



Emergency Response Technologies

Progress since Montara/Macondo

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Emergency Response Technologies

Oil spill counter measures

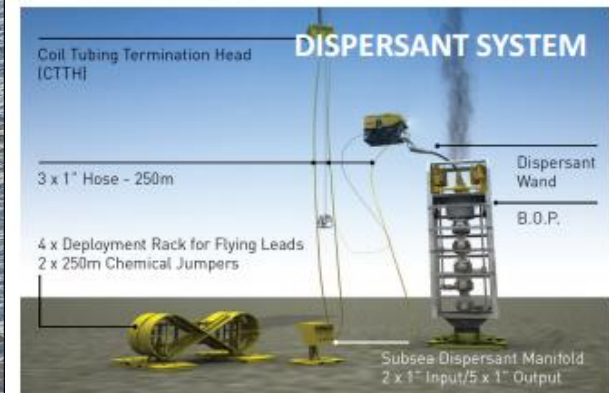
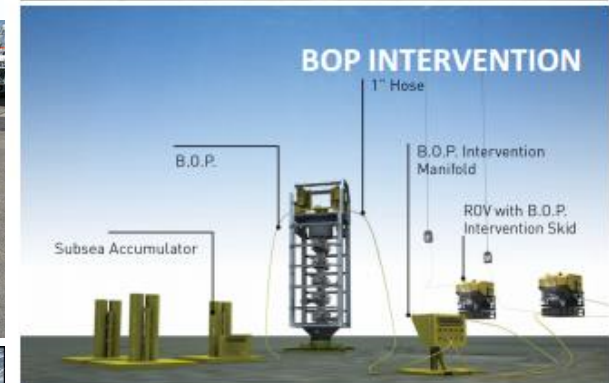
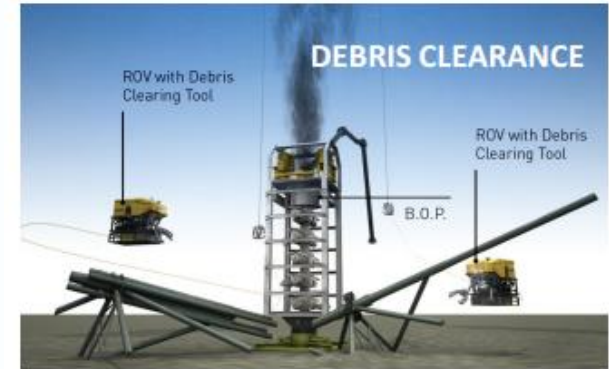
Booms

Skimmers

Aerial dispersant application

Well containment

Subsea dispersant kits



Response information requirements

- What is the oil and how is it changing?
- Where is it?
- Where is it going?
- Timely response
- Timely and readily understandable information delivery
- Key validation for spill models
- Counter measure efficacy (dispersants)

Why we need to monitor more effectively

Macondo

Monitoring programs were at best ill-prepared or at worst wholly inadequate for the task

Innovative solutions were required

There was the application of technologies not previously trialed for oil spill monitoring

Timely response was critical

Montara – Enquiry findings

Absence of solid reliable baseline data on species and ecosystems

Slow response in putting in place the Monitoring Plan

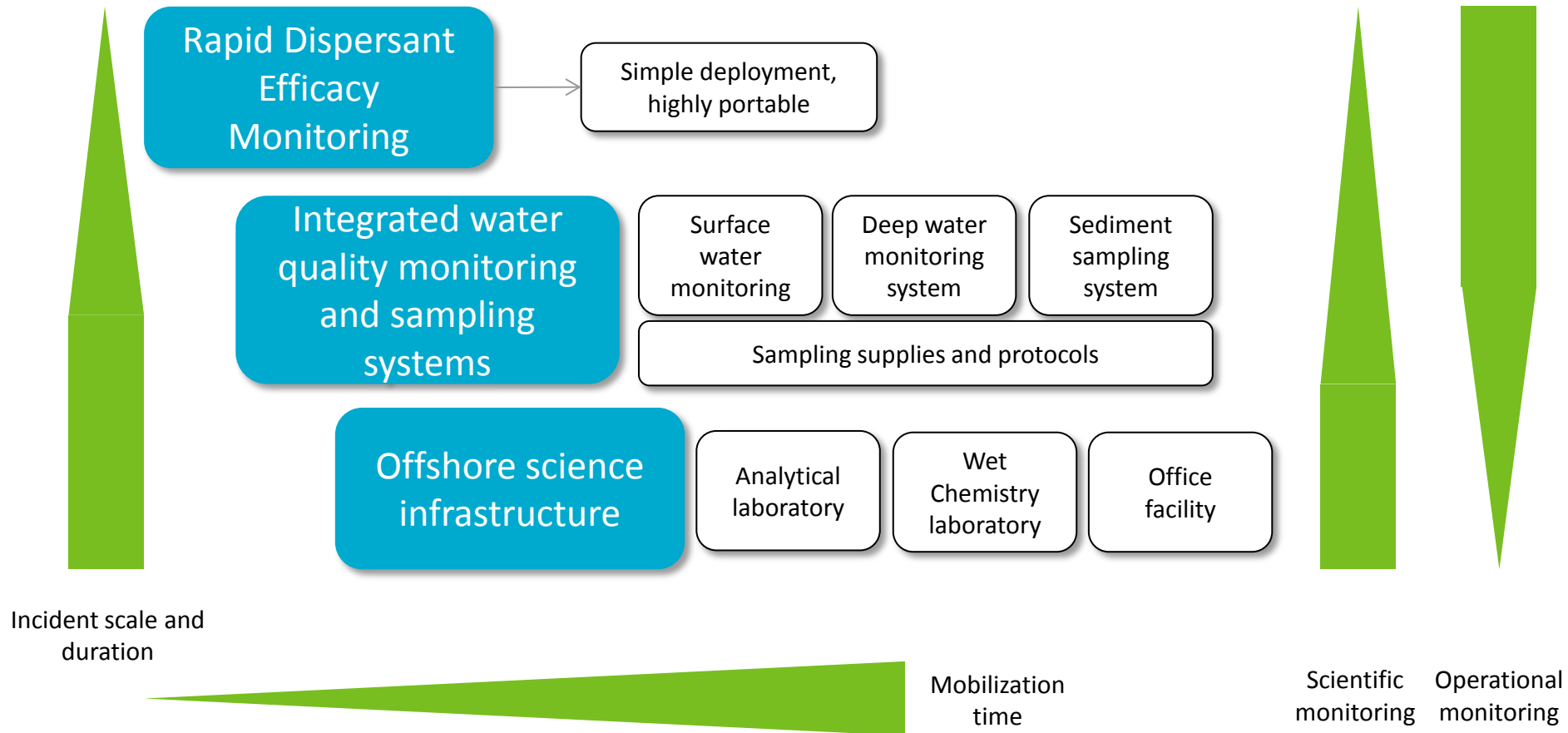
The need to better integrate Operational and Scientific Monitoring efforts

Prepare ‘off the shelf’ environmental monitoring programs

Where were the gaps in response information?

Water quality monitoring

Tiered monitoring requirement



Dispersant efficacy monitoring

Developed in collaboration with AMSA

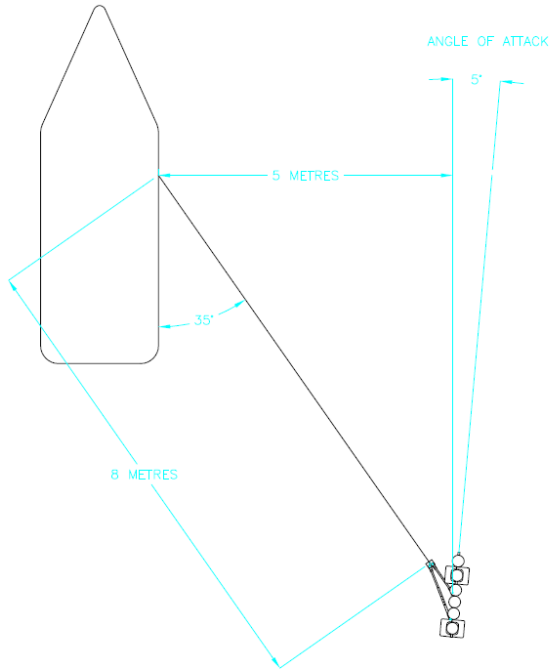
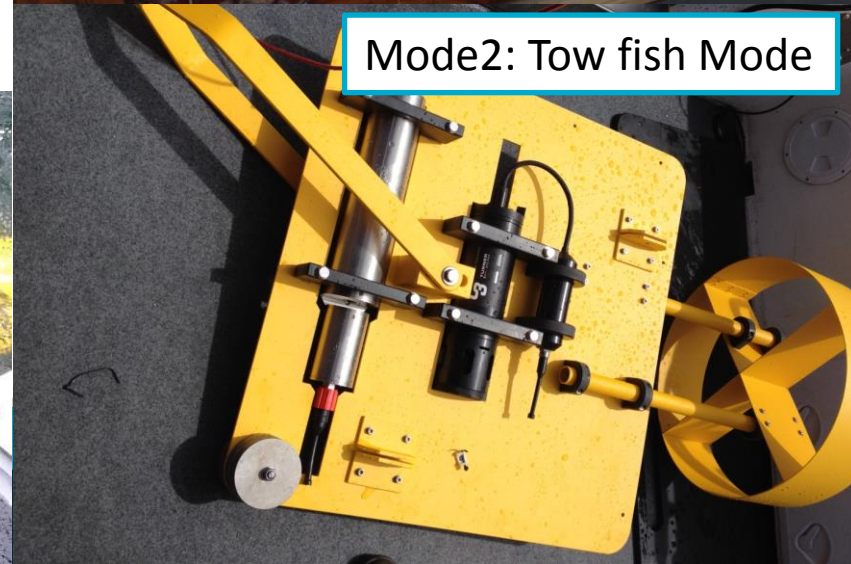
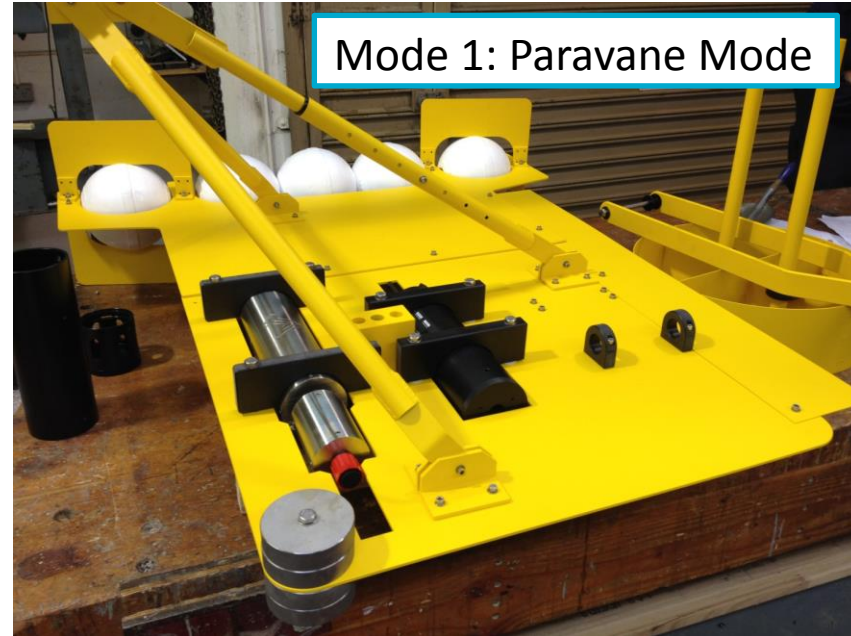
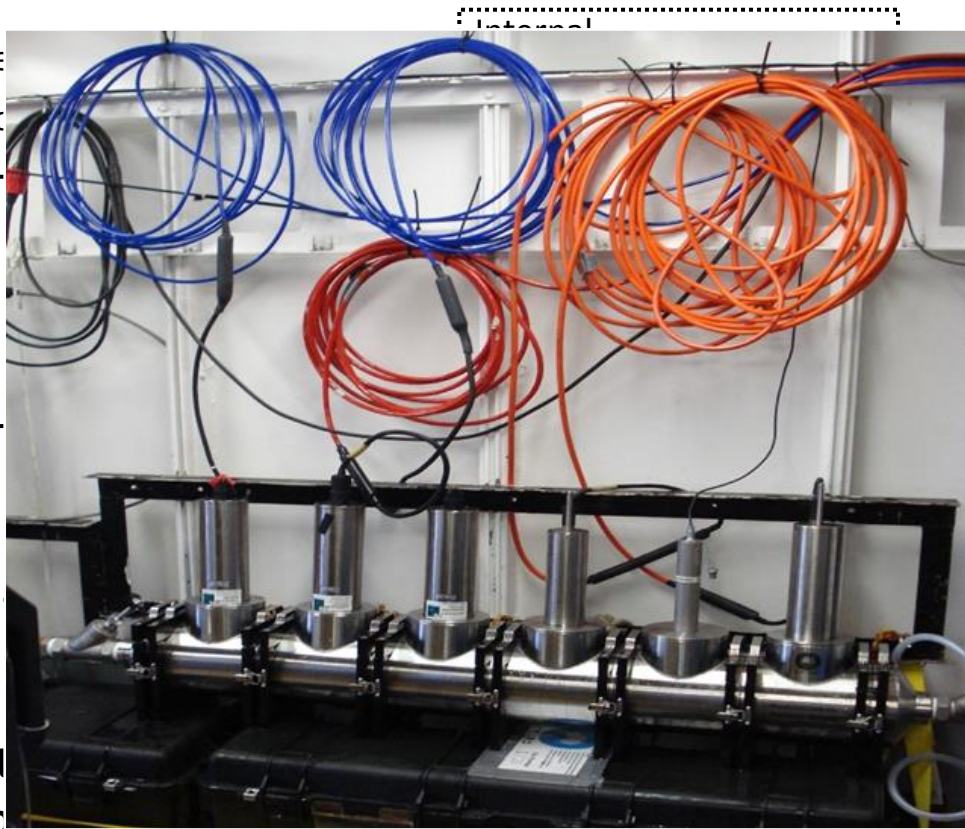
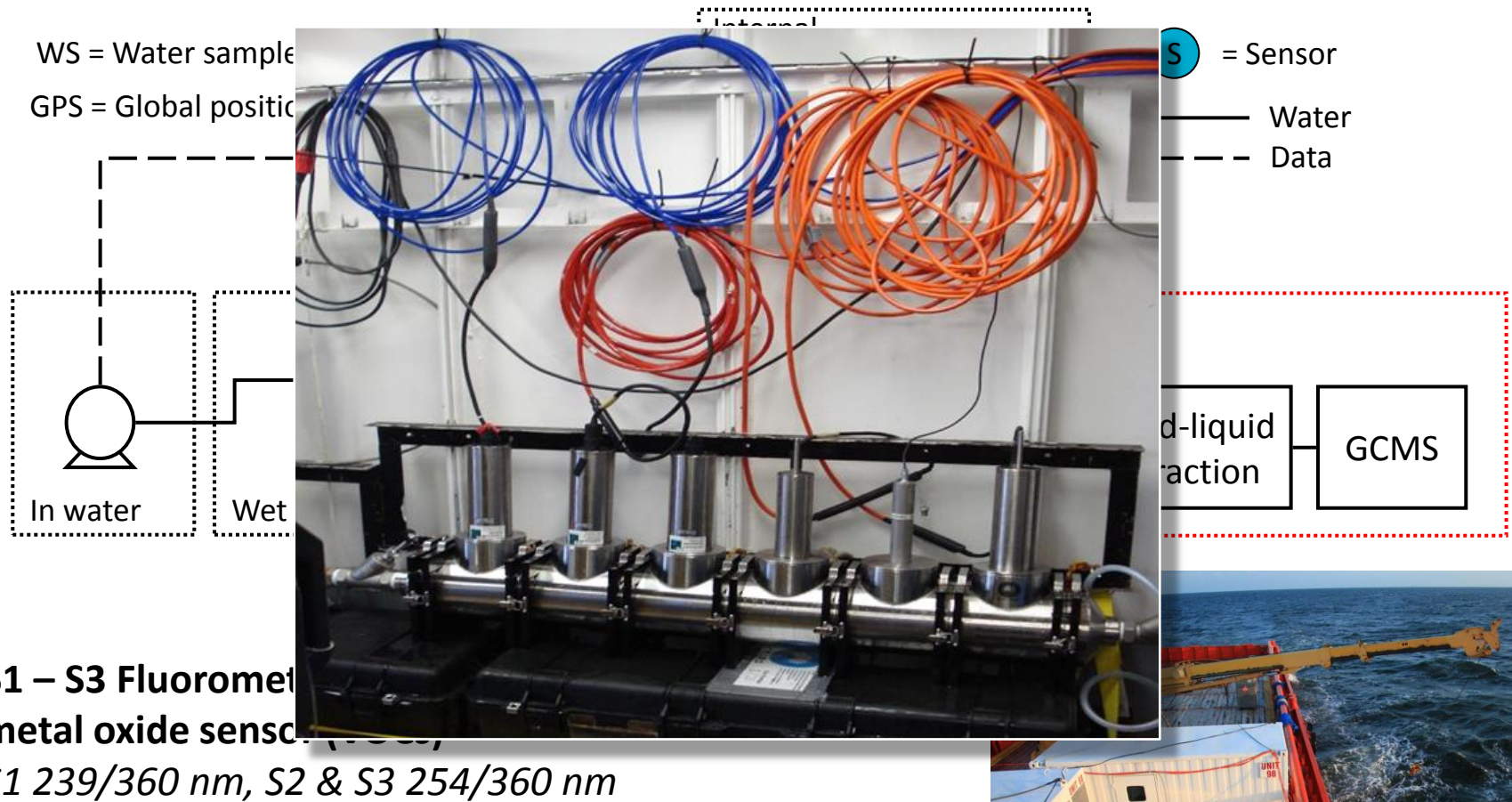


FIGURE 1
TYPICAL TOWING ARRANGEMENT
FOR PARAVANE MODE



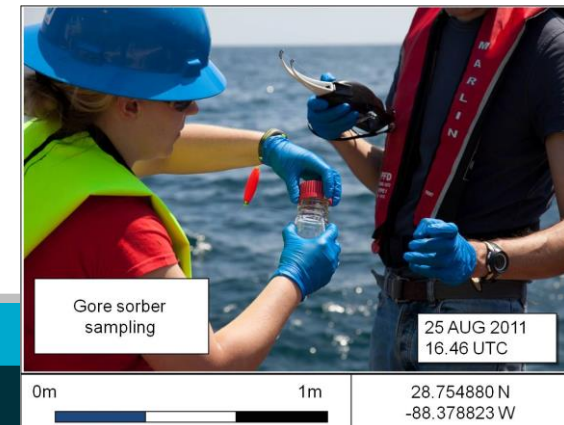
Shallow water hydrocarbon sensor array

Macondo



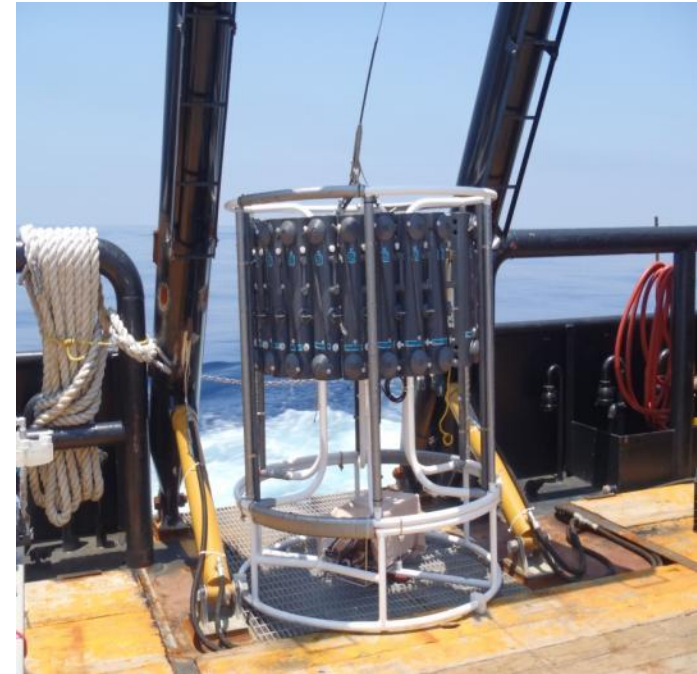
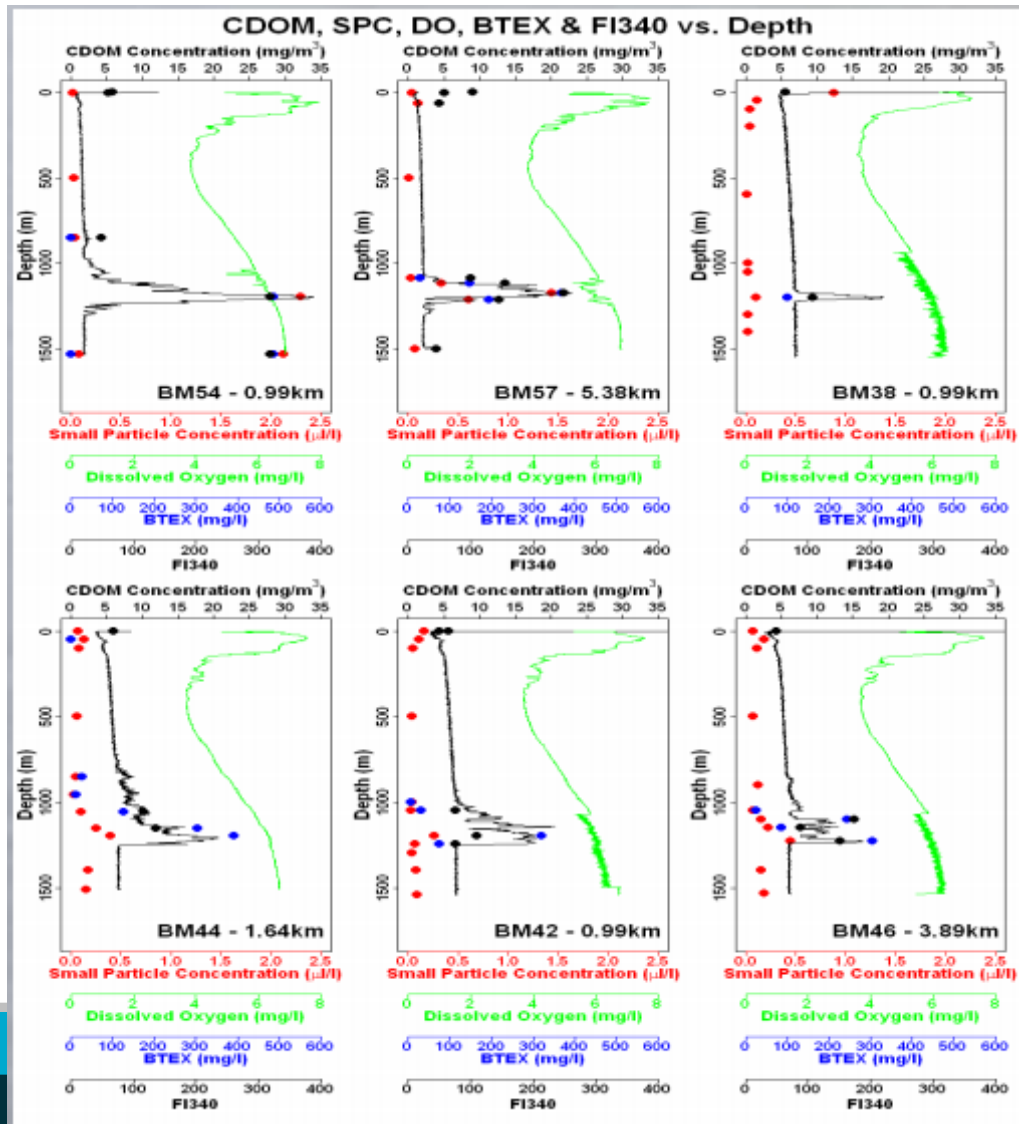
Surface slick and water sampling

- Protocols continue to be developed, with many tried and tested
- Sampling plan development and management – Key consideration
- Integration with analysis laboratories
- Rapid collection of samples after incident



Deep water monitoring system

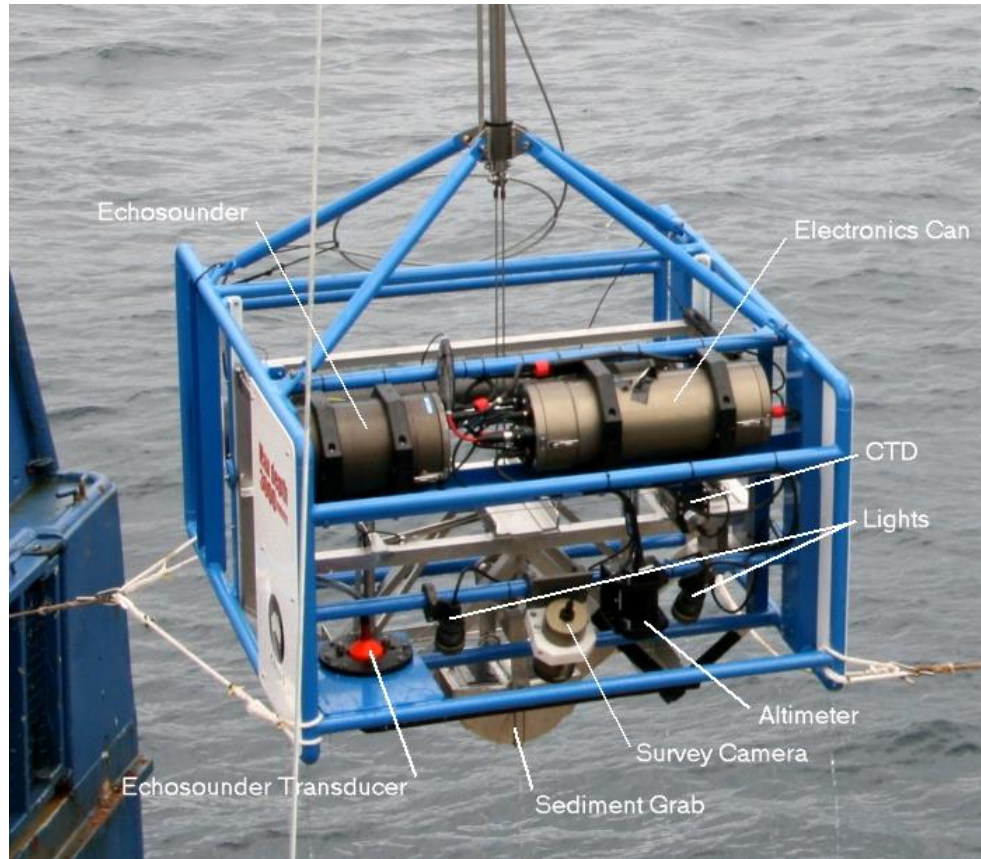
Vertical profiling system



© Sequoia Scientific

Sediment sampling systems

Instrumented coring platforms



Integrated system for sediment sampling



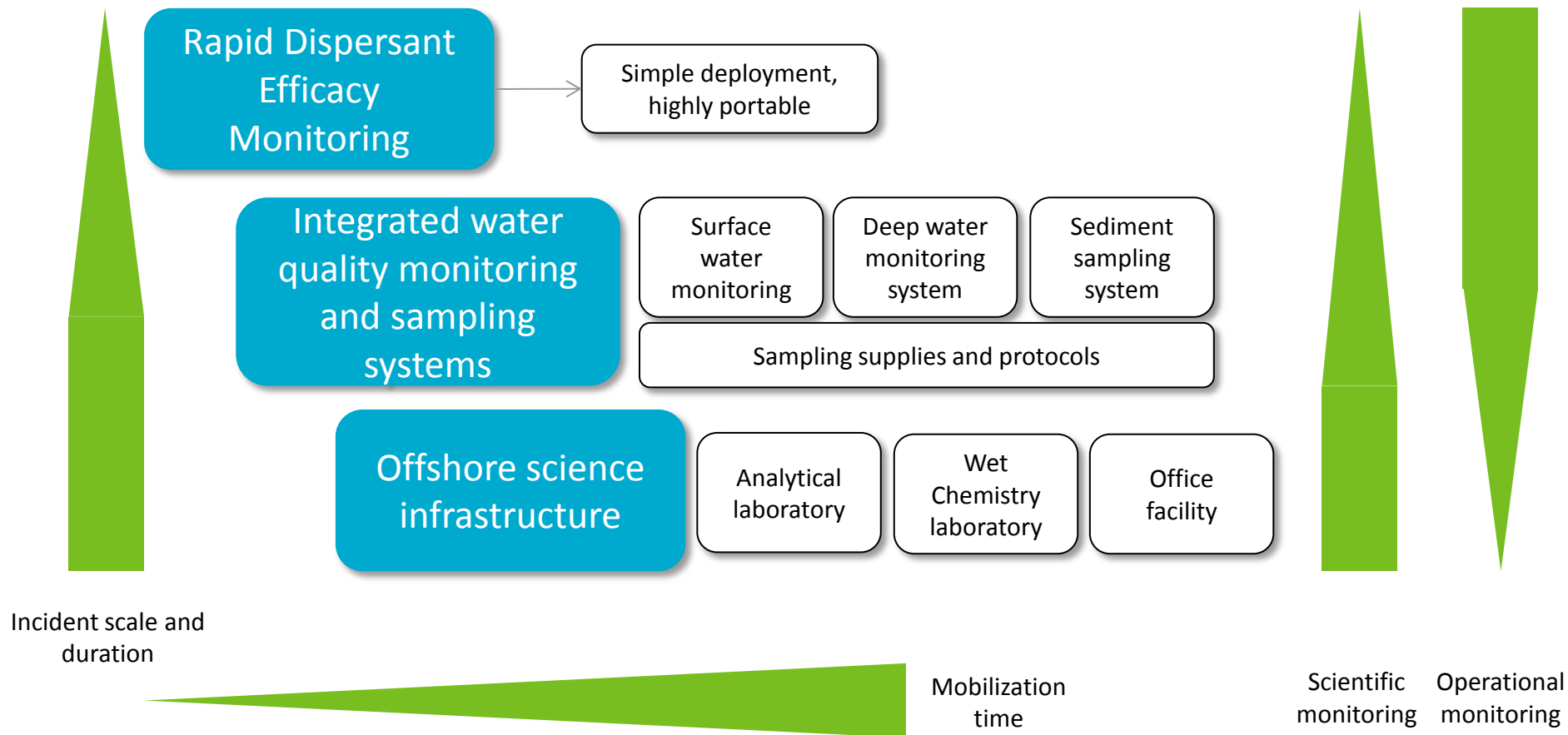
Containerized science facilities

- DNV certified (DNV 2.7, Solas 60, EX Zone 1)
- Incorporated laboratory safety systems
- Communications hub
(network, 3G/4G/GSM, WAP)
- Permits vessels of opportunity to be used in the eventuality of a large incident



Water quality monitoring

Tiered monitoring requirement



Data entry, processing, and QA/QC

Switchboard Query Data

PROJECT: (HC00) Project Focal Point: Deepwater Horizon

BP NRDA Natural Hydrocarbon Seep Studies SP1 and SP2 Point YLat: 28.738351

Maximum SOG: 20 Local Time Difference (hrs): -5 Point XLng: -88.366465

Project bounding area co-ordinates: YLAT_FROM: 30.6 YLAT_TO: 26.5 XLNG_FROM: -81.67 XLNG_TO: -82.5

Project Sample Code for Labels: SP2-MS

Query Data for Map or Export

View Project Details

Data Selections

Selected Sensor: ☐ Activities ☐ Observations ☐ Samples ☐ Analysis Results ☐ Raw Analysis data

Restrict Sensor Data From To: Data Restriction Applied to: ☐ Photographs ☐ Sonar Contacts ☐ ADCP Axis ☐ Vertical Casts ☐ Cast data results

☐ ALL Sensor data in a single composite table - for Export only [No Data Range restrictions will be applied]

Query Criteria

Select Cruise/s: 1 2 20 OR

Select Trip/s: 20110823 1 20110824A 1 20110824B 1 20110825A 1 20110825B 1 20110826A 1 20110826B 1 20110827A 1

AND

Select data within Date / Time range:

Dates entered below are: ☐ Local ☒ UTC [refer to Local Time Difference in Project details]

Date from: 01-Jan-2001 Time from: 12:00:00 AM

Date to: 10-Jul-2013 Time to: 11:59:59 PM

AND

For Sensor Data only:

Select every 1 th r

Average every 1 rec

[AVERAGING applies to ind sensors only - not the comp

Restrict Analysis Results

☒ Investigative / Duplicate

☐ ALL Samples (Include B

Restrict Analysis Resu

All

Values between: 0

Run Query for th

View Queried Data

Export Selected

Project: HC00

Cruise: 20

Trip:

Type: Water

Purpose: Investigative

Method: Pump

Location: Not Set/known

Station Number:

SampleID (Barcode):

Sampled By:

Sampler Type: Unknown

Vial Size:

Num. of Containers: 1

Storage Temp: 4 degC

Preservative: None

Depth (m): 0

Core / RosettePos number:

UTC Date: 09-Jul-2013

UTC Start Time: 3:00:06 PM

Local Date/Time:

Latitude:

Longitude:

Distance To Focal Point:

Destined For Lab:

For Analyses: Unspecified

Composite Sample ID:

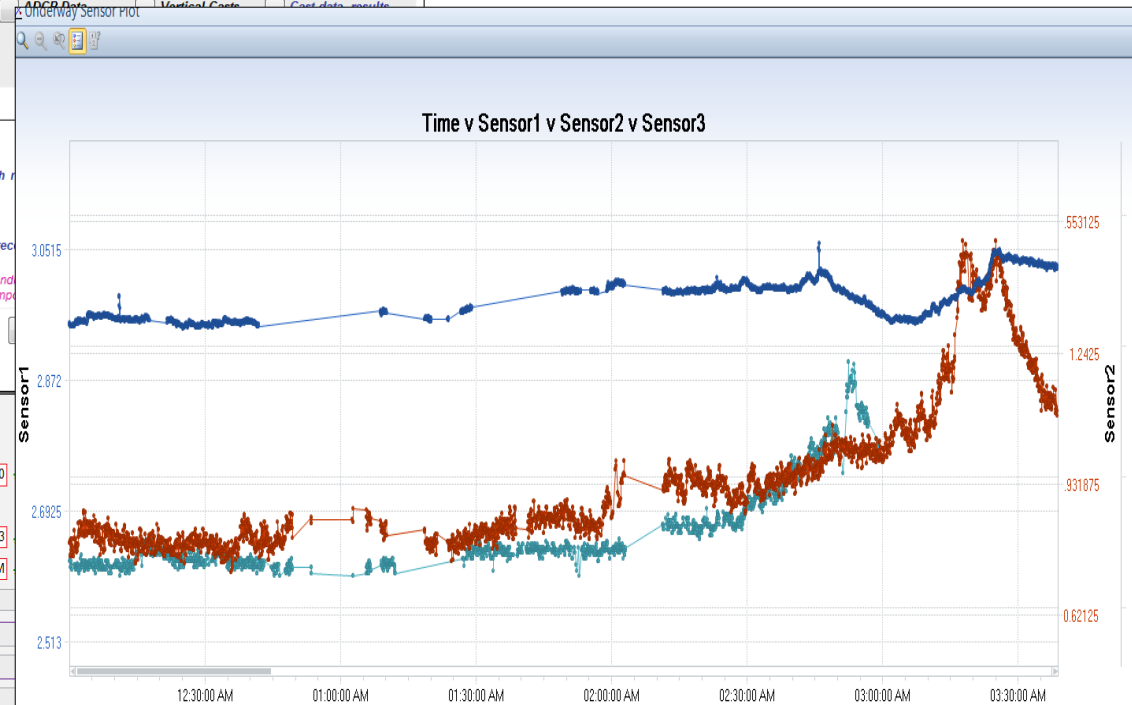
Comments:

Core/Rosette Number:

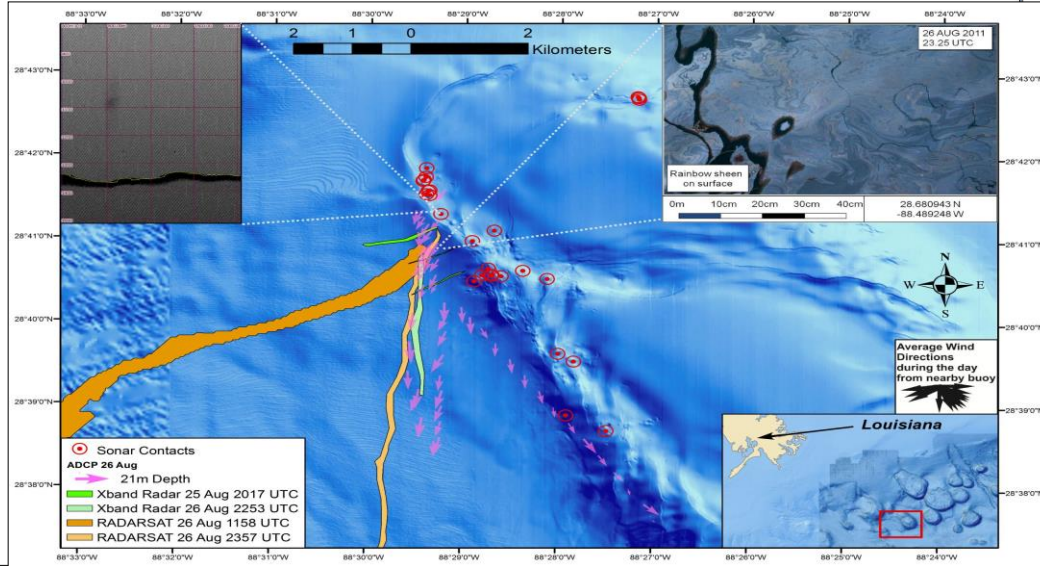
Record: 1 of 1

No Filter

Search



Reporting and data visualization



Meg L Skansi daily report September 10 2014

www.csiro.au



Meg L Skansi daily report

September 10
2014

The information contained in this report comprises general statements based on scientific research. The reader is advised and needs to be aware that such information may be incomplete and represents interim results only, which require further analysis.

BP NRDA Natural Hydrocarbon
Seep Studies SP1 and SP2



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Sample Chain of Custody

Project ID: PER01
Perth Basin Hydrocarbon and Seep
Survey (SS2011_v05)

Recipient: Col

Sample ID Barcode	Collection (UTC) Date/Time	Collection Latitude Longitude	Depth (m)	Sample Type	Sampler
PER-01_A_111001A1 W11/017516	1/10/2011 1:46:00 AM	-28.91556667 114.24049667	1	Water	Amber Glass Bott
PER-01_A_111001B1 W11/017517	1/10/2011 1:46:00 AM	-28.91556667 114.24049667	1	Water	VOA
PER-01_A_111001C1 W11/017518	1/10/2011 1:46:00 AM	-28.91556667 114.24049667	1	Water	VOA
PER-01_A_111001D1 W11/017519	1/10/2011 2:46:00 AM	-28.87578833 114.28058833	1	Water	Amber Glass Bott
PER-01_A_111001E1 W11/017520	1/10/2011 2:46:00 AM	-28.87578833 114.28058833	1	Water	VOA
PER-01_A_111001F1 W11/017521	1/10/2011 2:46:00 AM	-28.87578833 114.28058833	1	Water	VOA

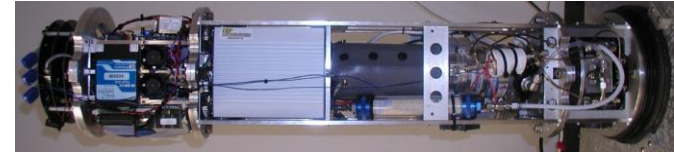
BTX or Volatile Organics

40 ml

1

What's still to be done?

- Rapidly evolving field
 - New emerging sensing technology
 - Improved analytical instrumentation/protocols
 - New reconnaissance platforms
 - Aerial
 - On water
 - Deep water



Thank you

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