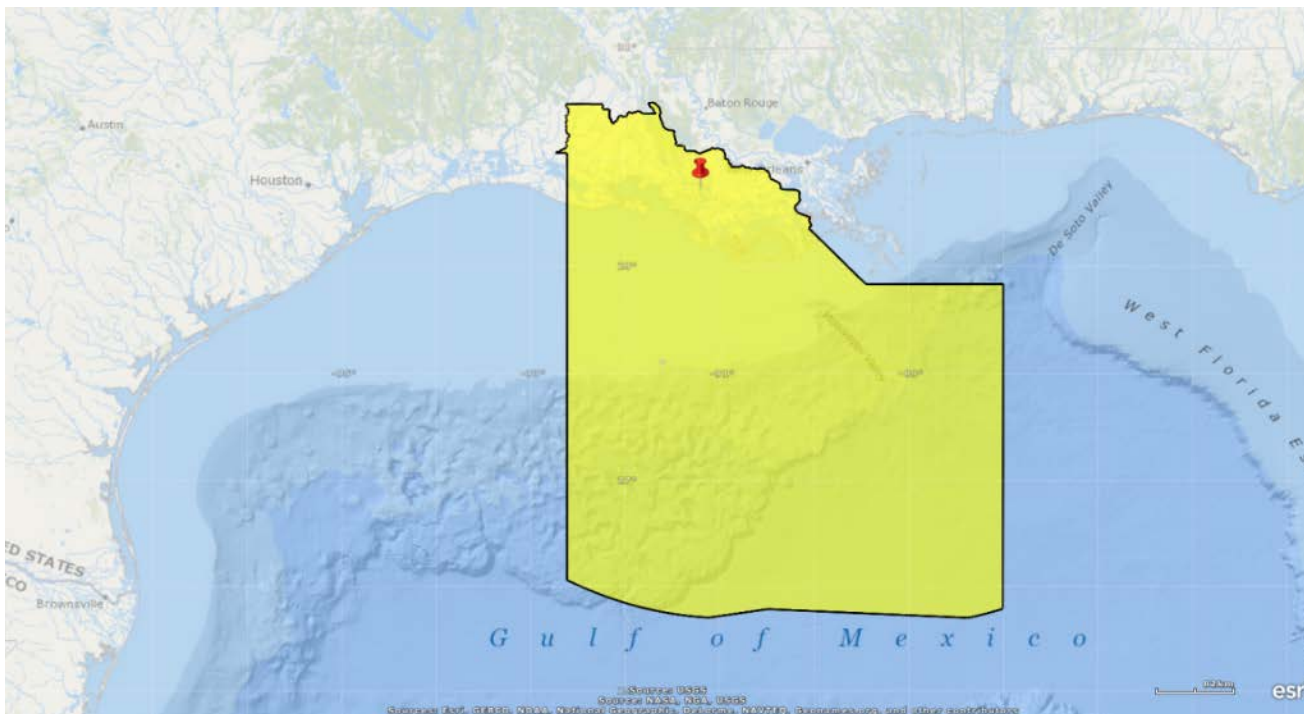




# MSU Houma

Captain Jerrel Russell

MSU Commanding Officer

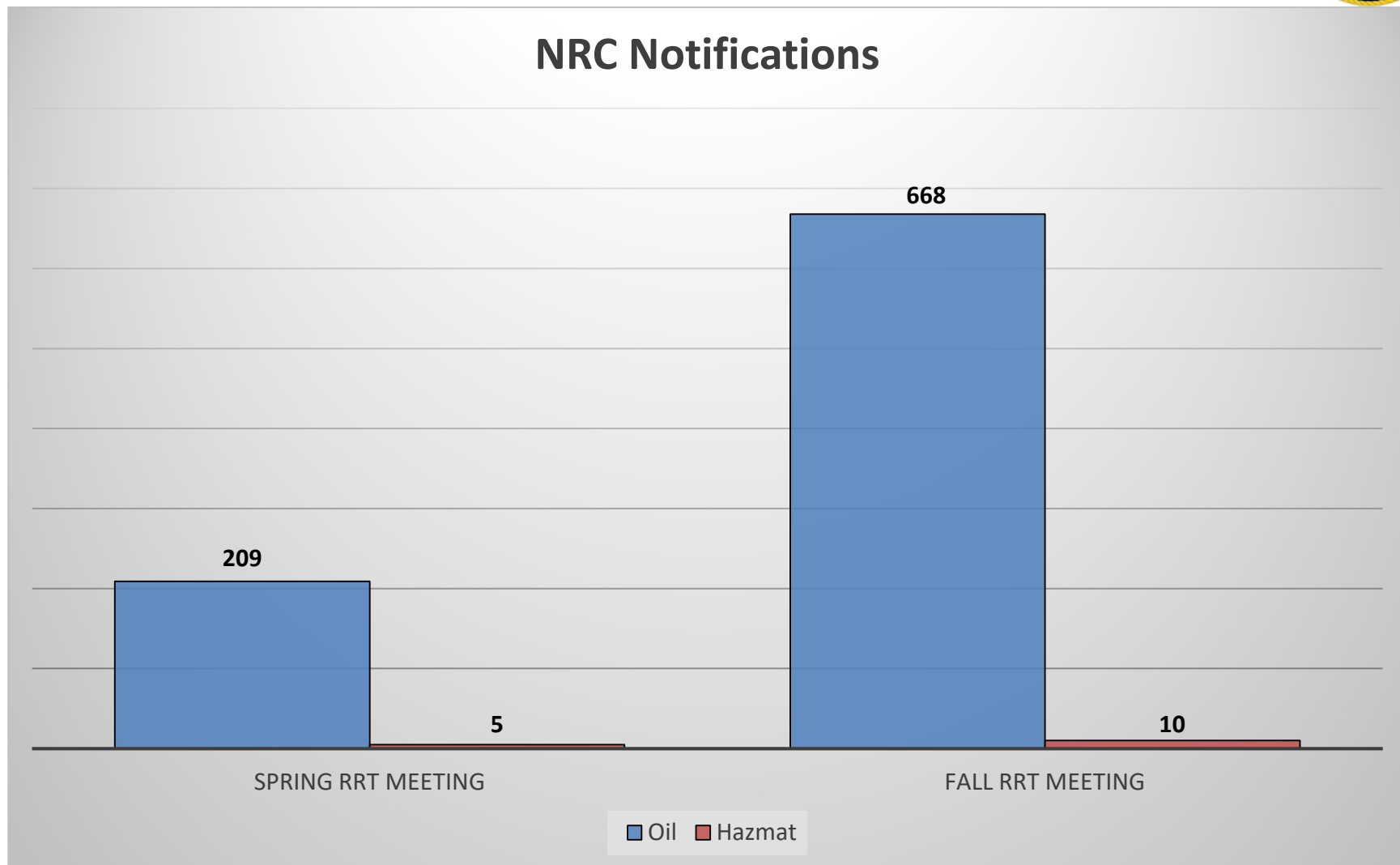


NRC Notifications	RRT Activations	Federal Projects	CERCLA Projects
668	0 Surface Washing Agents 0 In-situ Burns 0 Dispersants	6	2





## NRC Notifications







# RRT Activation / Notification



<b>Date:</b>	Feb – Apr 2019	<b>Activation</b>		<b>Notification</b>	X
<b>Incident Name:</b>	DUCOS #1 Tank Battery				
<b>Issue / Concern:</b>	LADNR reported abandoned crude oil production and storage facility with three of six production tanks and misc. production equipment containing approximately 101,300 gallons of oil and production chemicals. Last owning company was bankrupt and had not intentions of removing the threat.				
<b>Agencies Involved:</b>	USCG, LADNR				
<b>Decisions Made:</b>	Opened Federal Project to remove all remaining products from the facility.				







# RRT Activation / Notification

<b>Date:</b>	26 May 2019	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	Lake Bully Camp #2 Facility				
<b>Issue / Concern:</b>	A high-level sensor failed at the Badger production facility causing 95 bbls of crude oil to carry over to the vent and discharge into the water and surrounding wetland area. Osprey nest on vent line, impacted birds.				
<b>Agencies Involved:</b>	USCG, LOSCO, LADEQ, LAW&F, NOAA, USFW				
<b>Decisions Made:</b>	Skimming Operations to recover majority of product. WRS was contracted by RP to monitor the Osprey. BMP discouraged flushing with wash pumps due noise level and disturbing the osprey nest.				







# RRT Activation / Notification

<b>Date:</b>	06 Aug 2019	<b>Activation</b>		<b>Notification</b>	X
<b>Incident Name:</b>	SUMMIT OIL & GAS WELLHEAD, BAY JAQUE				
<b>Issue / Concern:</b>	Wellhead reported discharging oil, creating a light rainbow sheen, and releasing natural gas from missing valve on well Christmas tree. Well and facility was part of LADNR's orphan well program, owning company was dissolved. Approximately 10 gals of crude discharged daily, structure was badly damaged/deteriorated with way to secure or temporary patch source.				
<b>Agencies Involved:</b>	USCG, NOAA, LADNR, USFW.				
<b>Decisions Made:</b>	MSU Houma contacted LADNR to conduct emergency P&A through state's Orphaned Well Program, however due to contracting/bid constraints and continuous discharge, USCG accessed OSLTF and assumed federal action. USCG contracted BOA for P&A operations and removal of remaining oil from facility and production line, recovering 202 BBLs of product.				







# RRT Activation / Notification



<b>Date:</b>	25 Sep 19	<b>Activation</b>		<b>Notification</b>	
<b>Incident Name:</b>	MYSTERY SUBSTANCE, PORT FOURCHON DITCH				
<b>Issue / Concern:</b>	LaFourche Parish Harbor Fire Dept reported a black substance with a strong chemical odor in ditch, approx. .5 miles long. Responsible Party was not identified and substance was unknown, with no sheen. Concerns for unknown hazards and exposure creating a substantial threat to the public and environment.				
<b>Agencies Involved:</b>	USCG, DEQ, EPA, NOAA, Port Commission, LaFourche Parish				
<b>Decisions Made:</b>	MSU Houma contacted DEQ for assistance in hazardous substance identification and removal. HAZMAT identification test results were inconclusive. USCG accessed CERCLA funding for further testing and identification of material.				







# Consultations



Incident Name	Start Date	Stop Date	With	Phase	For	Species (Common Name)	Type	Federal Listing Status	Critical Habitat	General Cost	Land Cost	Total Cost
S2 Energy, 10 BBL, Lake Long	5/10/2019	5/17/2019	DOI/USFWS	Response	Skimming	Bald Eagle, Colonial Water Birds	ESA	NA	No	200	0	200
S2 Energy, 10 BBL, Lake Long	5/10/2019	5/17/2019	DOC/NMFS	Response	Skimming	Bald Eagle, Colonial Water Birds	ESA	NA	No	200	0	200
Badger Energy, 95 BBL, Lake Bully Ponds	5/26/2019	5/31/2019	DOI/USFWS	Response	Skimming	Bald Eagle, Colonial Water Birds	ESA	NA	No	500	0	500
Badger Energy, 95 BBL, Lake Bully Ponds	5/26/2019	5/31/2019	DOC/NMFS	Response	Skimming	Bald Eagle, Colonial Water Birds	ESA	NA	No	500	0	500
Summit Oil P&A Federal Project	8/7/2019	9/14/2019	DOI/USFWS	Response	Booming	Colonial Water Birds	ESA	N/A	No	500	0	500
Summit Oil P&A Federal Project	8/7/2019	9/14/2019	DOC/NMFS	Response	Booming	Colonial Water Birds	ESA	N/A	No	500	0	500





# Accomplishments

Since last RRT meeting  
27-28 Mar 2019



## Training

Description	Dates
Oil Spill Response	22-24 Jul 2019
Dispersant Seminar	25 Jul 2019
FOSCR College	16-20 Sep 2019
HWCG Training/Presentation	9 Oct 2019
NOAA SCAT Training	15-17 Oct 2019

## Exercises/Workshops

Description	Dates
LOOP AMSTEP/NPREP	18 Jul 2019
Third Quarter GIUE	12 Jun 2019
Fourth Quarter GIUE	23 Jul 2019
BSEE Led GIUE (BP)	22-23 Aug 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
Area Committee Meeting	29 May 2019
Louisiana Statewide AC Meeting	5 Jun 2019
29 <sup>th</sup> Annual Clean Gulf Conference	29-31 Oct 2019





# Outlook

Until Next RRT meeting  
6-7 May 2020



## Training

Description	Dates
Spill Response Course	Spring 2019
NOAA SCAT Training	TBD

## Exercises/Workshops

Description	Dates
First & Second Qtr. GIUEs	TBD
Shell Functional Exercise	14 Nov 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
Area Committee Meeting	21 Nov 2019
Louisiana Statewide AC Meeting	6 Feb 2020





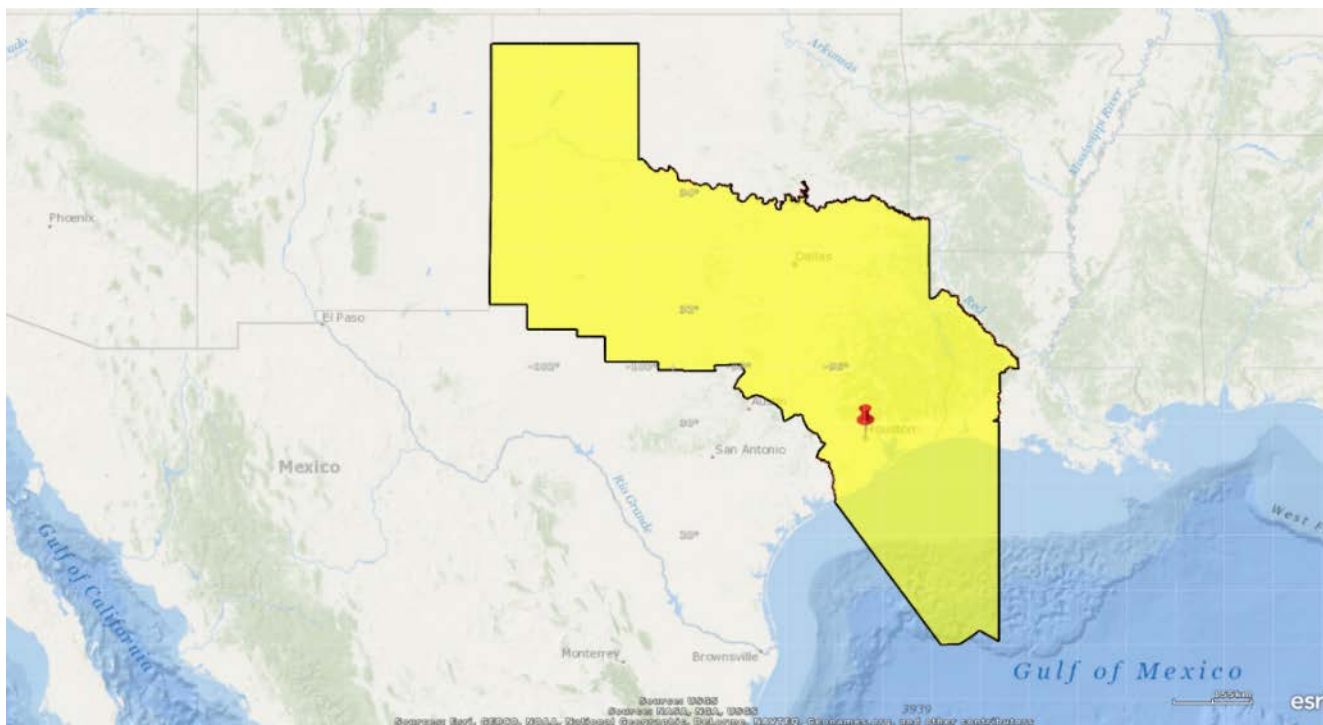




# Sector Houston-Galveston

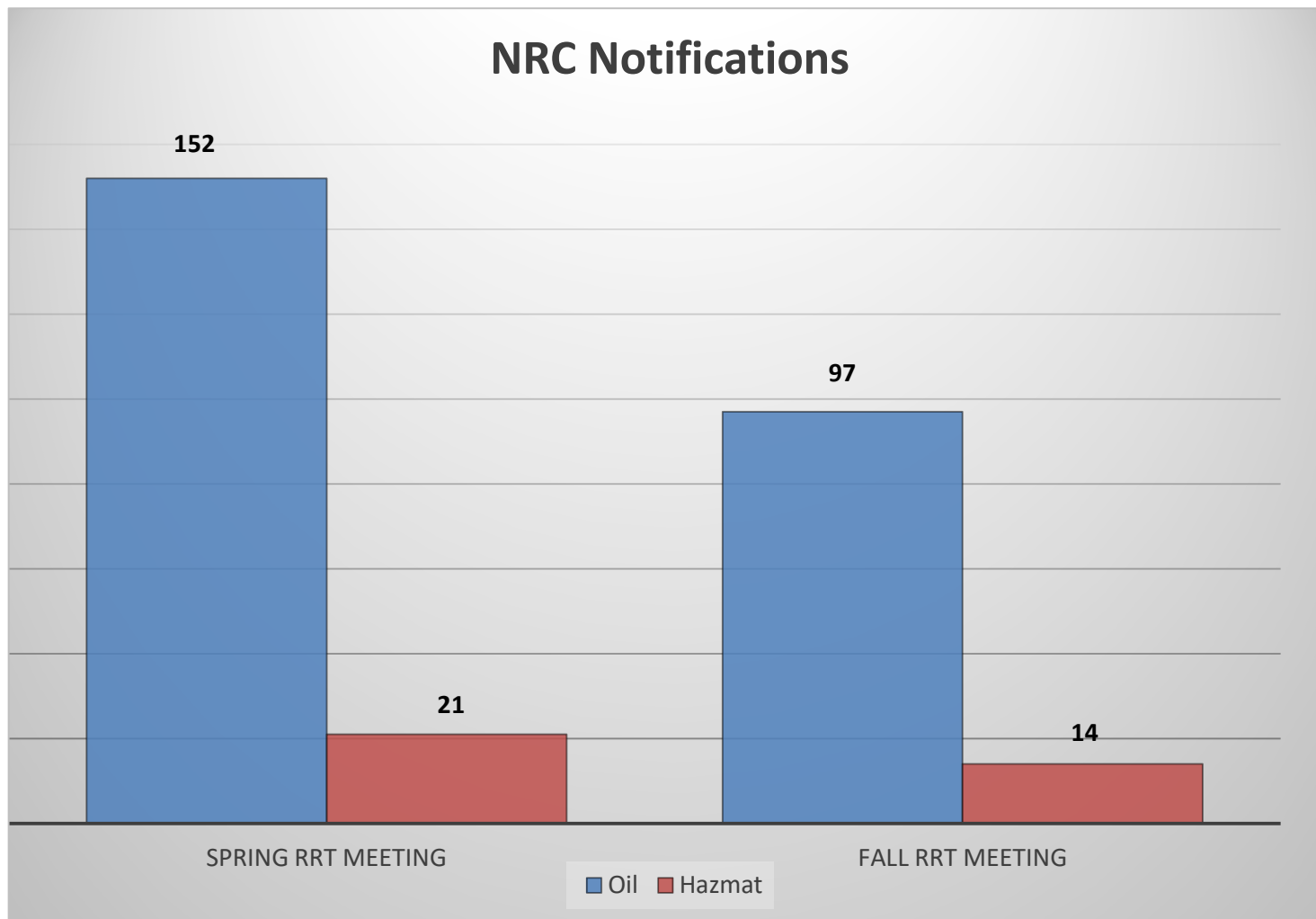


Captain Kevin Oditt  
Sector Commander



NRC Notifications	RRT Activations	OSLTF	CERCLA
112	00 Surface Washing Agents 00 In-situ Burns 00 Dispersants	5	9





\* Only includes MER related NRC Notifications





# Swissport/Hobby Jet Fuel Discharge



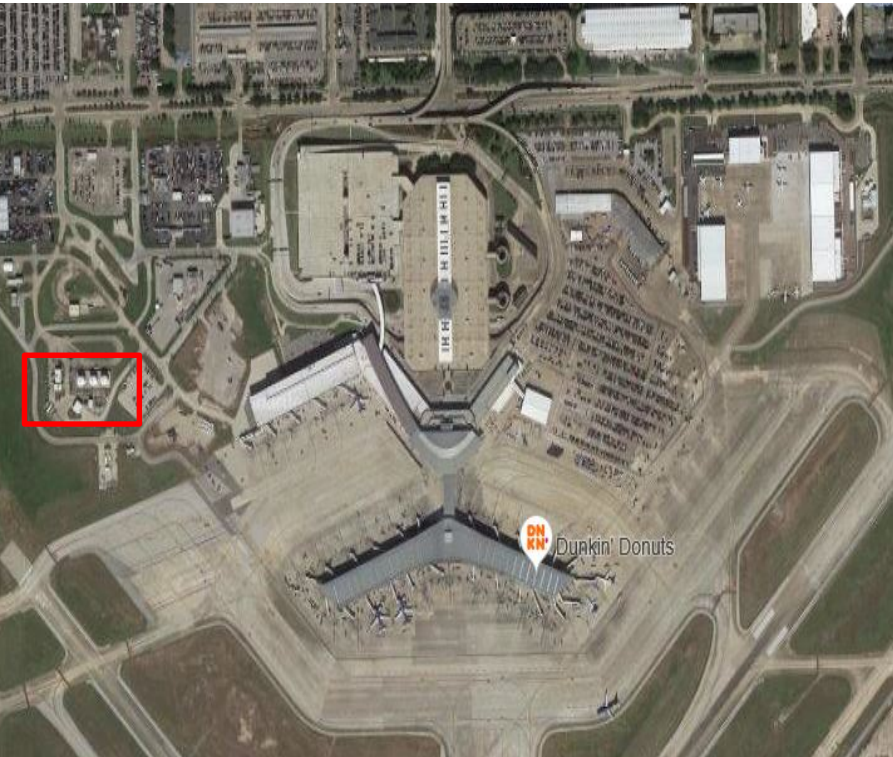
*Tank Farm*

- Preliminary Report:
  - Received NRC report indicating 64,000 gallons of JP-8 aviation fuel discharged from Hobby airport tank farm.
  - Reported 10-30 gallon waterway impact.





# Location & Jurisdiction



*Incident Location – Hobby Airport*



*Greater Hobby Area*





## USCG/EPA MOA Boundary





# Incident Details



*Tank Farm*



*Primary Containment*





*Primary Containment Drain*



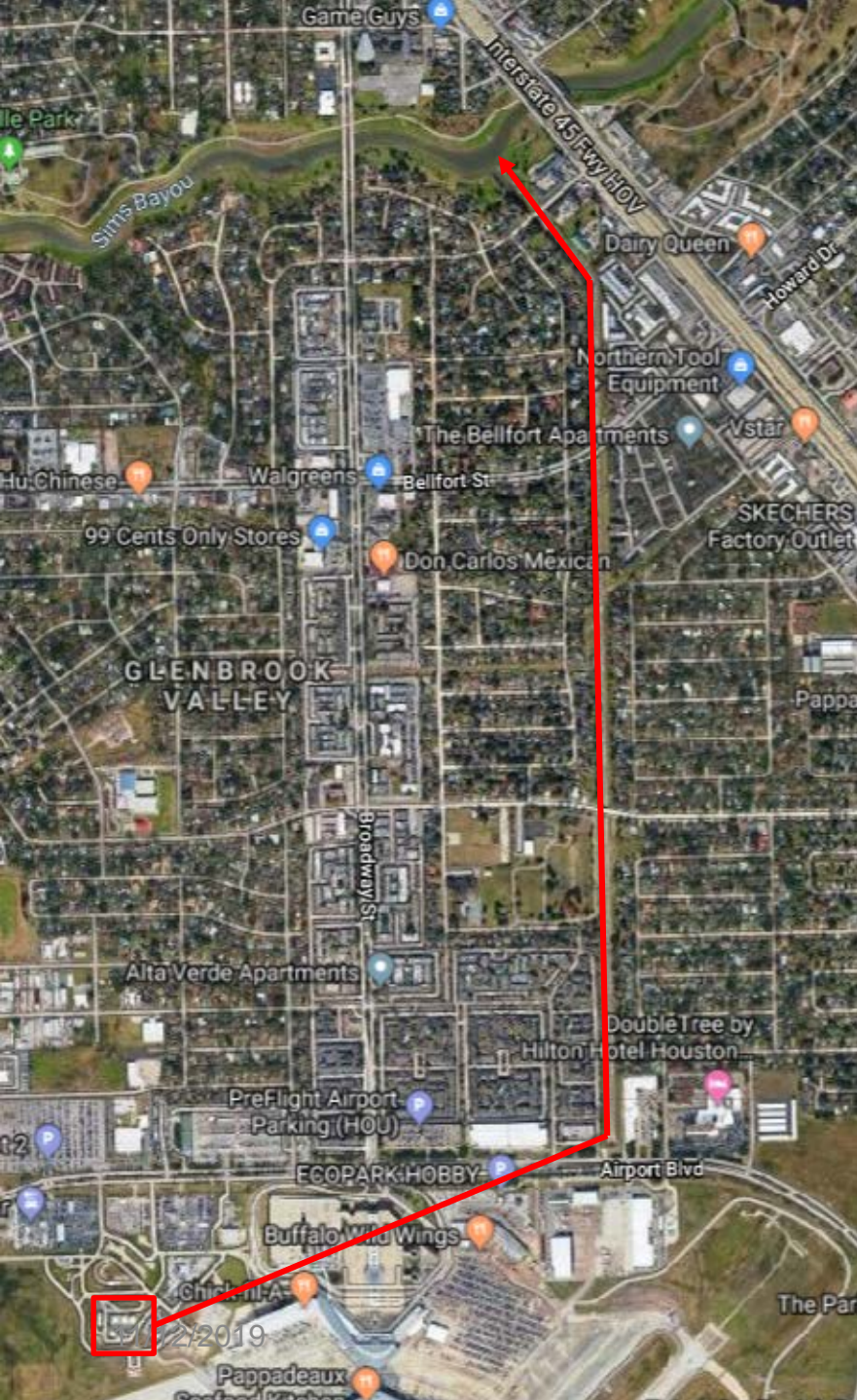
*Sluice Gate Valve*





*Sluice Gate Valve*

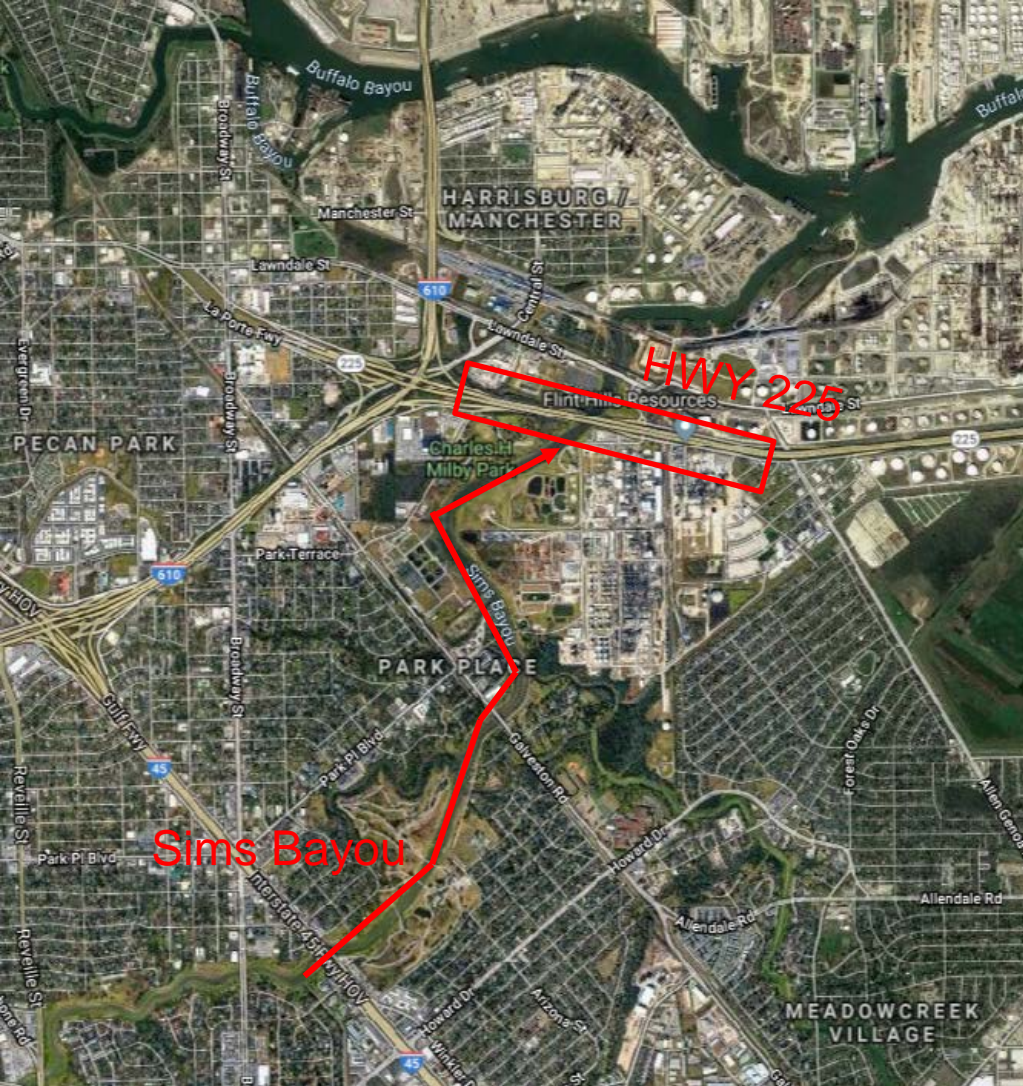




*Storm Drain Outfall*

*Path of Discharge*





*Path of Discharge*



*Charles H Milby Park*





# Response Resources

- 5 Vacuum Trucks
- 3 FRAC Tanks
- Multiple Skimmers
- 333 bundles of absorbent boom and 69 bales of pads
- 6 work boats
- 1,800' of 18" hard boom
- HFD Drone
- HFD Mobile Command Unit
- Air Monitoring - VOCs
- Water sampling - Dissolved Oxygen Level & Total Petroleum Hydrocarbons





# Multi-Agency Response

- **City of Houston:**
  - FD Station 81
  - FD HAZMAT Team
  - Public Works/Engineering
  - Office of Emergency Management
  - Health and Human Services Pollution Control
  - Health Department
- **OSRO – National Response Corporation**
- **Texas State:**
  - TCEQ
  - TGLO
  - Texas Parks and Wildlife
- **Federal:**
  - USCG
  - NOAA
- **Harris County:**
  - Pollution Control





# Incident Highlights

- 33,453 gallons recovered from containment
- 4,000 gallons recovered from Sims Bayou
- 28,000 recovered through soil remediation and flushing storm drain
- TCEQ lead state & USCG lead federal enforcement
- Local press coverage – Stood up JIC
- Audobon Society and Houston Botanical Garden impacts
- SSC confirmed majority of species were not present

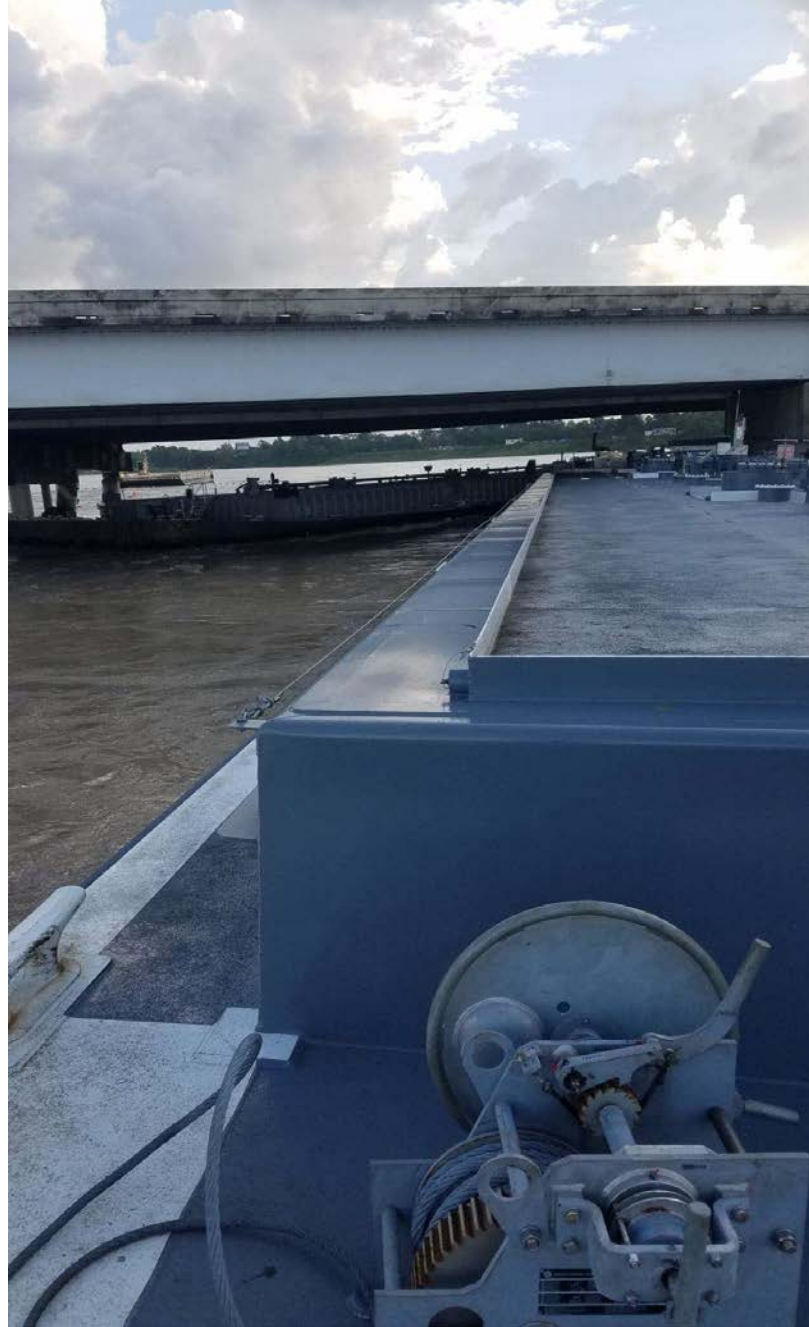




# San Jacinto Fleet Incident (I-10 Bridge Allision)

11/12/2019

FOSC Reports



57





# San Jacinto Fleet Incident (I-10 Bridge Allision)

- Tropical Storm Imelda
- Significant rain event, that caused heavy downpours and flash flooding for four days.
- Flooding impacted North and West areas of Houston, TX,
- The CG conducted SAR ops.
- On 20 September 2019 early Friday Morning a flash flood on San Jacinto River caused 9 barges to break free from their moorings and rush down the river. 2 of the barges were wedged under the I-10 Freeway and another grounded.





# San Jacinto Fleet Incident

- A coordinated Salvage operation was completed to include several agencies and port partners.
- USCG, CG SERT, EPA, TGLO, Harris County, TX-Dept. of Transportation, OMI LLC, CTEH, T&T Salvage, and NOAA, CHERYL K, Canal Barge Co, Ingram Barge, and Buffalo Marine.
- Informal discussions with TCEQ, U.S. Fish and Wildlife and National Marine Fishery Service.





# San Jacinto Fleet Incident

- CBC 1403 - 10,000 bbls of NAPTHA
- CBC 193 - 17,000 bbls of MONO-ETHYLENE GLYCOL  
(Both wedged under I-10)
- CBC 1407 - 12,000 bbls of LUBE OIL  
(hard aground on a known superfund site)
- (2)IB barges – ea w/10,000 bbls of SOY BEAN OIL  
(damaged)







# San Jacinto Fleet Incident

Grounded Barge positioned on the encasement cap of a Superfund site.







# San Jacinto Fleet Incident

## **Actions taken:**

- Booming strategies completed.
- Air Monitoring
- Water Sampling
- Additional Tug support
- Aggregate on standby
- NTSB / CG Investigation

## **Grounded barge - lightering ops**







# Accomplishments

Since last RRT meeting  
27-28 Mar 2019

## Training

Description	Dates
Federal On-Scene Coordinator Representative (FOSCR) School	07-18 Jan 2019 18-29 Mar 2019 13-24 May 2019
District Response Advisory Team (DRAT) Consultation Training	09 Sep 2019
HAZMAT Shipper	15-18 Oct 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
CTCAC Meeting	06 Dec 2019 05 Sep 2019
BSEE Tabletop Exercise	06 Mar 2019
Texas Statewide AC Meeting	21 May 2019
29 <sup>th</sup> Annual Clean Gulf Conference	29-31 Oct 2019

## Exercises/Workshops

Description	Dates
Bryan Mound PREP Exercise	13 Feb 2019
BP Full-Scale Exercise	24-25 Jul 2019
Anadarko Full-Scale Exercise	03 Oct 2019
HESS Exercise	Oct 2019
GIUE – LBC Houston & Shell	Sep 2019 Nov 2019
IMAT Exercise	16-18 Oct 2019





# Outlook

Until Next RRT meeting  
6-7 May 2020

## Training

Description	Dates
NOAA SCAT (Galveston)	7-9 Apr 2020
NOAA SOS (Mobile)	23-27 Mar 2020
FOSCR College	TBD (Spring 2020)
Internal ICS Position Specific Training	Jan-Jun 2020

## Exercises/Workshops

Description	Dates
BHP FE	13 Nov 2019
Air Monitoring Appendix Workshop Emergency Responder Forum	21 Nov 2019 10 Dec 2019

## Federal, state, and local planning and coordination efforts

Description	Dates
CTCAC (Wild Well Control)	05 Dec 2019
CTCAC Economic GRS Meeting	10 Dec 2019
CTCAC Vessel Decon Site Meeting	12 Dec 2019
CTCAC Executive Steering Group Meeting (Sector H/G)	09 Jan 2020
NDOW Quarterly Meeting	21-23 Jan 2020
NSFCC Preparedness Assessment Verification (PAV)	02-15 Feb 2020
Galveston County OEM Meeting	Mar-May 2020
Texas Statewide AC Meeting	16 Apr 2020



