Oil Spill Preparedness Division (OSPD)

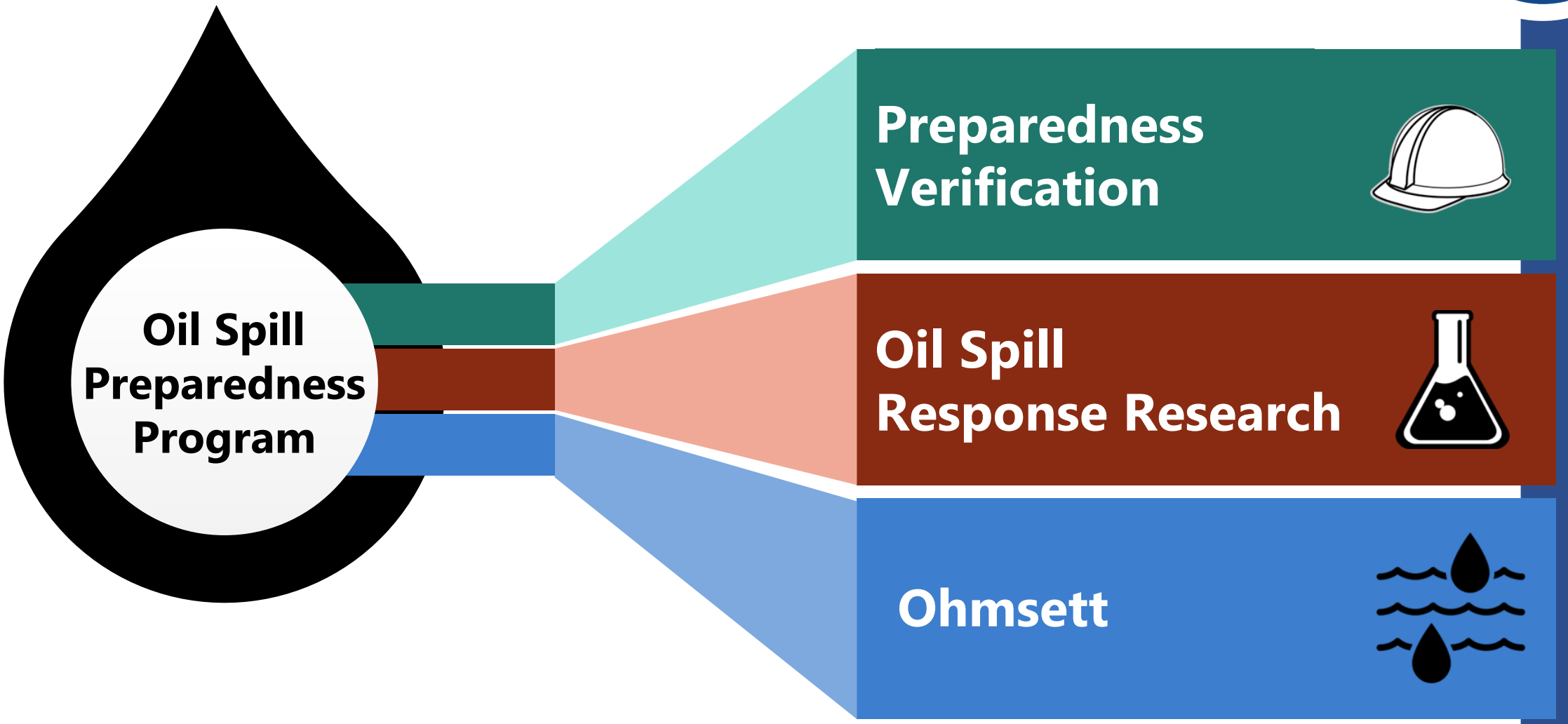
John Calvin
Senior Preparedness Analyst
BSEE – OSPD Atlantic Section
(504) 616-0147

May 8, 2024

Bureau of Safety and Environmental Enforcement

Promoting Safety, Protecting the Environment and Conserving Offshore Resources

OSPD: A national program with three roles. . .



Oil Spill Preparedness Division

Eric Miller

Office of the Chief

Karen Stone

Response Research Branch

Research Section

Ohmsett Section

Bryan Rogers

Preparedness Verification Branch

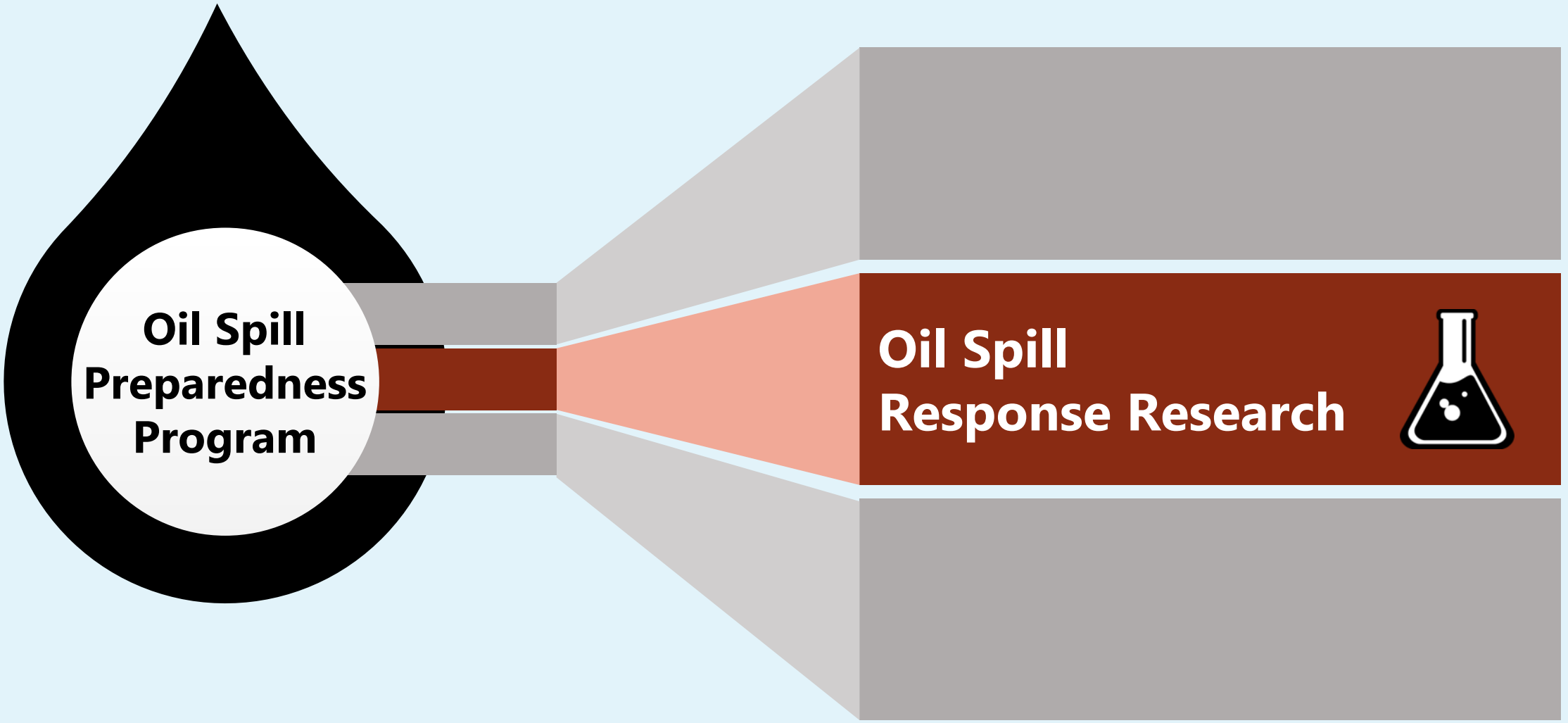
Alaska Section

Pacific Section

Atlantic Section

Sara Moore

Gulf of Mexico Section

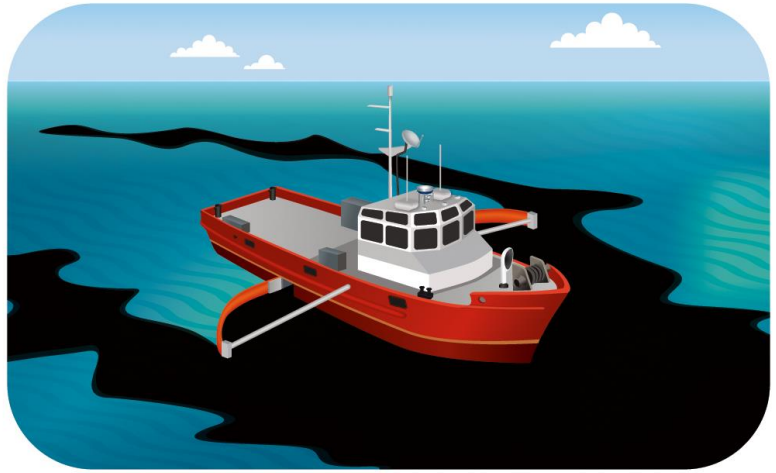

Oil Spill
Preparedness
Program
Oil Spill
Response Research

Oil Spill Response Research

Chemical Treatments

Remote Sensing

In Situ Burning

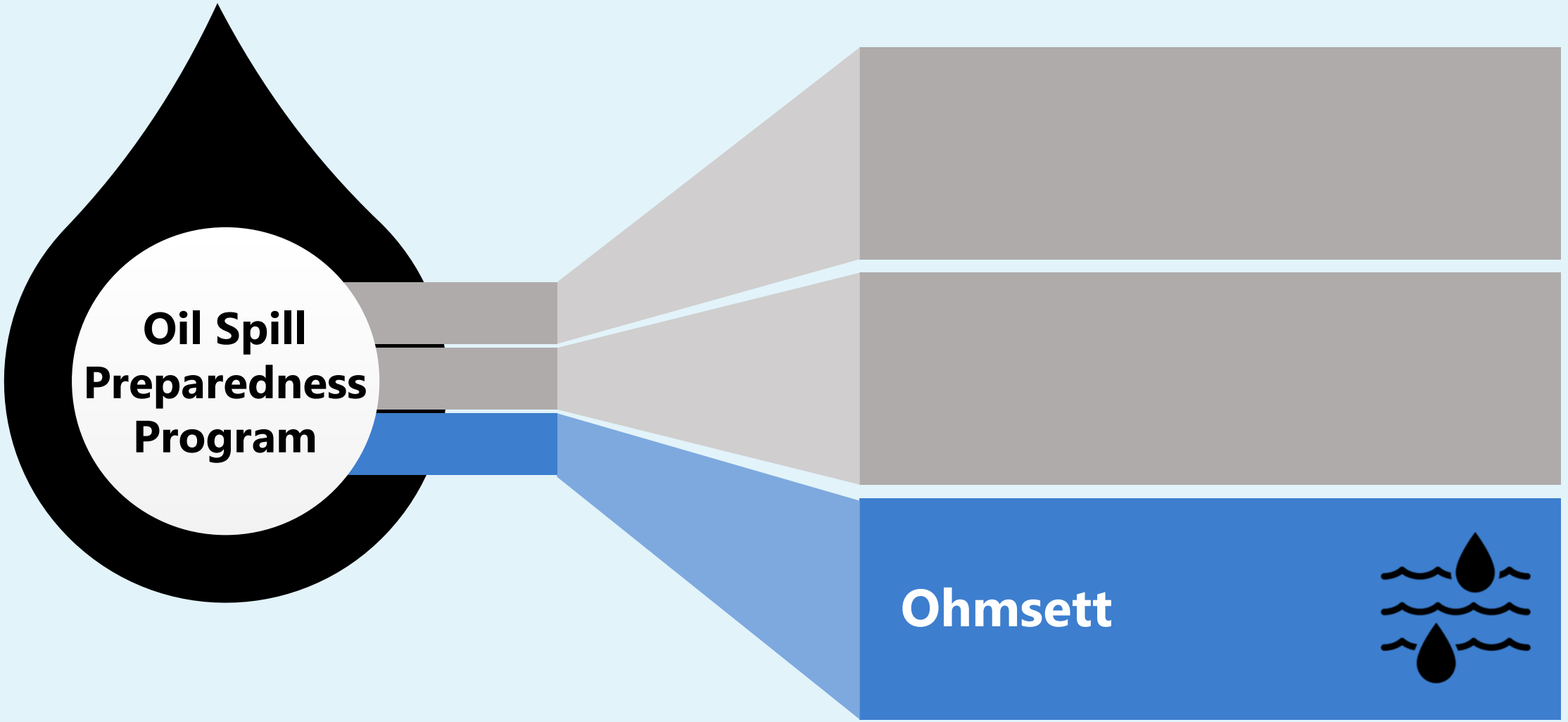


Mechanical Containment & Recovery

Shoreline Response

OSPD Research Engineers and Scientists serve in three roles. . .

- Principle Investigator
- Contracting Officer's Representative
- Project Manager


Oil Spill
Preparedness
Program
Ohmsett

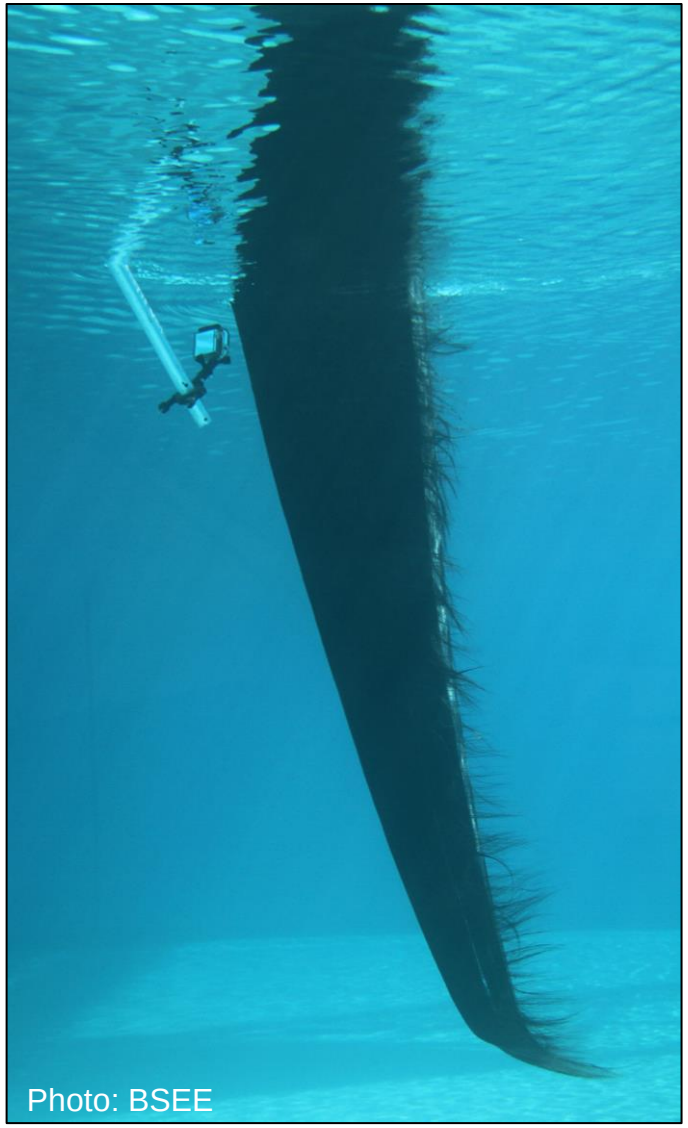
National Oil Spill Response Research and Renewable Energy Test Facility

Dimensions
203 meters long
20 meters wide
2.4 meters deep

Volume
2.6 million gallons

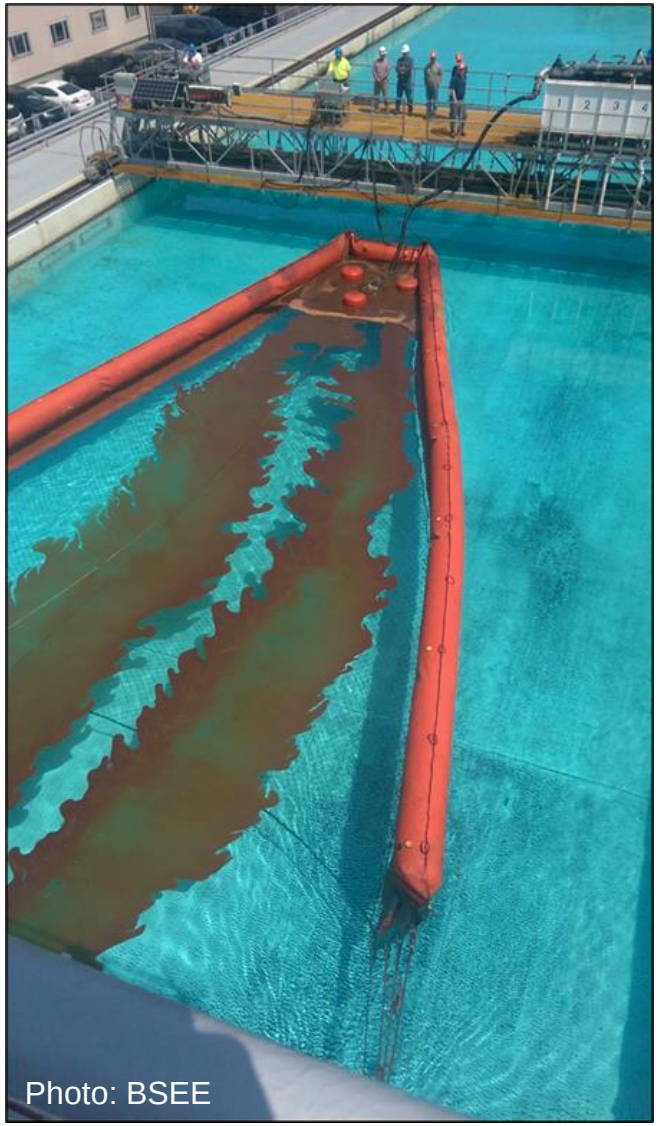
Research

Crude oil effects on whale baleen.



Training

Practice with a weir skimmer.



Evaluation

Autonomous underwater vehicle test.

Different marine conditions can be simulated in the tank.


Photo: BSEE


Photo: BSEE

Response Research Branch (RRB)

Current & Future Dielectric Fluid Research

Some identified questions and concerns:

- What are the differences between fresh & spent dielectric fluid?
- No established methods for spotting, tracking, and spill volume estimation.
- Are there sufficiently representative surrogates in trajectory analysis software?
- Uncertainty about Response Strategies:
  - Skimmer Type
  - Dispersants
  - Burning
  - Herders
  - Sorbents
- Are there response limitations imposed by wind farm configurations?
- What is a reasonable response capability metric? Are EDRC/ERSP even applicable?

Response Research Branch (RRB)

BSEE / USCG Joint Research:

- Chemical and physical analytical analysis of the differing fluid categories, e.g. Mineral oil, Natural ester, and Synthetic ester Fluids (BSEE and USCG Academy).

- Testing of Oil Spill Technologies (TOST):
  - Efficacy of conventional sorbent materials listed in offshore wind energy OSRPs when used on the three dielectric fluids vs a conventional fluid (BSEE).
  - Efficacy of skimming systems listed in offshore wind energy OSRPs when used on dielectric fluids vs conventional fluids (BSEE and USCG - RDC).

- Remote sensing methods for dielectric oil on water spotting, tracking, and volume estimation. (BSEE)

Response Research Branch (RRB)

Underway Dielectric Research

- Preliminary data suggests differences in how dielectric fluids behaves vs conventional oils.

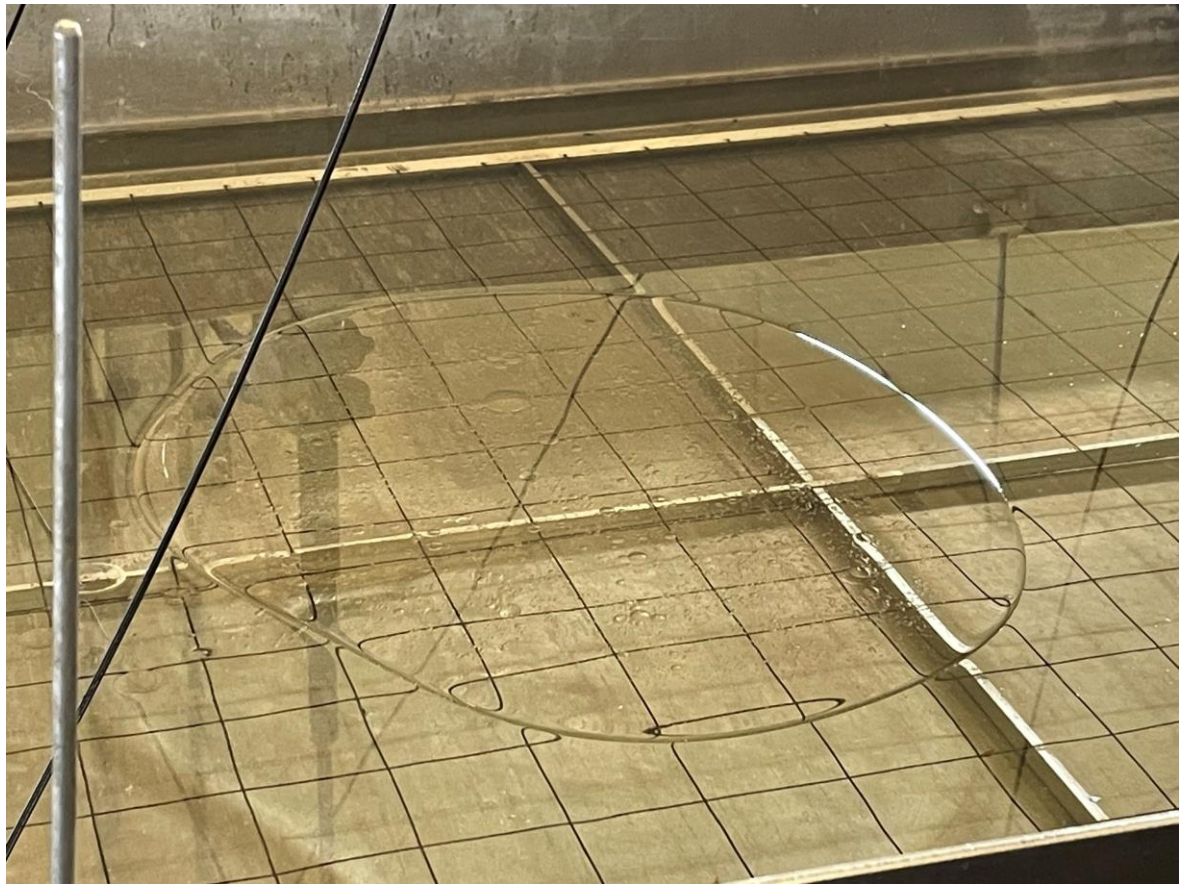


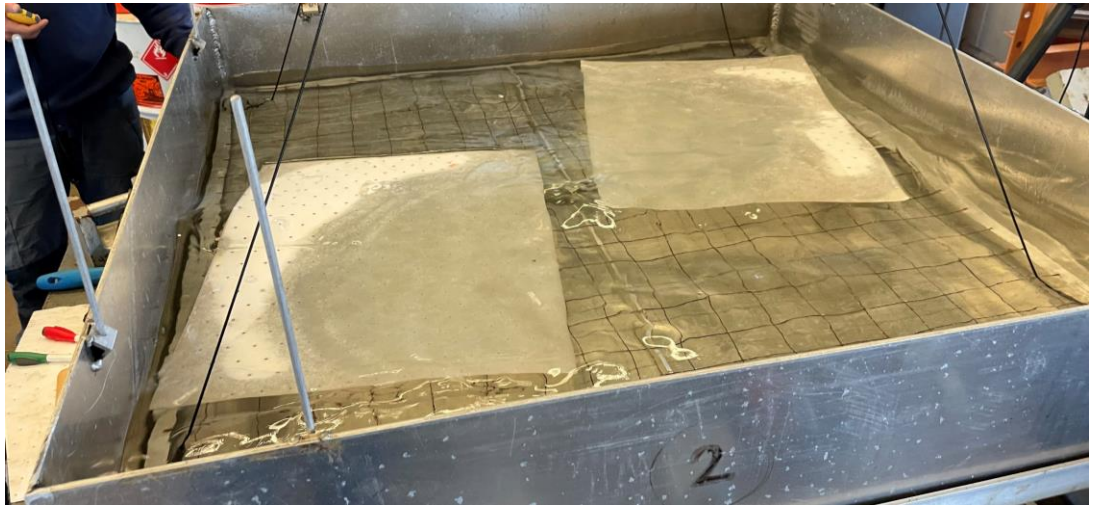
Photo Credit: Steve Buschang (BSEE)

Response Research Branch (RRB)

Sorbent Research

- Tested the performance of conventional sorbent materials:
  - Type I sorbents (roll, film, sheet, pad, & blanket)

- Tests performed with:
  - Midel 7131 (synthetic ester)
  - HyVolt II NG Naphtenic Oil (mineral oil)
  - Hydrocal 100 (similar test oil substitute as the control)

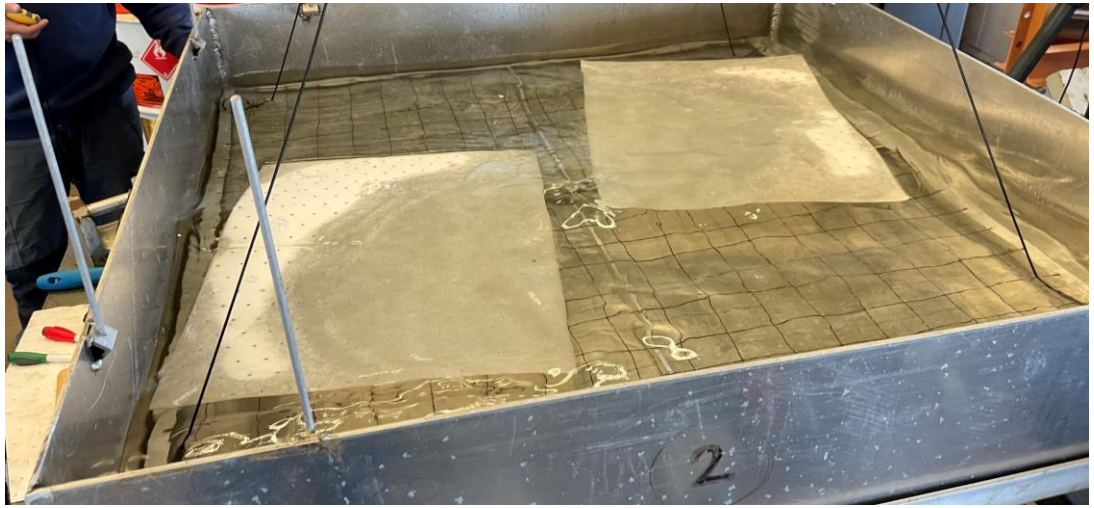


Photos Credit: Steve Buschang (BSEE)

Response Research Branch (RRB)

Sorbent Research

- Tests include:
  - Recoverability of surface oil
  - Adsorption rates
  - Maximum oil capacity
  - The amount of water the sorbent may adsorb
  - Comparisons of the above capacities and rates

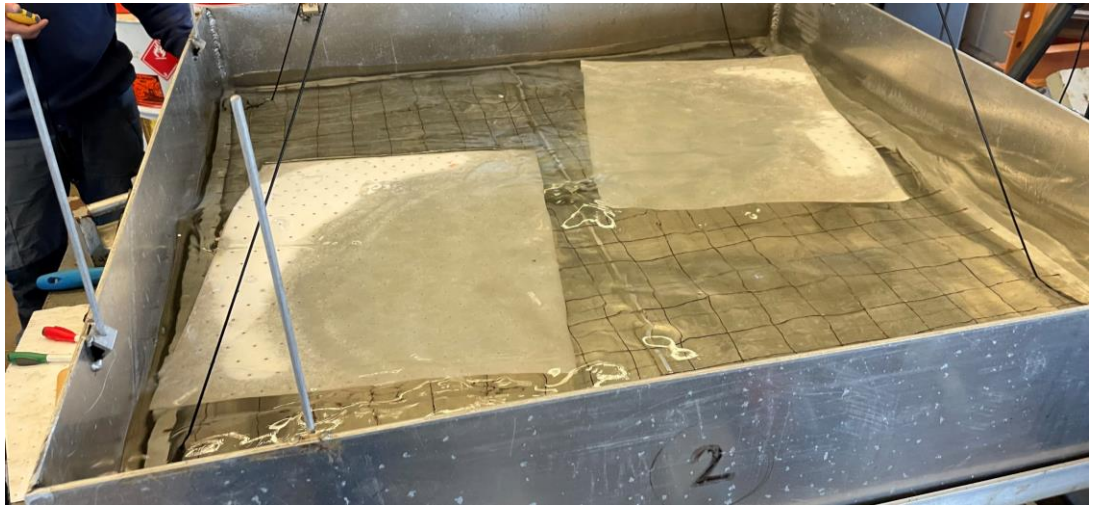


Photos Credit: Steve Buschang (BSEE)

Response Research Branch (RRB)

Sorbent Research

- Results:
  - Type I sorbent pads were effective.
  - Spent dielectric fluids arrived after the initial tests and those results will be included in the final report.



Photos Credit: Steve Buschang (BSEE)

Response Research Branch (RRB)

Skimming System Research

- Tested 3 skimming systems at Ohmsett:
  - Crucial “fuzzy” disk skimmer
  - Lamor MultiMax-50 brush skimmer
  - Elastec’s Kvichak Marco filter belt skimmer

- Skimming tests performed with:
  - Midel 7131 (synthetic ester)
  - HyVolt II NG Naphtenic Oil (mineral oil)
  - Hydrocal 100 (similar test oil substitute as the control)

- Data collected:
  - Oil recovery rate
  - Recovery efficiency
  - Throughput efficiency

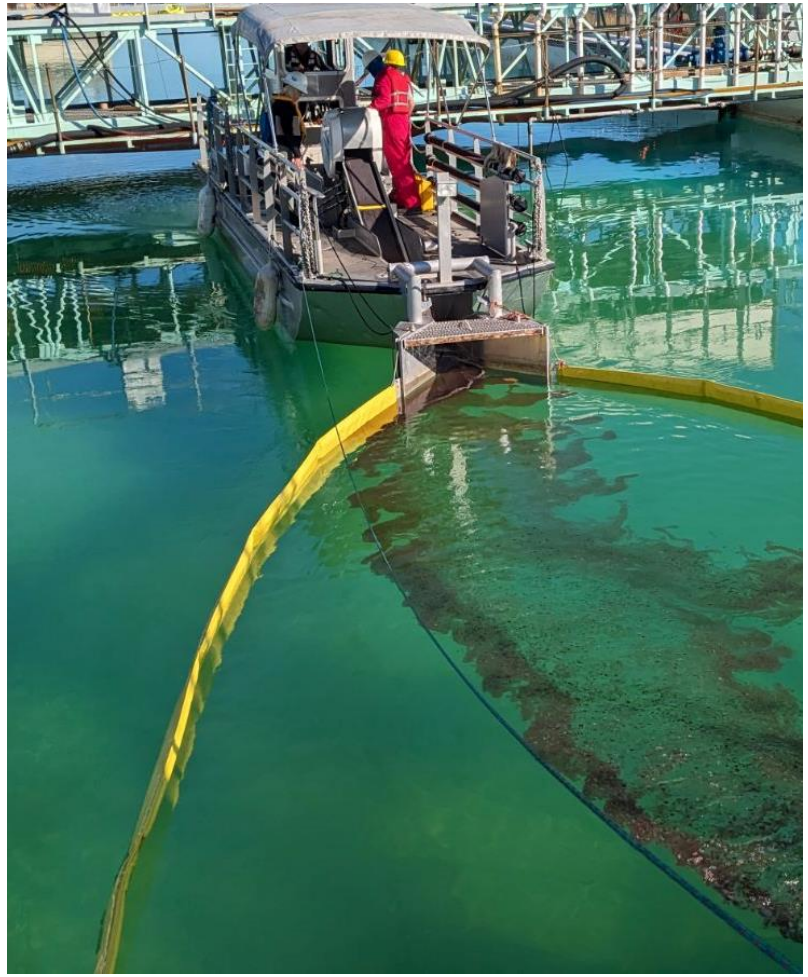


Photo Credit: John Calvin (BSEE)

Response Research Branch (RRB)

Skimming System Research

- Results:
  - Responders should plan to use oil skimmers designed for low viscosity fluids.
    - Disk skimmers (particularly the “fuzzy” and grooved models) demonstrated good recovery rates and recovery efficiency.
  - Avoid skimmers designed for medium to high viscosity fluids.
    - Rope mop skimmers
    - Filter belt skimmers
  - Brush skimmer performance was only borderline acceptable in ideal laboratory conditions.

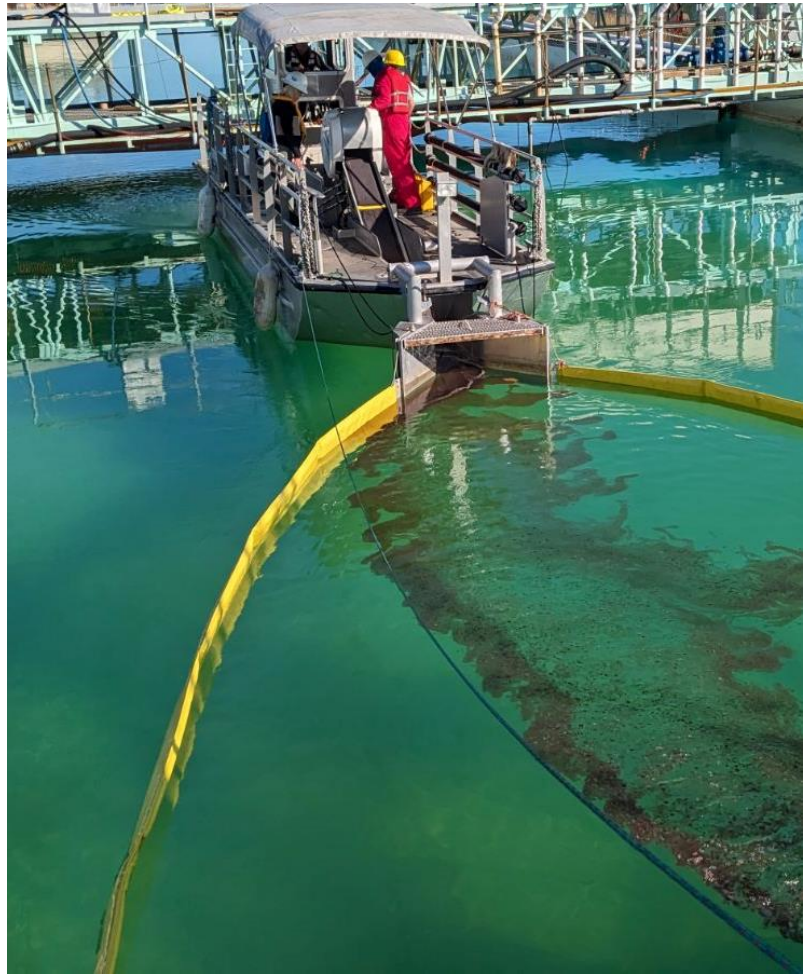


Photo Credit: John Calvin (BSEE)

Response Research Branch (RRB)

Remote Sensing Research

- Remote Sensing Test:
  - The project is currently being scoped to evaluate various remote sensors to detect dielectric fluids and measure thickness to gain the following insights:
    - Capabilities
    - Limitations
    - Applicability

Photo Credit: Mike Brennan (BSEE)

Questions?

John Calvin
Senior Preparedness Analyst
BSEE – OSPD Atlantic Section
(504) 616-0147

www.bsee.gov

@BSEEgov

BSEEgov

Bureau of Safety and Environmental Enforcement

BSEEgov

@bseegov