BSEE
Oil Spill Preparedness Division
Response Research Branch

Suzanne Chang
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“To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.”
BSEE Oil Spill Response Research (OSRR)

Overview

Oil Spill Response Research Overview

Ohmsett

Select Projects

Project 1081 Alion ICEHORSE II

Project 1087 Ice Floe Tracking System

Navigating the BSEE.gov
BSEE Oil Spill Preparedness Division

Oil Spill Response Research (OSRR) Overview

R&D Projects
- FY16-$7.5M
- FY17-$10.9M
- 30+ on-going
- 3 under peer review
- 120+ projects since 2012

Focus areas
- Detection
- Containment
- Treatment
- Recovery and cleanup
- In-situ burning
- Decision making support
# BSEE Oil Spill Response Research

**Ohmsett**

| National Oil Spill Response Research & Renewable Energy Test Facility (Leonardo, NJ) |
| 667 ft long x 65 ft wide x 11 ft deep (water 8 ft) |
| Simulated sea water |
| Wave generator |
| Testing in drift ice conditions |
| Tank chillers for cold water testing (29°F) |
| Training available |

[www.ohmsett.com](http://www.ohmsett.com)
Objective: Further develop ICEHORSE prototype from BSEE OSRR #1053, ROV submersible sled skimmer technology, for use in operational environment.

Goal is to reach TRL 6.

Highlights:
Improve software interfaces, watertight electrical enclosure, and mounts.

Final testing conducted March 12-16, 2018
BSEE OSRR - Mechanical Recovery
ICEHORSE Proof-of-Concept

BSEE OSRR #1053

- Alion Science and Technology Corporation (PI: Dr. Gregory Johnson)
- Completed: May 2016

Ohmsett Testing in Feb 2016 (Time trials for Prototype)
BSEE OSRR - Mechanical Recovery
ICEHORSE Proof-of-Concept

Shore side equipment
(Controls)

Ohmsett Testing in Feb 2016 (Maneuverability)
Ohmsett Testing in Feb 2016
Ice Coverage at 30% with Oil

Ohmsett Testing in Feb 2016
Ice Coverage at 70% with Oil
BSEE OSRR - Mechanical Recovery
Advancing ICEHORSE (ICEHORSE II)

Ohmsett Testing-Week of March 12-16, 2018
BSEE OSRR - Mechanical Recovery

ICEHORSE and Advancing ICEHORSE Timeline

Oct 2014 - May 2016
ICEHORSE (BSEE OSRR 1053)

Oct 2016 - May 2018
Advancing ICEHORSE
(BSEE OSRR 1081)

Jan 2015
Feb 2016
Ohmsett Testing
(Time trials, direction, diving, submerged speeds and ice coverage at 30% and 70% with oil)

Jul 2015
Preliminary Testing
(weight, balance, controls)
New London, CT

Jan 2016

Jan 2017

Jan 2018

May 2018

Mar 2018
Ohmsett Testing of ICEHORSE II
Ice Floe Tracking System

Objective: Develop small cost-effective way to track equipment or oil spill in near real time. Advances previous BSEE OSSR #1050 and #1051

Highlights:
- Test various deployment strategies
- Increased communication range
- Testing in Barrow, AK
  (Scheduled March 19-23, delayed due to broken equipment)
BSEE OSRR - Remote Sensing

Geo-referencing Identification Tag (GRID) & Tagging of Oil Under Ice

Objective: Develop a tag/tracking system for range of environmental conditions for near real-time awareness

Highlights:
- Miniaturize and ruggedize tags
- Adaptive power management
- Mesh communication network
- Air deployable tags
- Materials selected for robustness & minimal environmental impact if lost

BSEE OSRR #1050/1051
- AECOM
- PI: Ben Schreib
- Completed: December 2016

GRID and GRIDSAT Tags

Aerial Spikes and Underwater ID Tag
BSEE OSRR - Remote Sensing
Tagging of Oil Under Ice

ICEX Camp Sargo;
Aerial Tag Being Dropped;
Retrieved Aerial Tag.

Testing in 2016
BSEE OSRR - Remote Sensing

Tagging of Oil Under Ice
BSEE OSRR – Remote Sensing

Ice Floe Tracking System

Testing was scheduled for the week of March 19, 2018 (Barrow, AK)

ROV is under repair

Testing rescheduled for April 2-6
**BSEE OSRR – Remote Sensing**

**Ice Floe Tracking System**

- **Sep 2014 - Dec 2016**
  - Tagging Oil Under Ice (BSEE OSRR 1051)

- **Sep 2014 - Sep 2015**
  - GRID Tag (BSEE OSRR 1050)

- **Jan 2015**
  - GRID Tag Demo

- **Sep 2015**
  - CRREL Testing

- **Feb 2016**
  - Mar 2016
  - Navy ICEx

- **Mar 2016**
  - Field Testing Barrow, AK

- **Jan 2017**

- **Jan 2018**

- **Sep 2017 - Sep 2018**
  - Ice Floe Tracking (BSEE OSRR 1087)

- **Mar 2018**
  - Field Testing Barrow, AK
Ohmsett Panoramic

Oil spill response equipment testing at the Ohmsett facility. This photo depicts the Ohmsett staff measuring the oil recovery rate for an oleophilic drum skimmer when placed in a 1/2 inch thick oil slick on the water.

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“To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.”