# Integrating Environmental and Geophysical/Geotechnical Surveys

24<sup>th</sup> March 2010 London



# **Presentation Layout**

- Introduction
- Challenges to Integration
- Integration Rules
- Case Study EirGrid Interconnector
- Case Study Dunlin Environmental monitoring



#### Introduction

- Seabed investigations usually cover
  - Environmental conditions
  - Geophysical conditions
  - Geotechnical aspects
- Site investigation process involves
  - Planning and desktop study
  - Data acquisition
  - Data processing and interpretation

This session looks at how to get the most from seabed investigations by adopting an

integrated approach focusing on planning and thinking through the life cycle.

#### Introduction

- Deliverables from Seabed investigation process can feed across project life cycle into:
  - Environmental baseline for EIA
  - Basis of design for project infrastructure
  - Facilitate Front End Engineering Design (FEED)
  - Defining a baseline for environmental affects monitoring
  - Project planning and operational controls
  - Decommissioning planning
  - Satisfy marine contractors, investors and stakeholders
  - Marine warranty assessments



# Challenges to Integration

- Project teams can sometimes work in isolation.
- Development of project definition out of step with survey schedules.
- Limited recognition of benefits by project team.
- Disconnect between engineering and environmental activities.
- Constraints to secure additional resource inputs (time-costs) at planning stage.



# Integration "Rules"

- 1. A **cross-discipline dialogue** for shared seabed investigation objectives.
- 2. A **desktop study** against integrated outline requirements is key to planning.
- 3. Early **consultation with stakeholders** help understand their requirements and expectations.
- 4. Overall project life cycle seabed investigation plan in advance of developing scope of works for individual surveys.

## Case study – Greater Dunlin Area



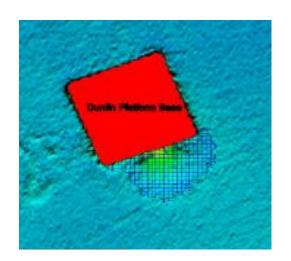
#### Project overview

- Owned by Fairfield Energy Ltd & Mitsubishi
- Acquired from Shell in 2007
- Dunlin platform, Osprey & Merlin subsea tie-backs
- Long term environmental monitoring programme to inform future development and decommissioning strategy



## Case study – Greater Dunlin Area

- Established baseline on acquisition
  - Desk-top study to collate existing data
- Established rolling list of specific information gaps e.g.,
  - Extent and change of drill cuttings piles
  - Lack of repeat environmental baseline surveys
  - Biological recovery after disturbance
  - Sediment contamination







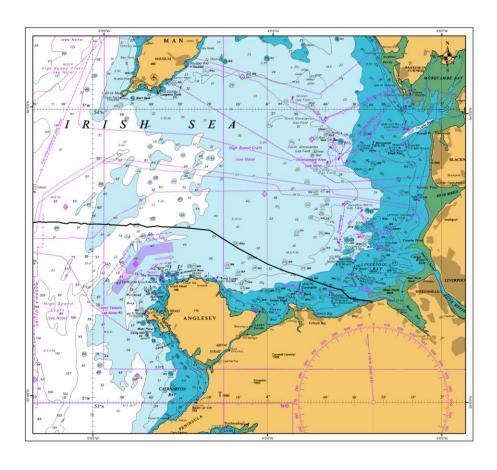
## Case study – Greater Dunlin Area

- Facilitated communication across project team
  - Guidelines for commissioning survey activities integrating project specific and long-term strategic requirements
  - Guidelines for third party tie-in contracts
  - Standard technical survey specifications incorporating environmental component
- Facilitated data sharing and development planning
  - Geospatial database of historic data

# Integration "Rules"

- Specifying data deliverables into tender packages help achieve maximum data utility (e.g. GIS).
- 6. Proactively decide how much contract flexibility needed: scope uncertainty, sensitivity uncertainty, weather uncertainty, compliance/design requirements.
- 7. Advance planning of Client Representative (CR) skills for integrated surveys.
- 8. Project recognition that deliverables from seabed investigations contribute directly into asset value across project life cycle.

#### Case study – EirGrid Interconnector



#### Project overview

- HVDC Interconnector cable
- Ireland Wales
- Bi-directional cable
- 500 MW capacity
- Need case
  - Security of supply
  - Promotion of competition
  - Facilitates offshore wind development

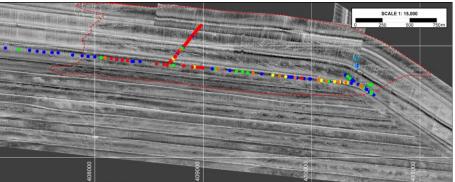


#### Case study – EirGrid Interconnector

#### Benthic ecology

- Habitat survey
  - Sidescan sonar; Grab samples;
    Seabed photography
- Survey encountered an extensive biogenic reef (mussel bed)
  - Decision to widen survey swathe taken on the vessel
  - Feasible route established avoiding impact on the reef area
  - Use of JNCC "reefiness" criteria
- Consultation with CCW and JNCC
- Successful project consent without the need to re-survey

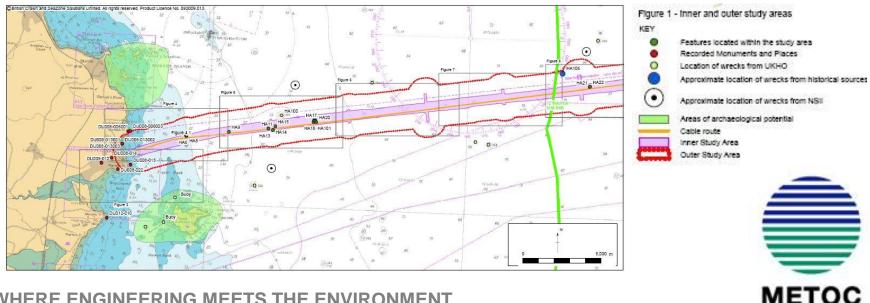






#### Case study — EirGrid Interconnector

- Marine Archaeology
  - Data deliverables
    - Data needs to be provided in a format that can be assessed by an archaeologist for features of interest – wrecks, peat layers, evidence of prehistoric landscapes etc
  - Survey specifications
    - Different approach of UK and Irish Regulator
    - Underwater Archaeology Unit (Ireland) defined specific equipment, specifications and parameters
  - Early consultation with regulators essential



# Integration "Rules"

- 1. Cross-discipline dialogue
- 2. Desktop study
- 3. Early consultation with stakeholders
- 4. Overall project life cycle seabed investigation plan
- 5. Specifying data deliverables into tender packages
- 6. Proactively decide how much contract flexibility needed:
- 7. Advance planning of Client Representative (CR) skills
- 8. Project recognition survey data contribution into asset value across project life cycle.

# Any Questions?

