

BLACK ROCK
TIDAL POWER

Capt. Jack Gallagher
Marine Operations Manager

Outline

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

THE COMPANY

The Company

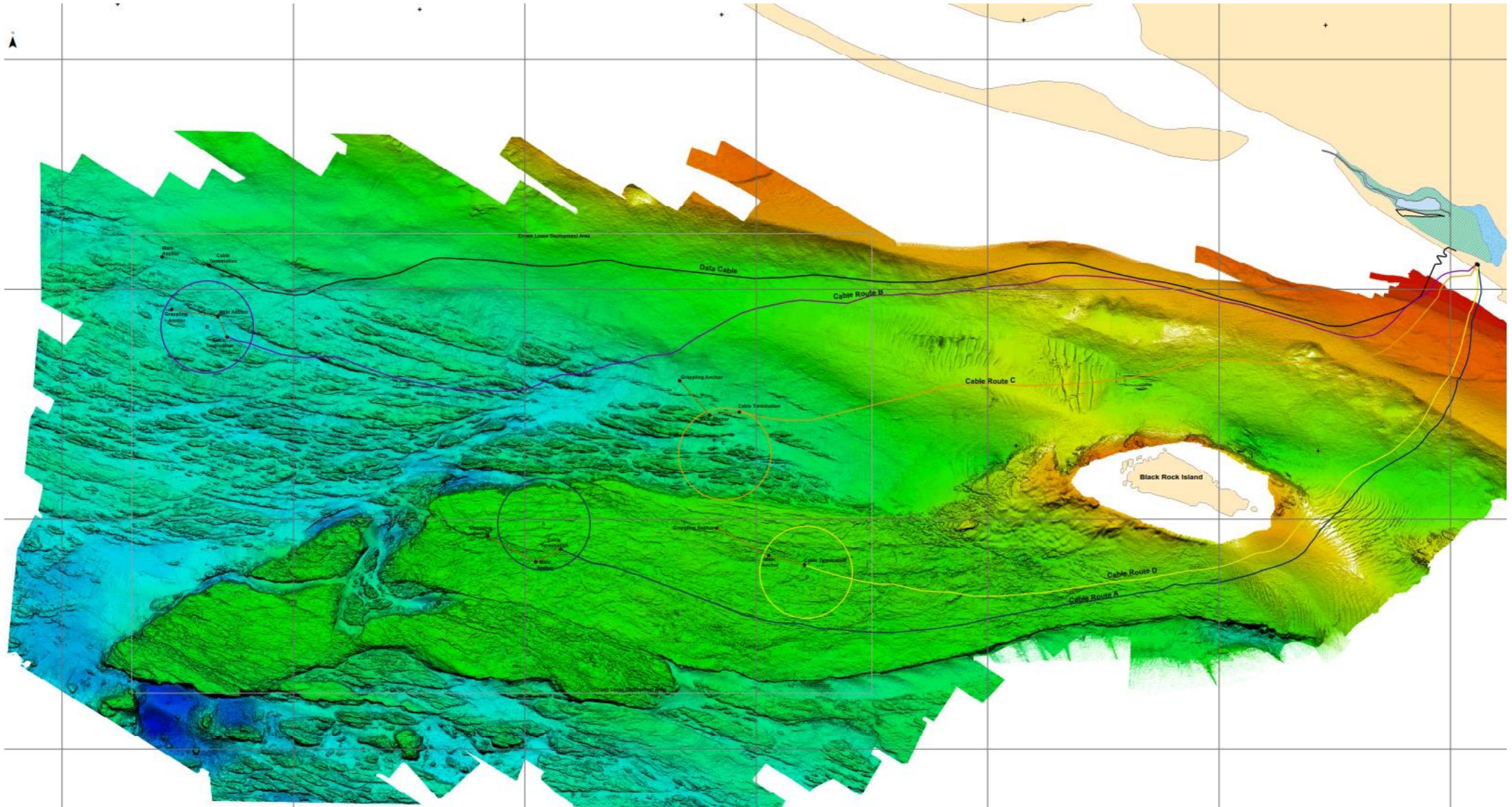
B RTP will develop tidal energy both locally and throughout North America

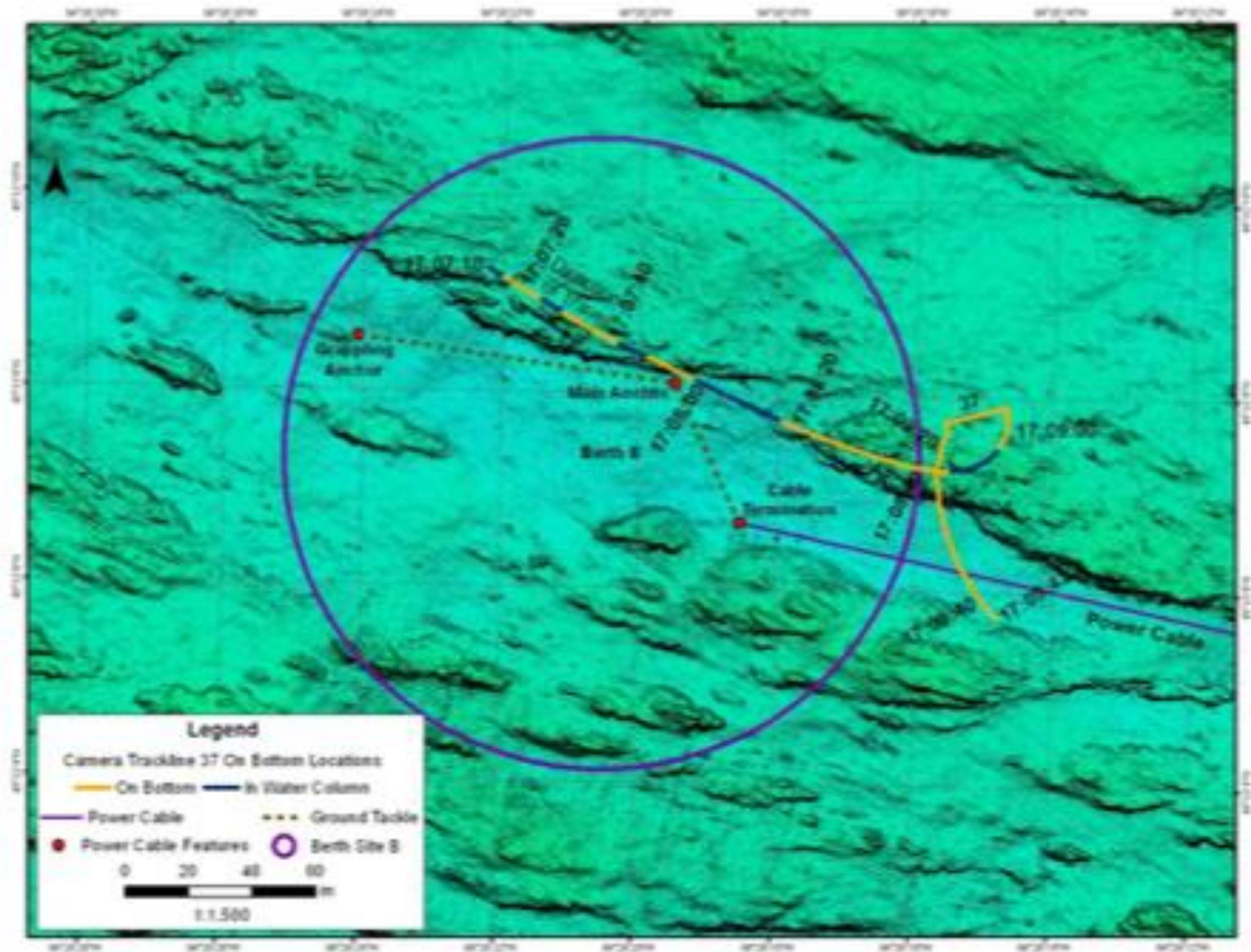
- Unique conditions in Nova Scotia
 - Excellent resource
 - Government support & commitment from the Province to support tidal power development
 - Feed-in tariff established, PPAs in place
- First deployment of the Triton Technology
- Turbines have been demonstrated in the UK and Europe in a range of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



THE ENVIRONMENT

Sub-sea Environment

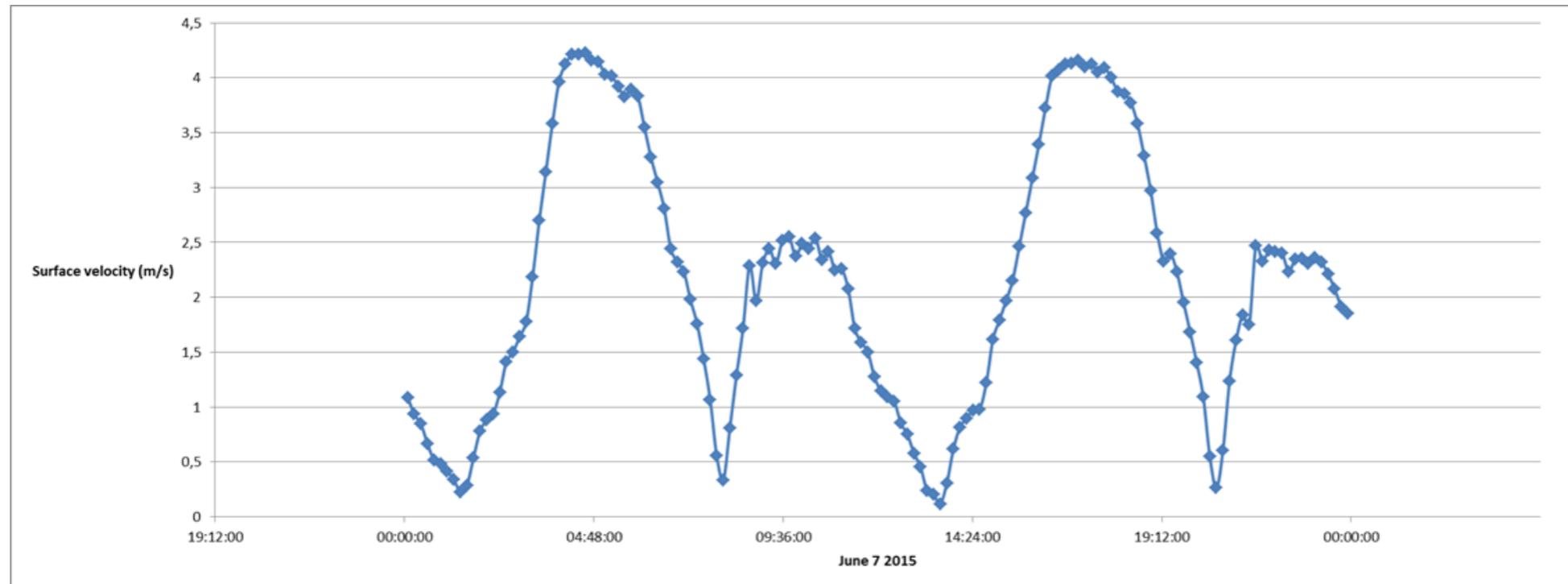








Slack Water



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

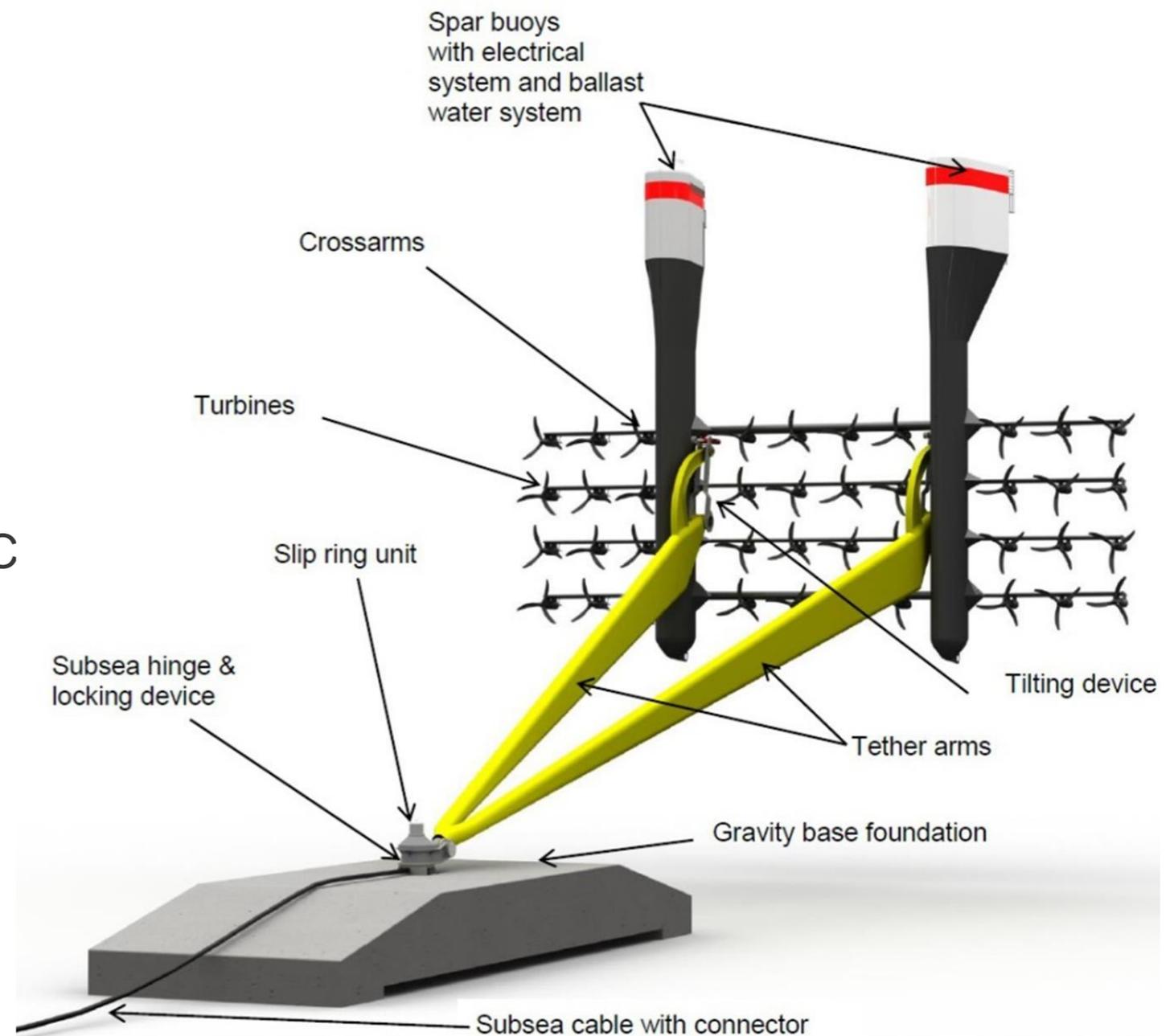
THE MACHINE

FORCE Project 2.5 MW Tidal Platform 'TRITON'

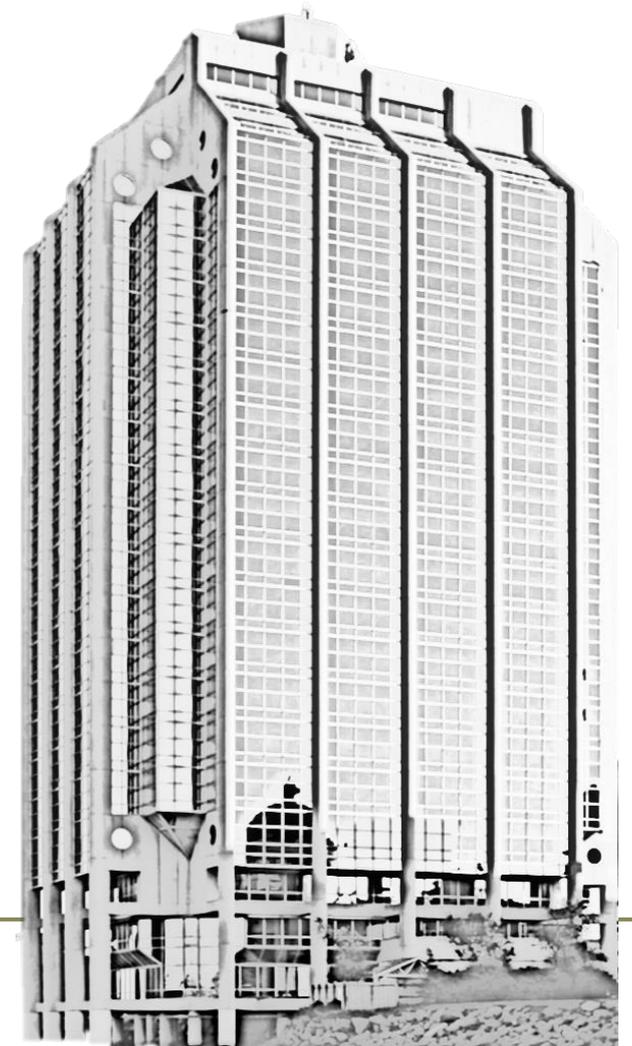
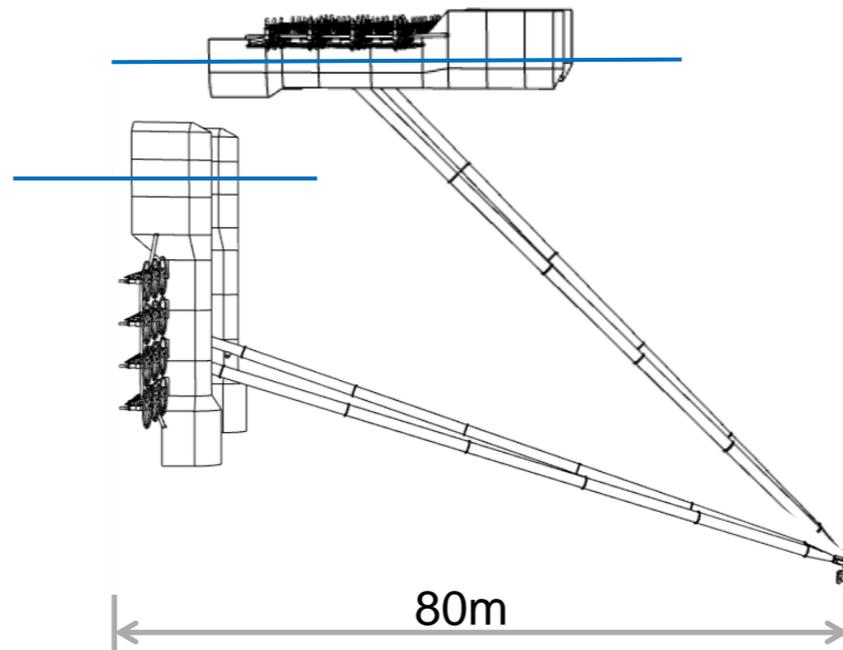
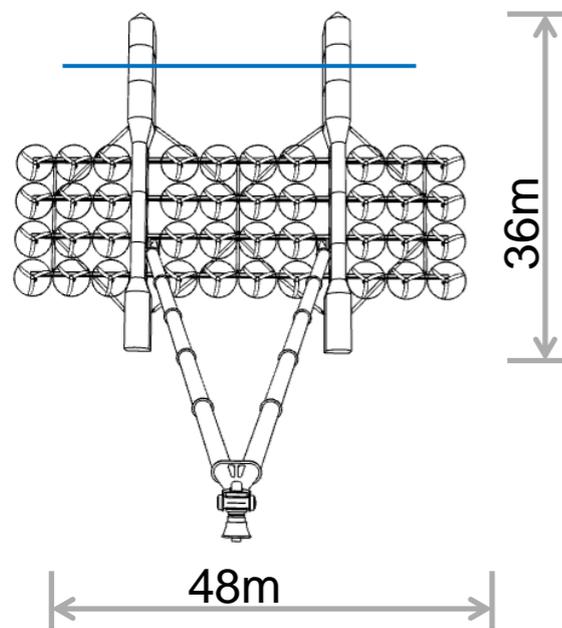


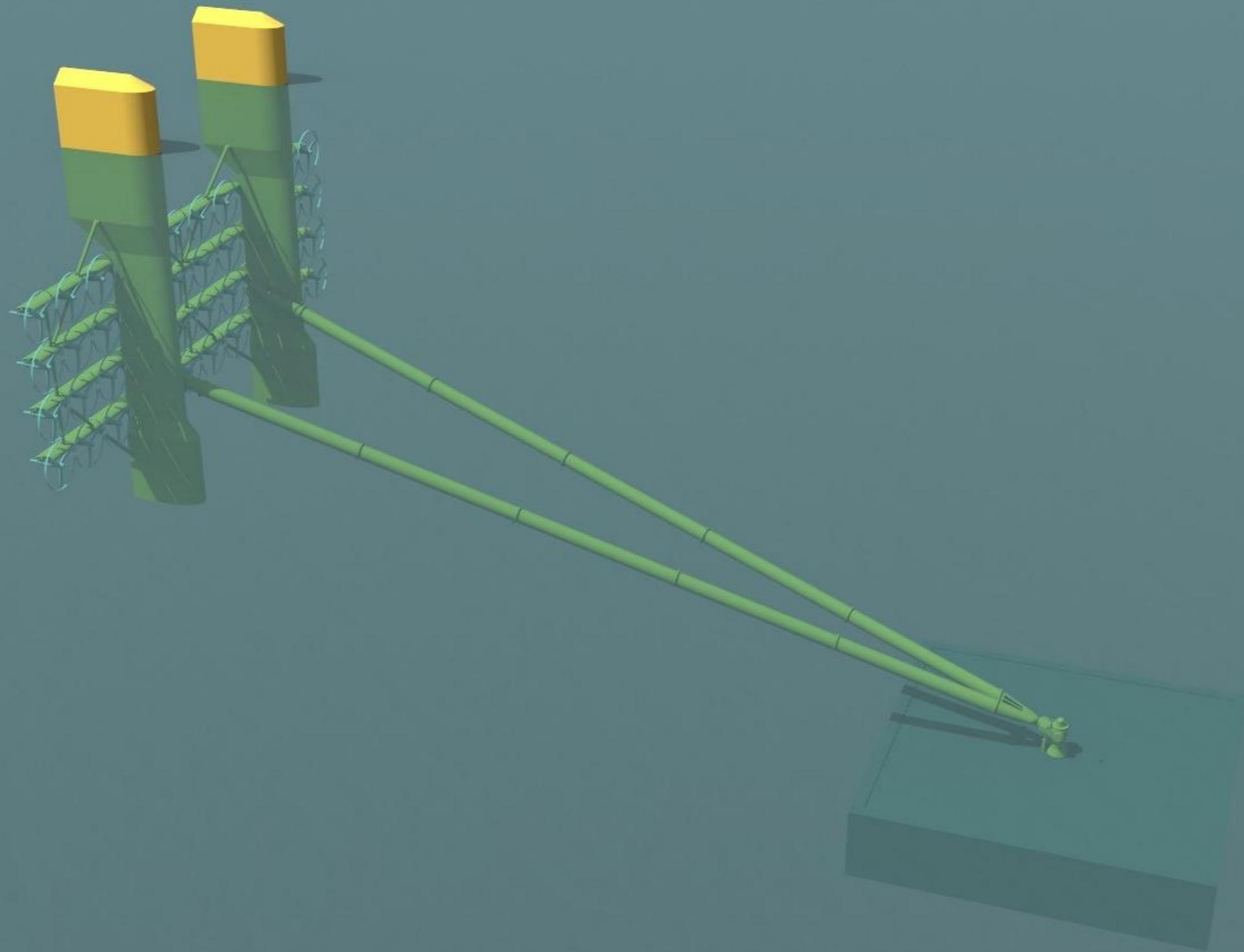
TRITON S40 - a platform that is designed to halve the cost of Tidal Energy*

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

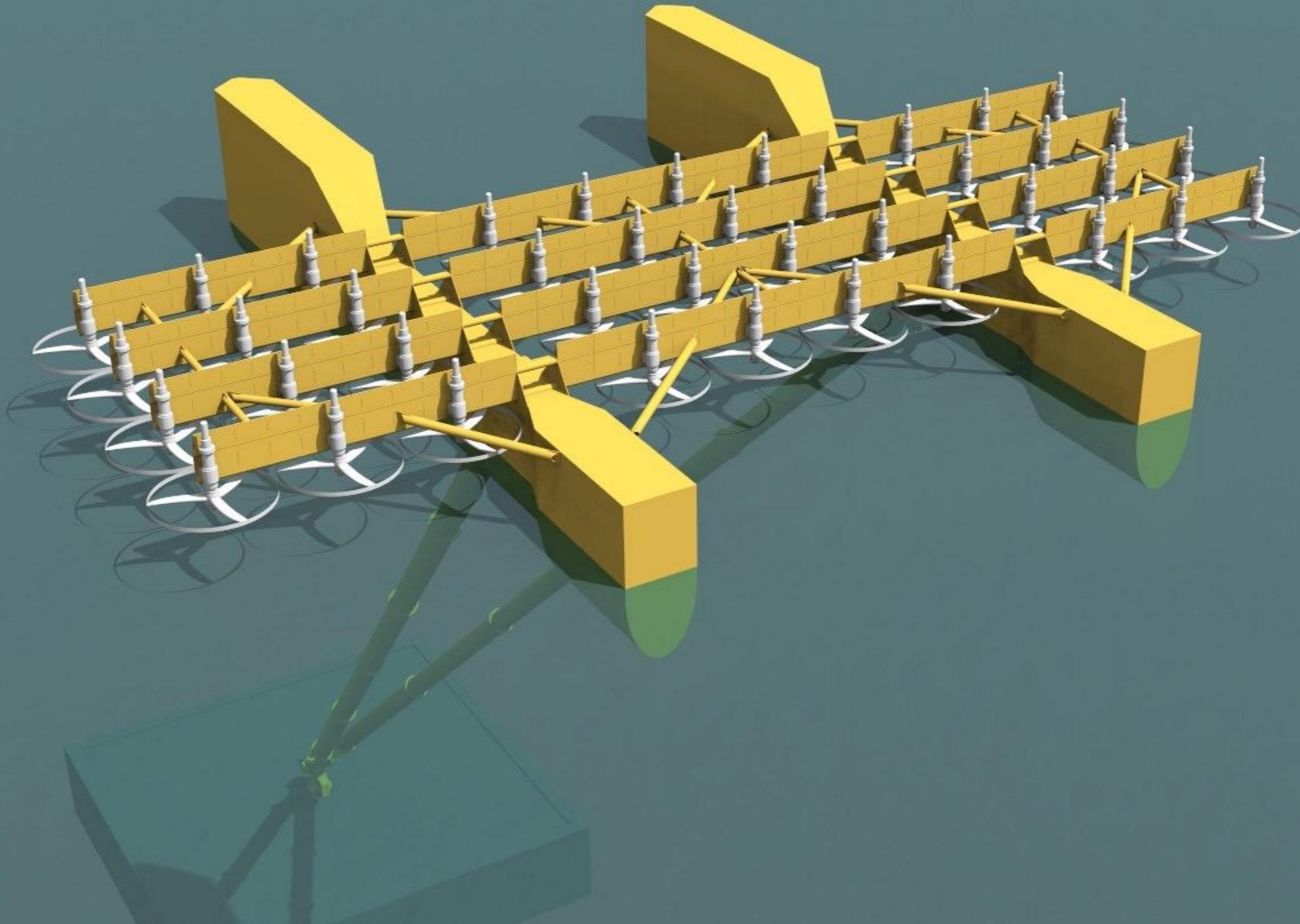


TRITON Dimensions





Maintenance Mode



THE CHALLENGES

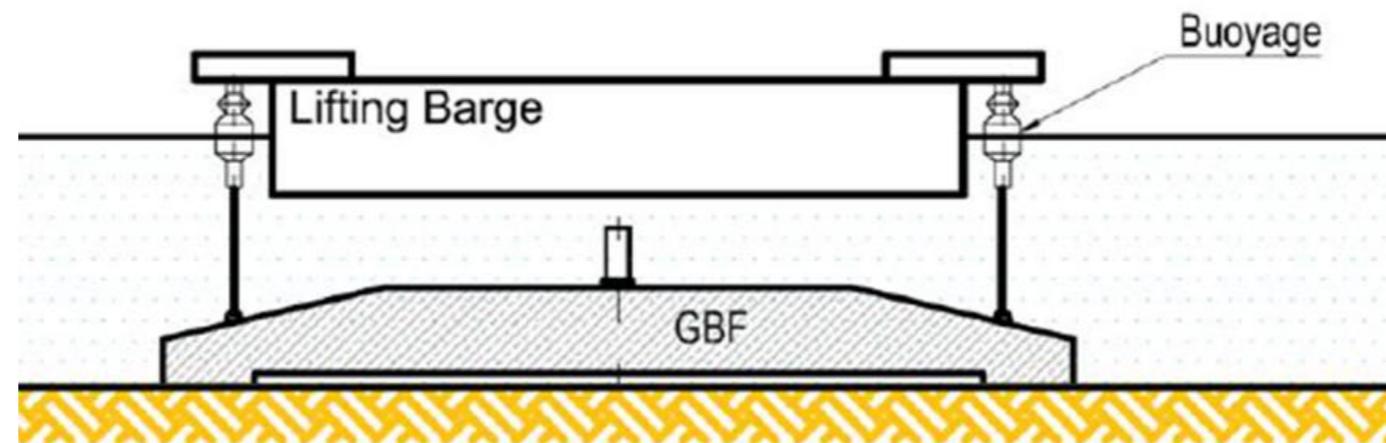
Additional Geophysical Information

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

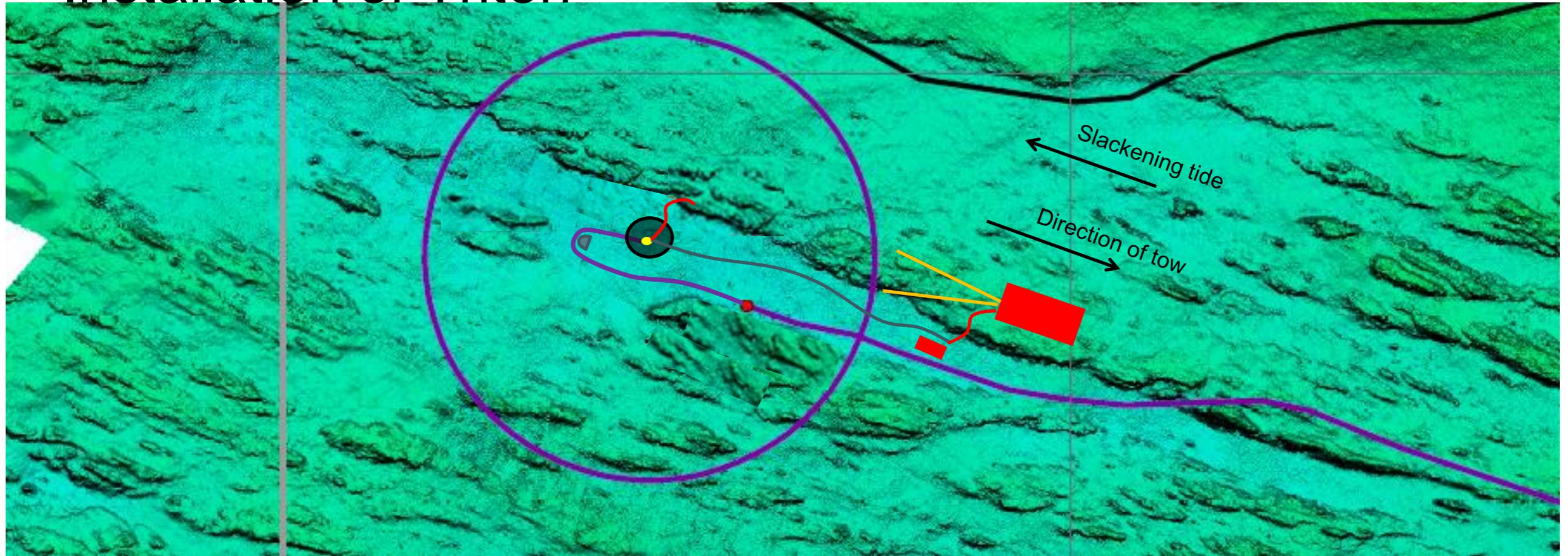


Transport & Install GBS

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

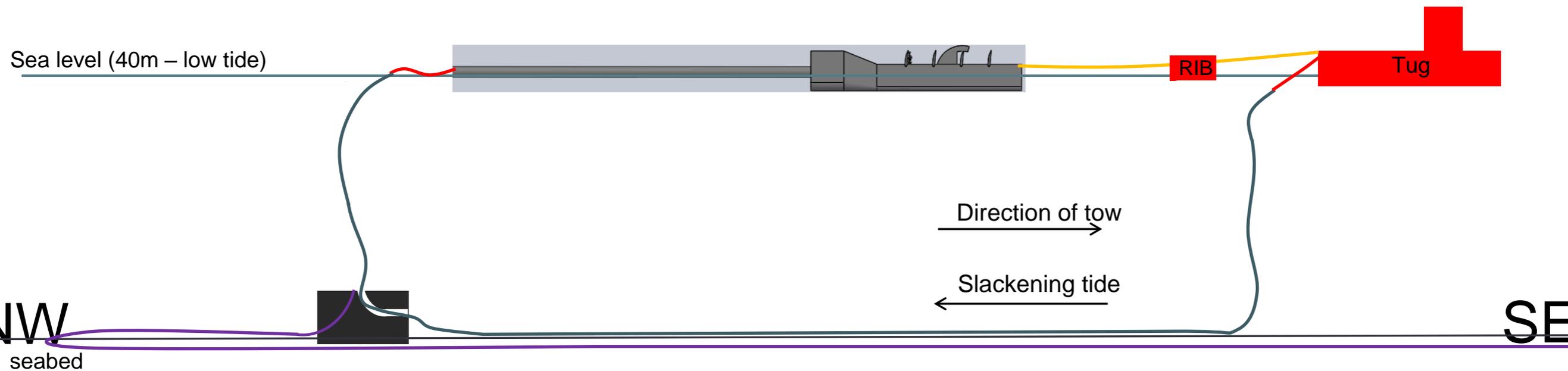


Installation of Triton



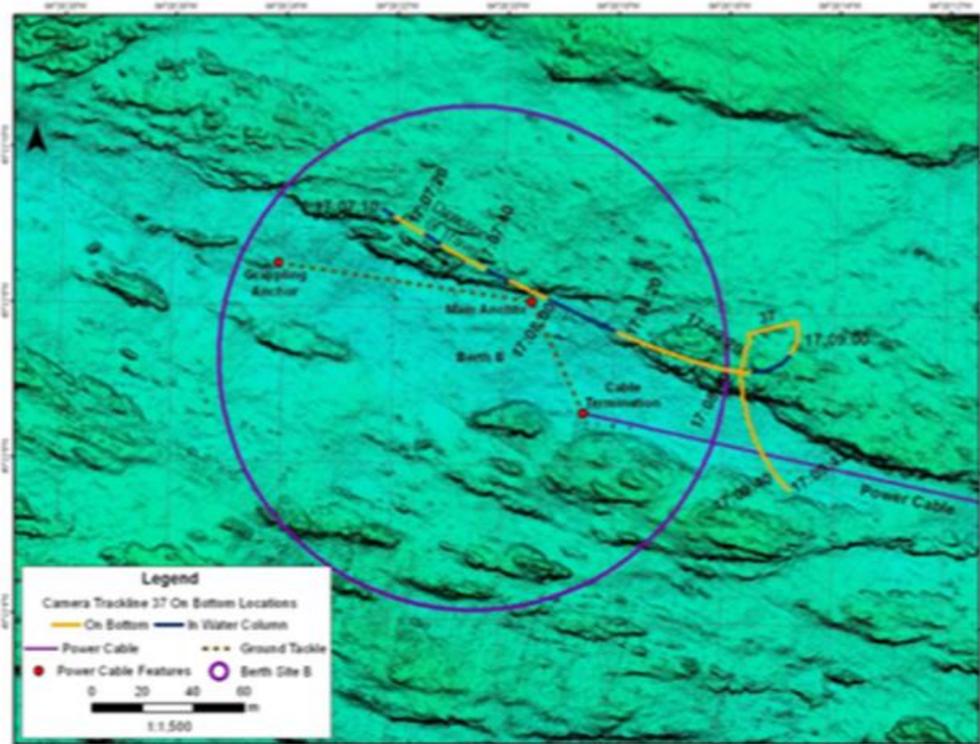
Top view (different scale)

Side view (different scale)



Cable Connections

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

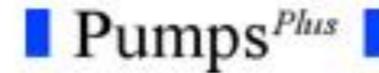




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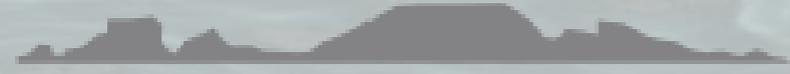


MCINNES COOPER



MathResources Inc.

BLACK ROCK



TIDAL POWER

