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Where is it?
How much?
What type?
Is it weathered / emulsified?
What slick thickness?
Where is it going?

Is it 'Actionable Oil'?

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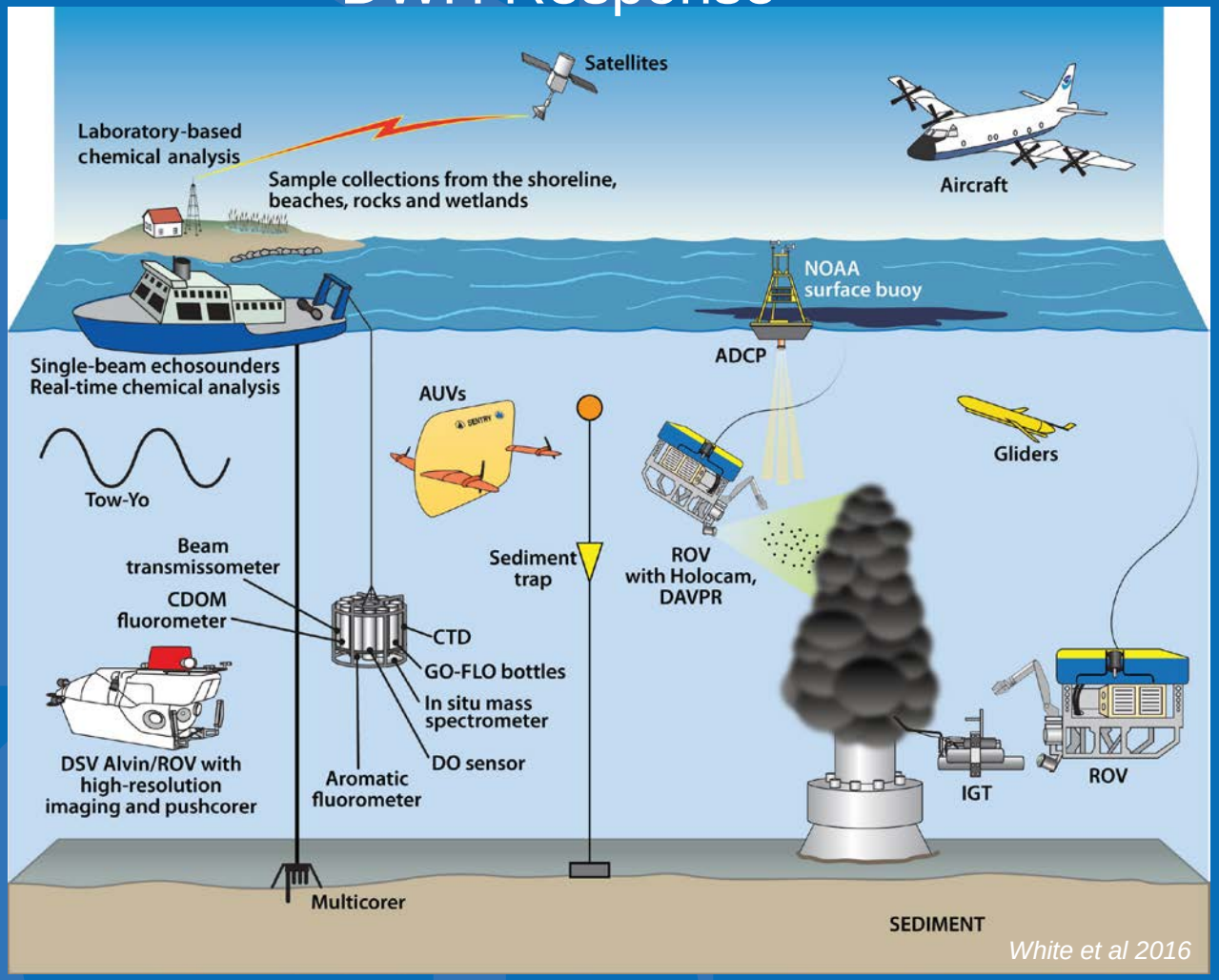
DWH Response



White et al 2016

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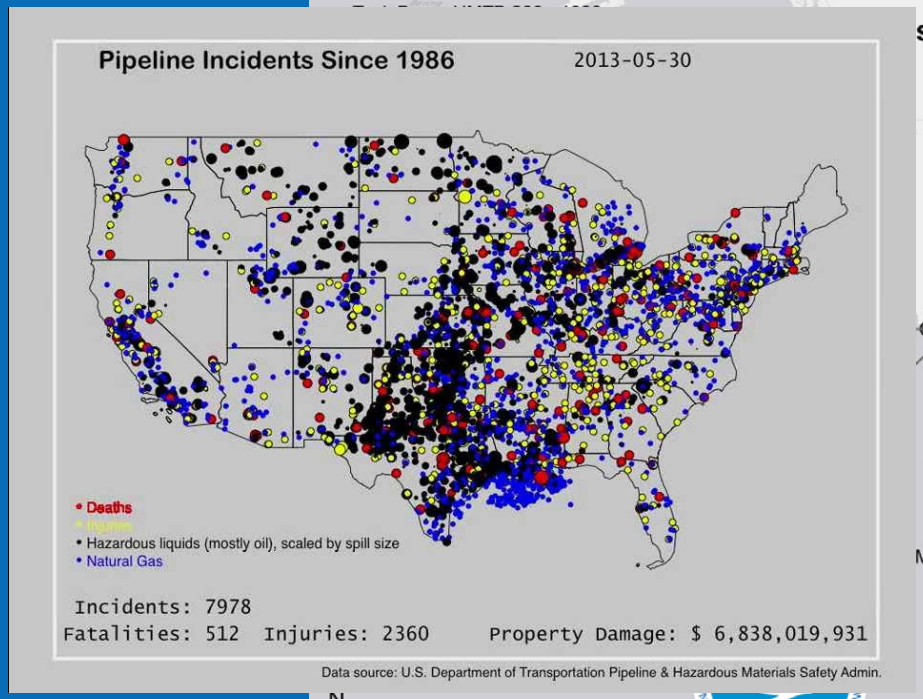

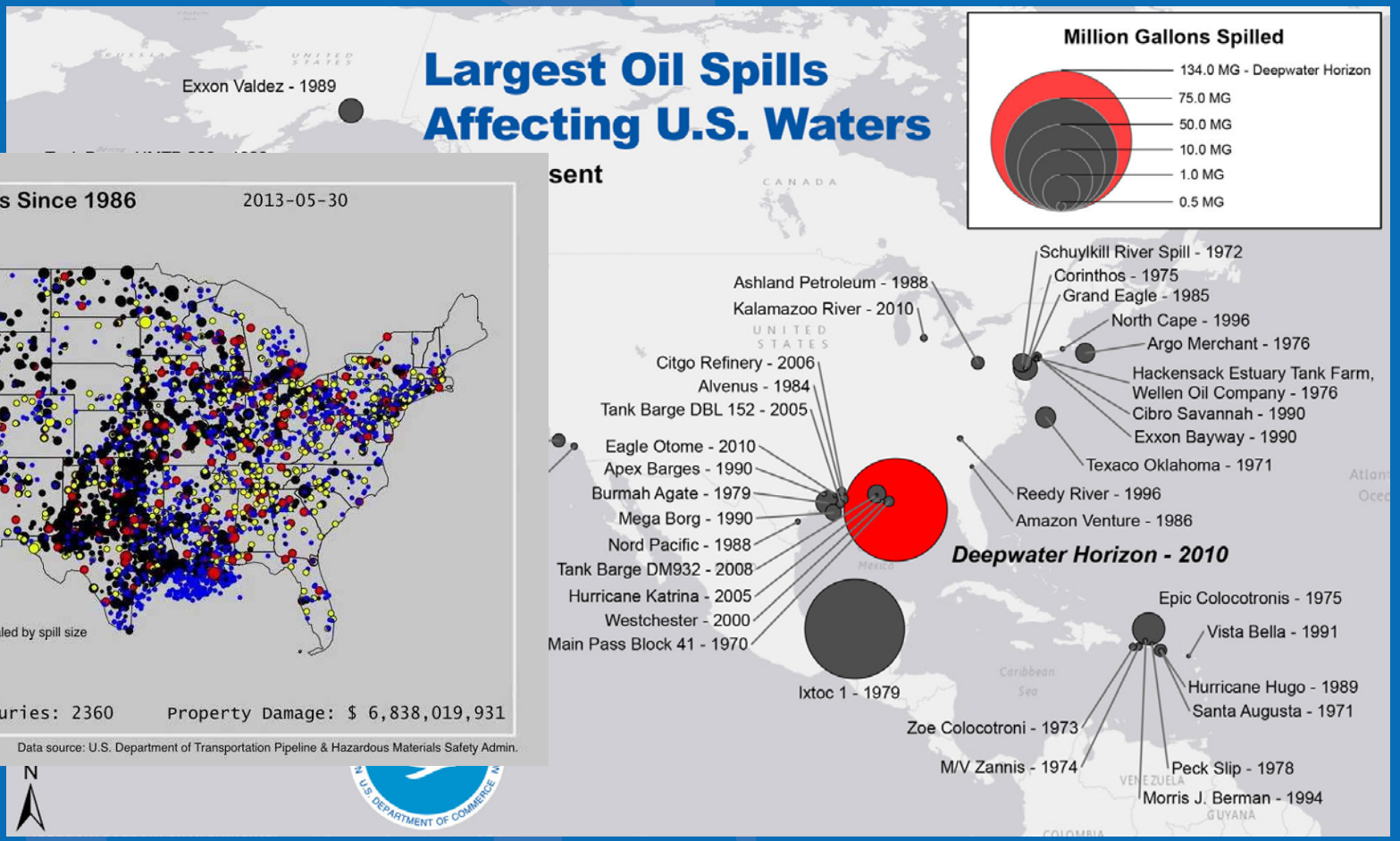

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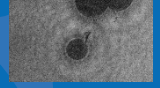


Holography

Nanoparticles

Platforms
AUV
Gliders
OOS / buoy

Gases

Oil-sniffing Dogs

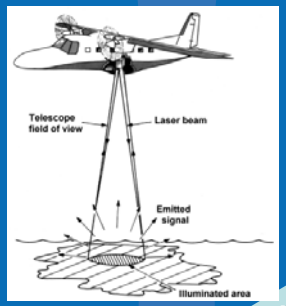
Genomics

Samples
GC/MS/MS

Aerial Drones
Cameras
UV-IR multispectral
Reflectance
SAR

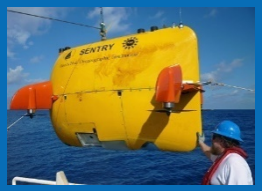
VOC Emissions

In-situ characterization
Submersible Mass Specs
Submersible fluor. Polarization
Multi-λ fluor. & absorbance
acoustics



Submersible
Fluorescence
Transmittance
Scatter meters

Aerial
UAV SAR
ASPECT
Lidar



Satellite
SAR
Ocean Color
Lidar CALIOP

Samples
UV- VIS
GC/MS & FID
Fluorescence
Oil volume

VOC Meters

Aerial
Cameras / SAR
UV-IR scanners
Laser Fluorosensor

Handheld fluorescence

Visual Surveillance

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How will technological developments contribute to improved spill response?

- What sophisticated tech will translate to smaller / quicker spills?
- What tech can be interchanged between environments?
  - Deep Ocean and Arctic
  - MOSSFA and River Particulates
  - Brine lakes and Salt Extrusion from sea-ice
  - On water, Submerged Plumes
  - Sediments, Shorelines, Wetlands
  - In and Under Ice
  - Air
- What tech can be placed on inexpensive / remote platforms?

What tech will be miniaturized, mobilized, or adapted for field measurements within the next 5 years?

- What is needed to test technology?

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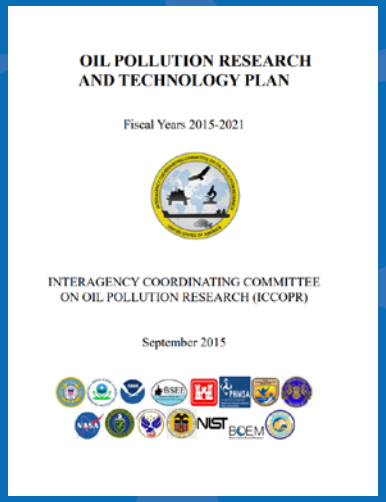
- What are the gaps? What is still needed to improve response?



Prevention	Preparedness	Response	Injury Assessment & Restoration
• Human Error Factors • Offshore Facilities and Systems • Onshore Facilities and Systems • Waterways Management • Vessel Design • Drilling • Rail & Truck Transportation • Pipeline Systems	• Pre-spill Baseline Studies • Response Management Systems	• Structural Damage Assessment and Salvage • At Source Control and Containment • Chemical and Physical Behavior Modeling • Oil Spill Detection and Surveillance • In- and On-water Containment and Recovery • Shore Containment and Recovery • Dispersants • In-situ Burning • Alternative Countermeasures • Oily and Oil Waste Disposal • Bioremediation	• Environmental Impacts and Ecosystem Recovery • Environmental Restoration Methods and Technologies • Human Safety and Health • Sociological and Economic Impacts

- Is the technology anticipatory for the next spill?
- How to improve ‘ease of use’, data management, QA / certainty?

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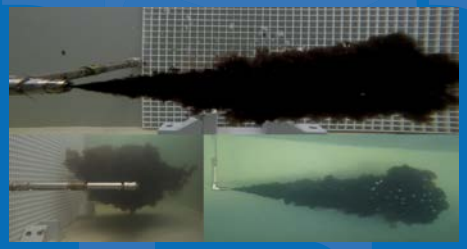
- How can industry/academia/govt partnerships contribute to improved response to future spills?



- How can researcher-operator communications enhance tech transfer?

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Panel Session 2:
Technology for Oil Detection

Robyn Conmy *Moderator*
Joel Kostka Georgia Institute of Technology
David Portnoy Harte Research Institute Texas A&M Univ.
Andrew Ziegwied ASV Global
Alessandro Vagata Fototerra Survey

Are there cross-cutting needs?
Which parameters are mis or under represented?
What measurements are needed from the field?
Which technologies/in situ measurements are needed to better develop models?