

BLACK ROCK  
TIDAL POWER

Capt. Jack Gallagher  
Marine Operations Manager

# Outline

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- The Company
- The Environment
- The Machine
- The Challenges
- The End

# THE COMPANY

# The Company

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BRTP will develop tidal energy both locally and throughout North America

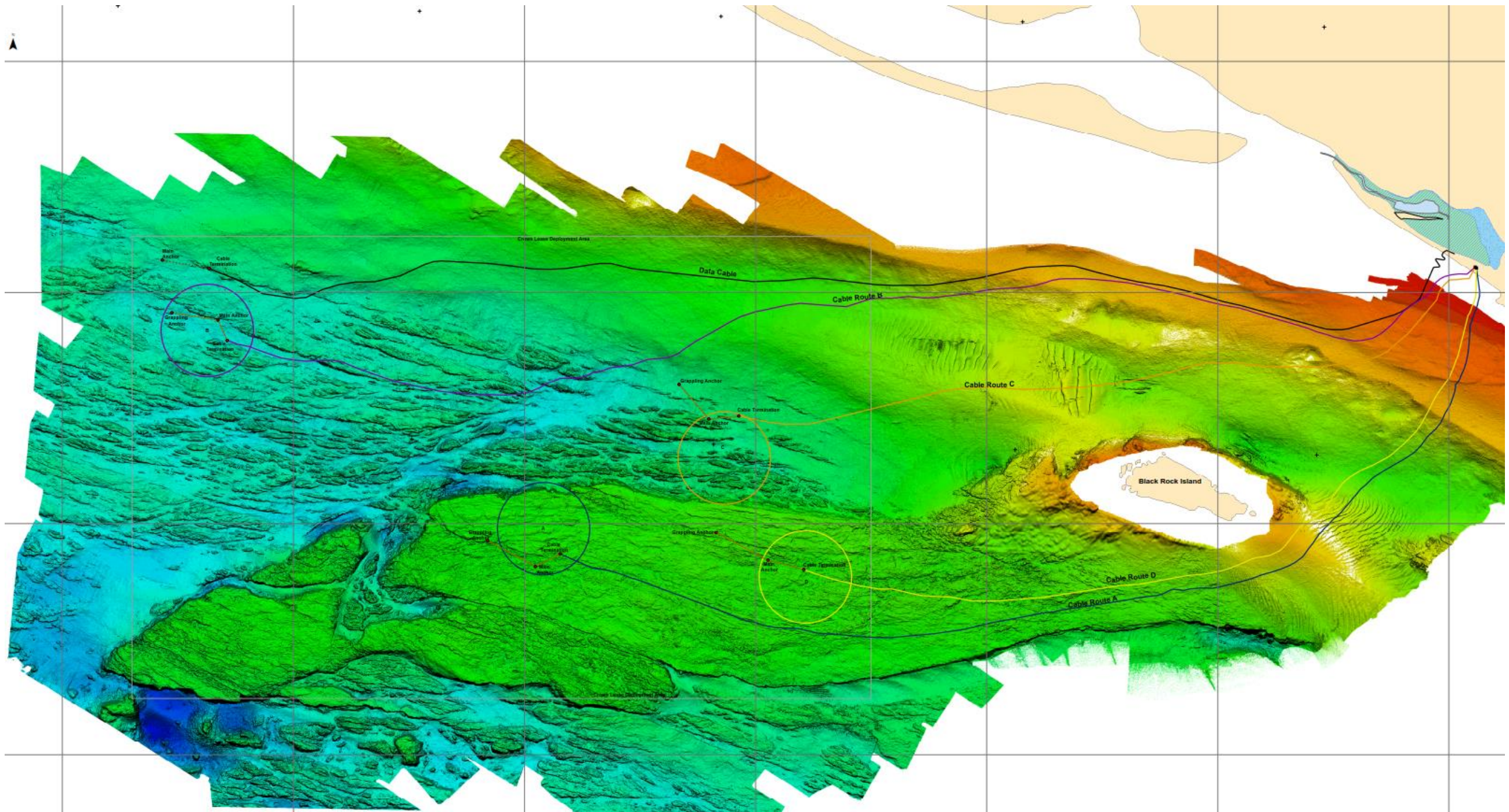
- Unique conditions in Nova Scotia
  - Excellent resource
  - Government support & commitment from the Province to support tidal power development
  - Feed-in tariff established, PPAs in place
- First deployment of the Triton Technology
- Turbines have been demonstrated in the UK and Europe in a range of scenarios



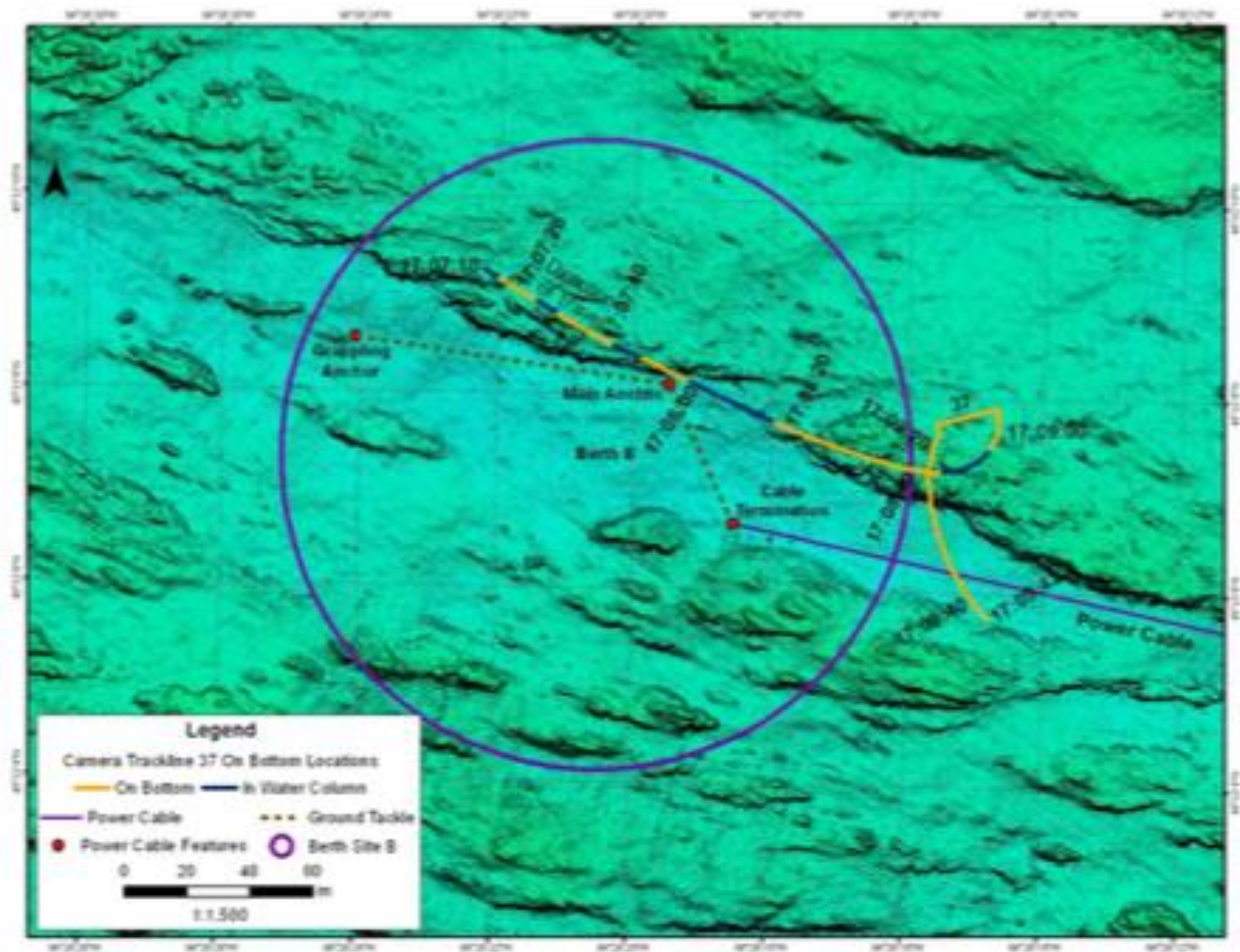
# THE ENVIRONMENT



# Sub-sea Environment





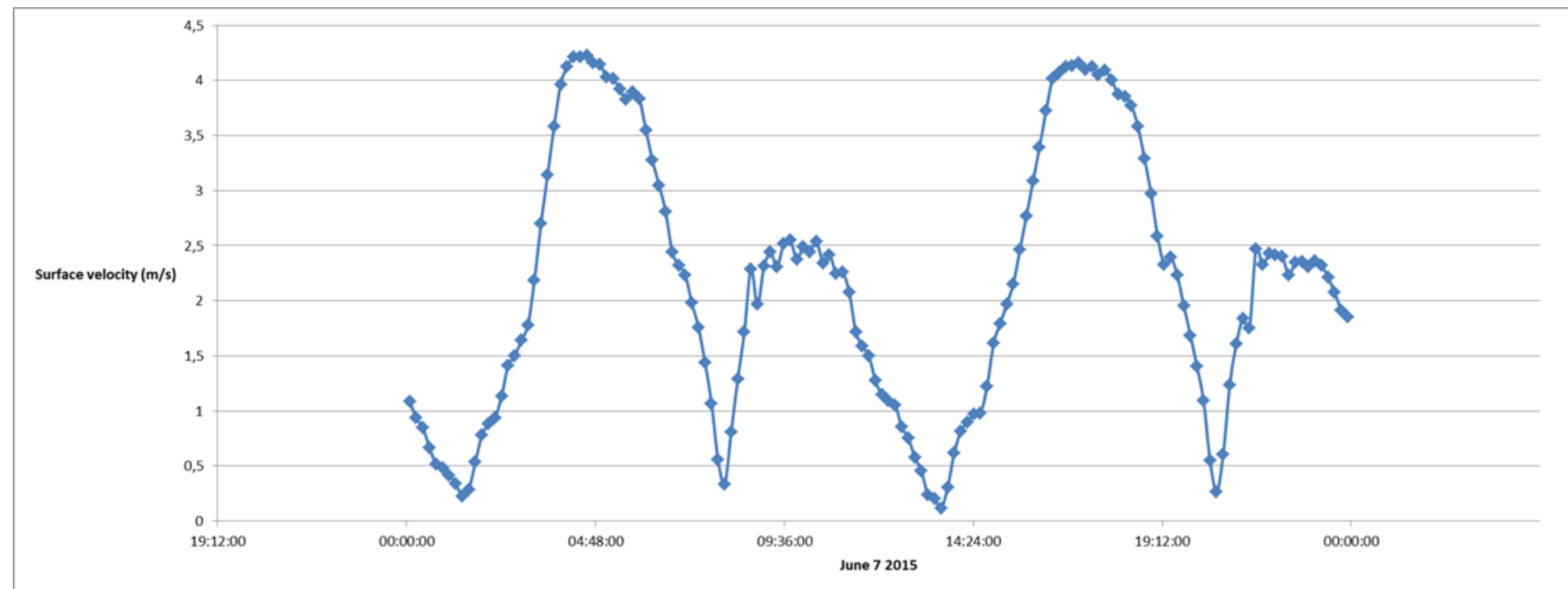








# Slack Water



June 7 2015			
Surface velocity		Flood -> Ebb	Ebb -> Flood
< 0.5 m/s	< 1 knot	15 min	50 min
< 1 m/s	< 2 knot	35 min	2h 10min
< 1.5 m/s	< 3 knot	55 min	3h 15min
< 2 m/s	< 4 knot	1h 20min	4h

# THE MACHINE





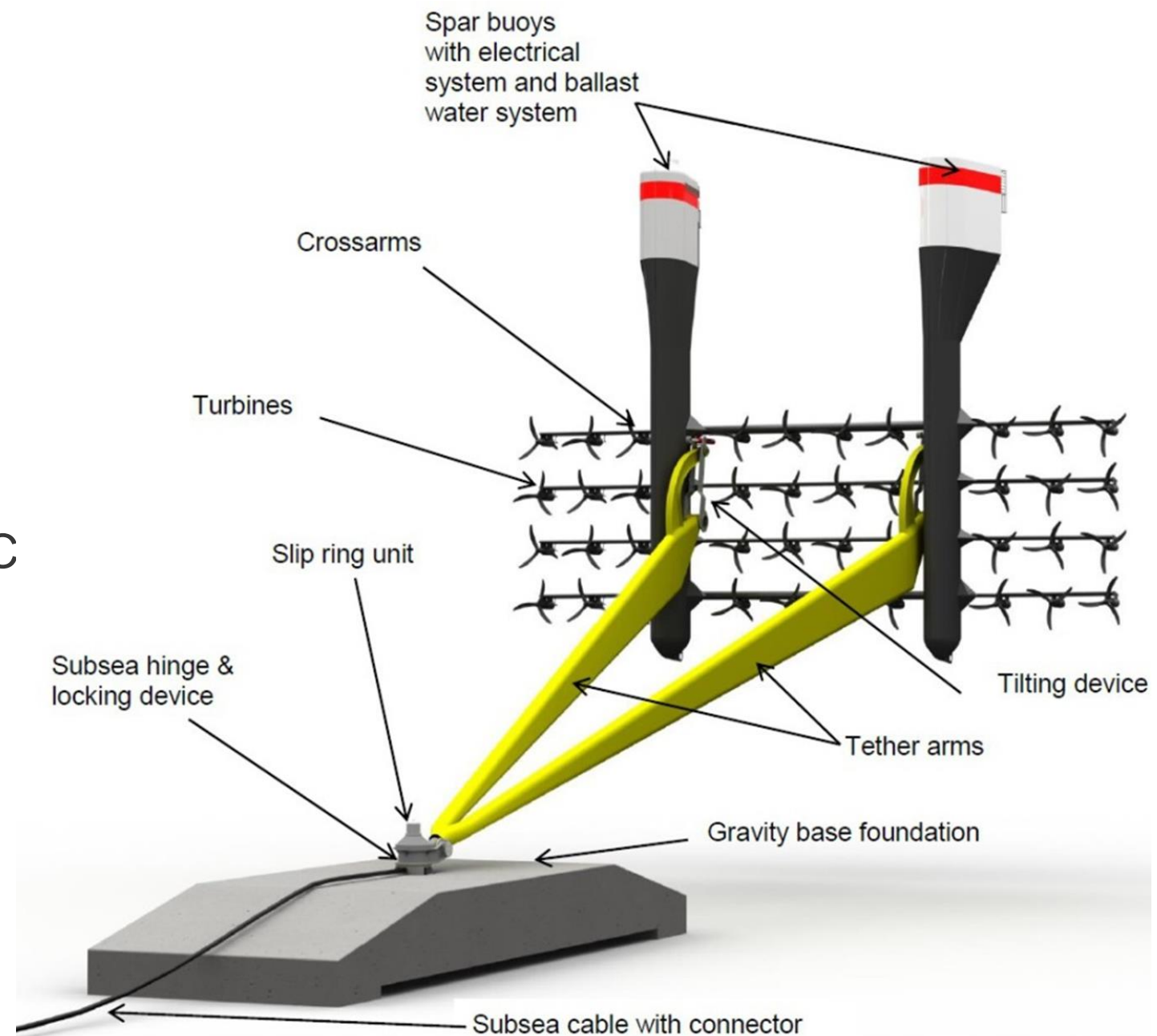
# FORCE Project

## 2.5 MW Tidal Platform 'TRITON'

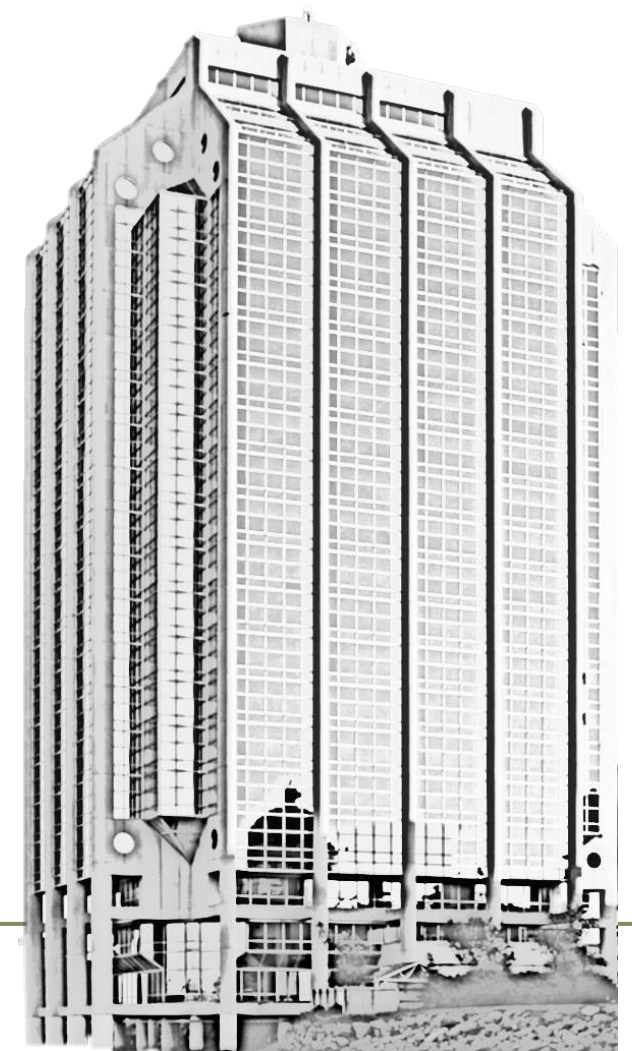
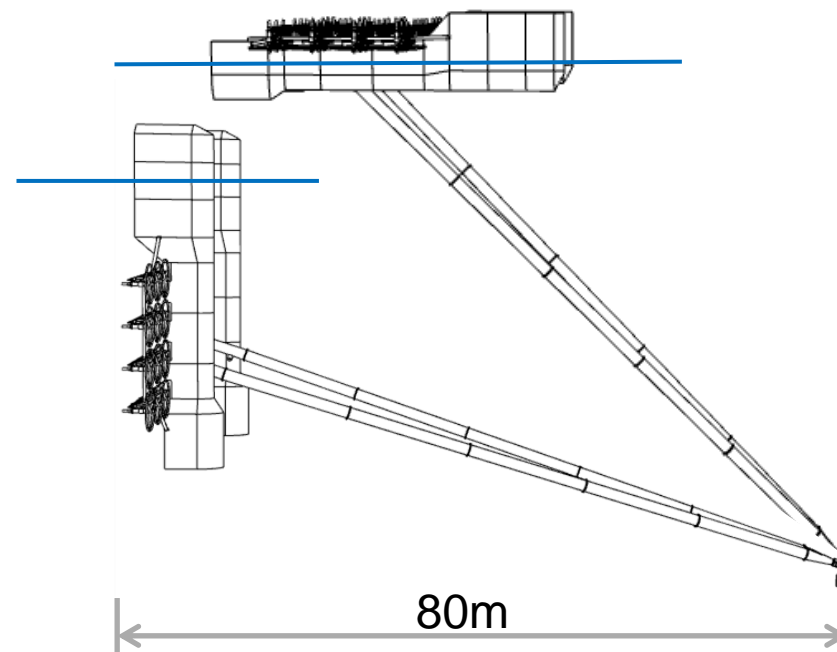
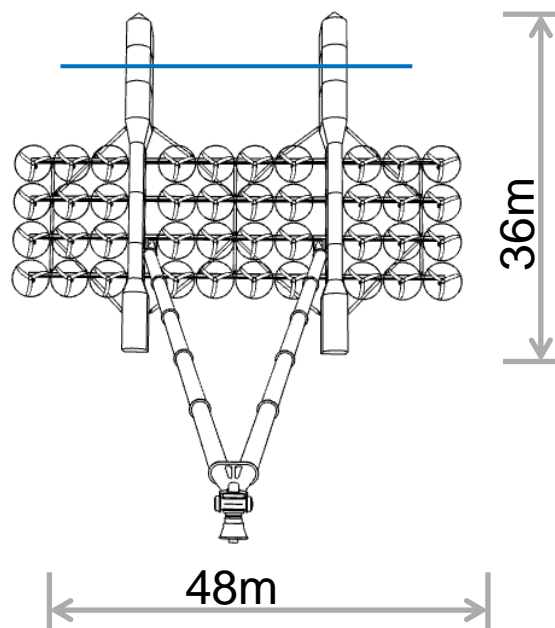


### TRITON S40 - a platform that is designed to halve the cost of Tidal Energy\*

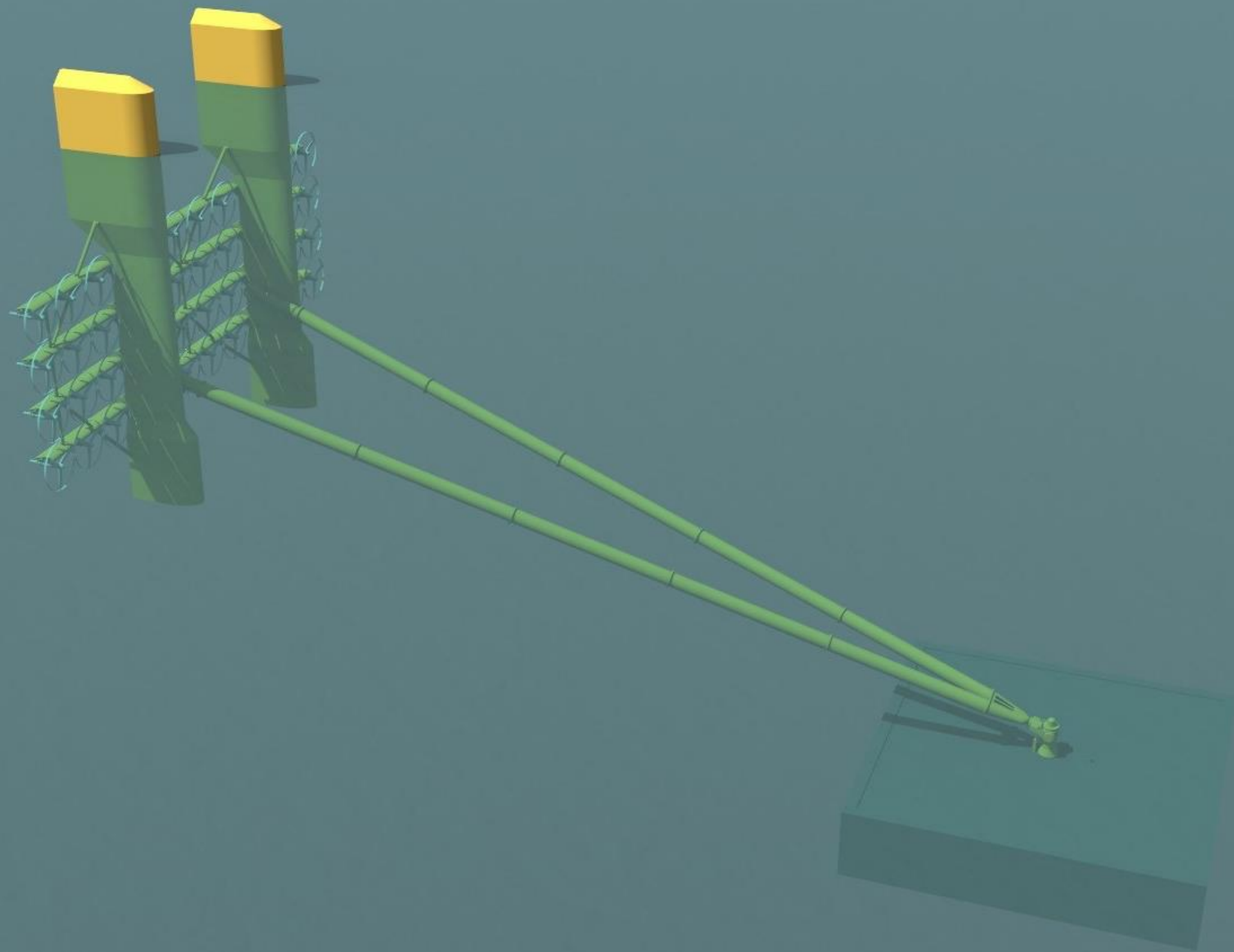
Cut in speed:	<1 m/s
•Rated speed:	4.0 m/s
•Ultimate design speed:	7.8 m/s
•Amount of turbines:	40 pc.
•Turbine diameter:	4.0 m
•Rated power output:	2.5 MW, grid AC
•Phase 1 output:	1MW grid AC
•Water depth range:	50 – 62 m
•Wing spread:	37.6 m
•Max. pivoting radius:	80 m



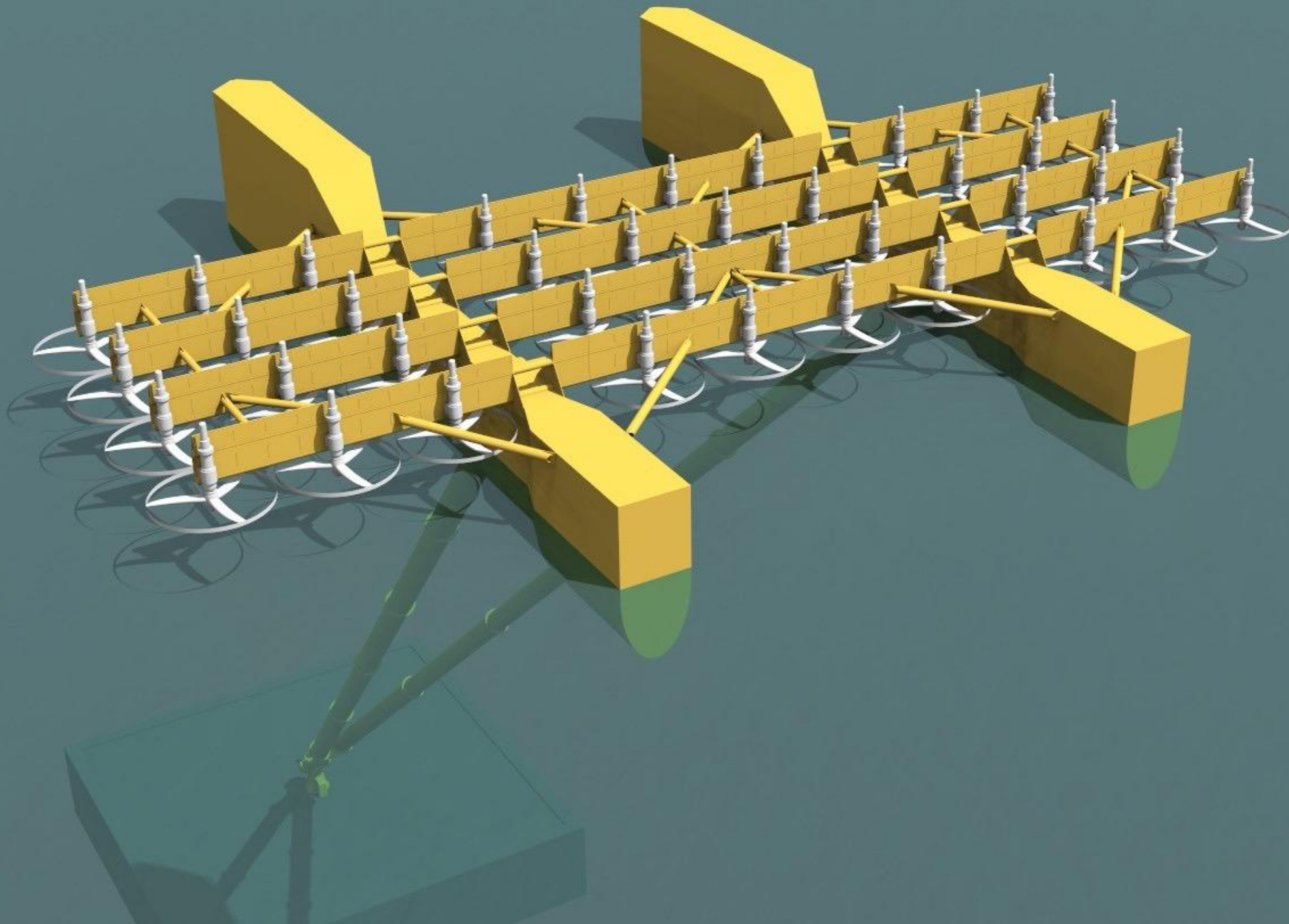
# TRITON Dimensions







# Maintenance Mode



# THE CHALLENGES



# Additional Geophysical Information

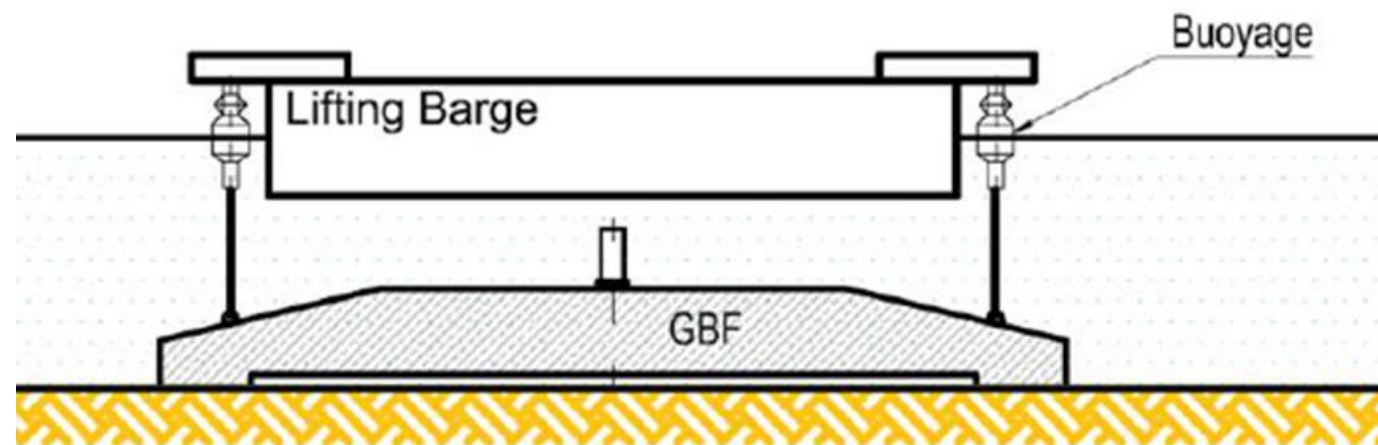
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- Need to core drill
- Subsidence of GBS
- Scouring around GBS
- Co-efficient of friction
- Type and holding power of anchors



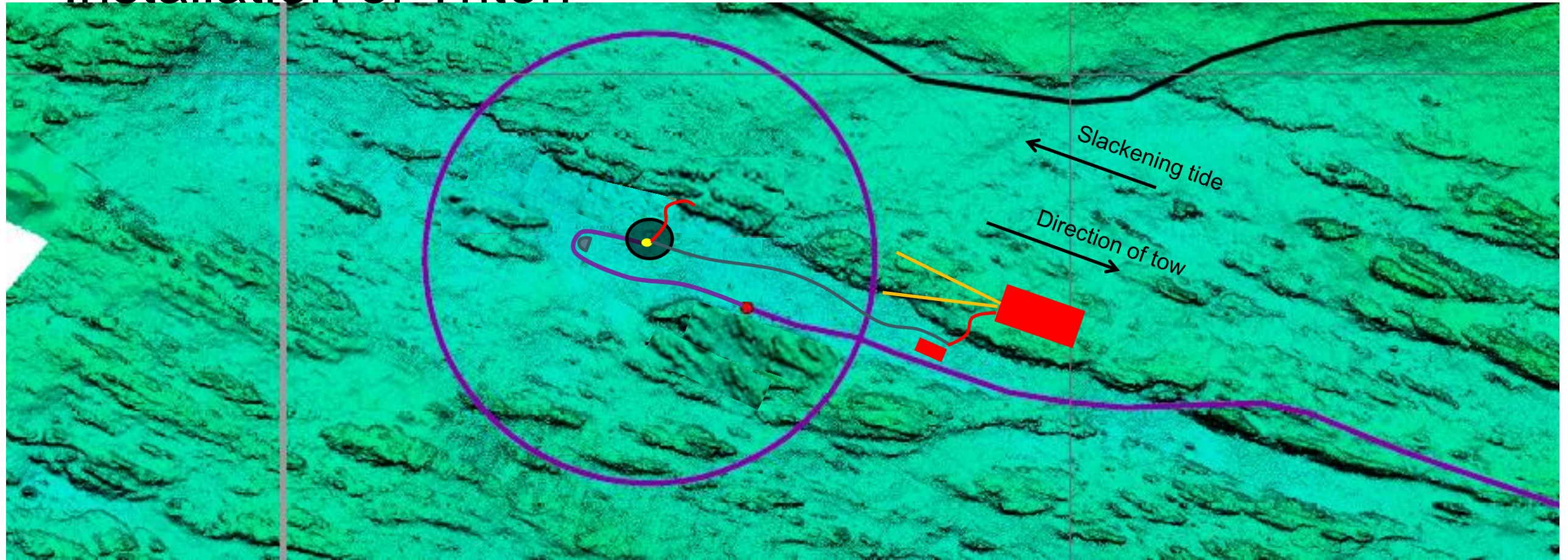
# Transport & Install GBS

- GBS 4400 dry weight
- Launch
- Pick-up
- Move to site
- Install



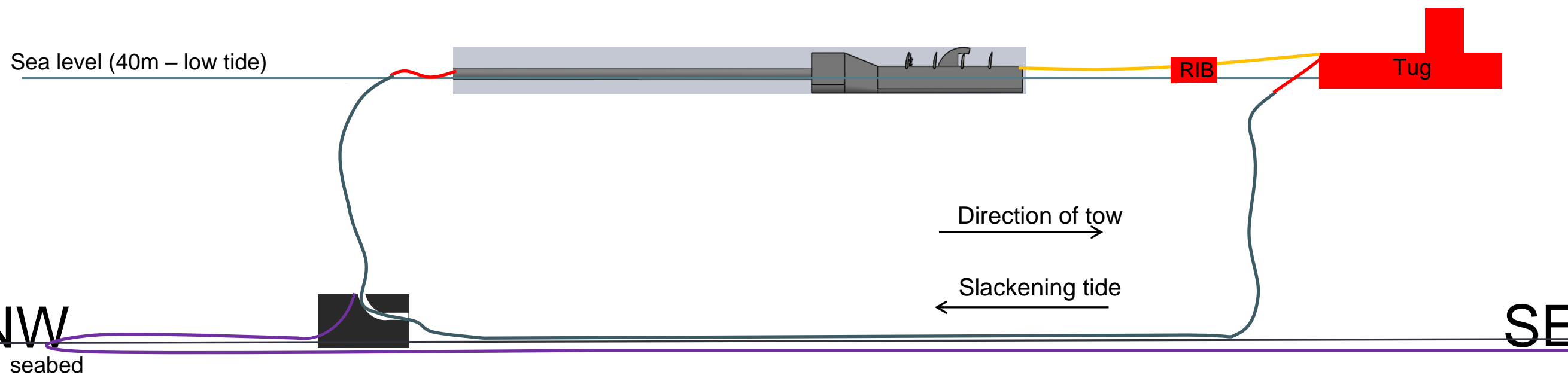


# Installation of Triton



Top view (different scale)

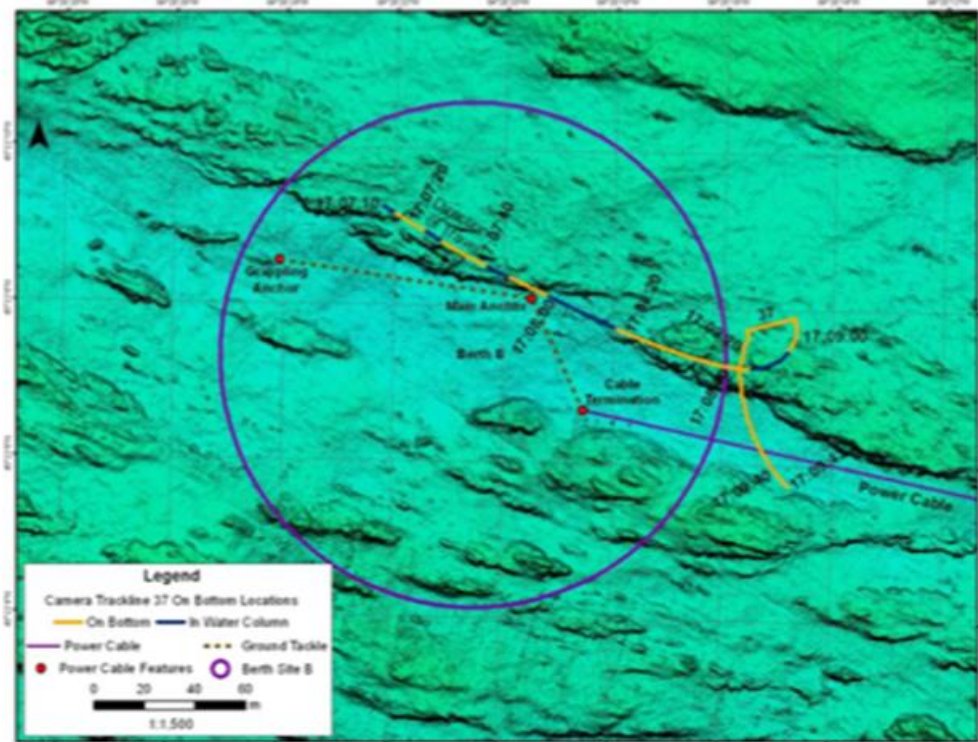
Side view (different scale)





# Cable Connections

- Managing Triton umbilical
- Drymating Triton to existing subsea export cable
- Splitting and managing for T2







ALSCOTT



Stantec



HW-Elektrotechnik  
Ideen in Strömen



HAMMURABI



Deloitte.



FORCE

Fundy Ocean Research Center for Energy

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REDDING TIDAL POWER

