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Work Package 2: Sites and Conditions

WP1: Demonstration of Scenarios
Aspirational ORE systems in 2025 - 2050

Projected benefits, risks and priorities

WP2: Sites and Conditions
Creating test beds, improving characterisation

Sandbox

Benchmarking

WP3: Modelling
Building confidence in multiscale models of performance, environmental impact and GVA

WP4: Design
Cost and risk reduction through novel design and innovation

WP5: Floating futures
Concepts, designs and innovations

Performance gains
Work Package 2: Sites and Conditions

- **Virtual Sites:**
  - Identified site and condition data for use by the hub and the wider research community, that represent future ORE systems.
  - benchmark or ‘sandbox’ for evaluation of components and designs.
  - defined by WP1,
  - input to WPs 3/4/5.
Case study: cables on rocky seabeds

- A site and condition not historically of concern

The coefficient of friction can normally... be taken as ... 0.6 on rock

DNV RP F109, 2011
Case study: cables on rocky seabeds

- A site and condition not historically of concern
- But highly relevant to marine and wind energy

Footage courtesy of SimecAtlantis / Meygen (Griffiths et al. 2018)
Case study: cables on rocky seabeds

- Modelling of representative site conditions is giving new insights into stability

Griffiths et al. (2019) OMAE95557
Case study: cables on rocky seabeds

- Modelling of representative site conditions is giving new insights into stability
- Positive design impact on hydrodynamics and seabed friction

![Graph showing Fraction of route (%) vs. Normalised seabed reaction force [R/W]. The graph compares Flat seabed, MBE bathy, and Synthetic bathy conditions.]

- Lift $\rightarrow -92\%$
- Drag $\rightarrow -27\%$
- Friction $\rightarrow +71\%$

Acceptable stability
Case study: cables on rocky seabeds

- Research translation into practice underway via BSI and pan-industry review committee

- Key acknowledgements:
  - Terry Griffiths (UWA)
  - Stuart Noble (JDR)

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BSI STANDARDS PUBLICATION
PEL-114 MARINE ENERGY
On Bottom Stability of Cables on Rocky Seabeds
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