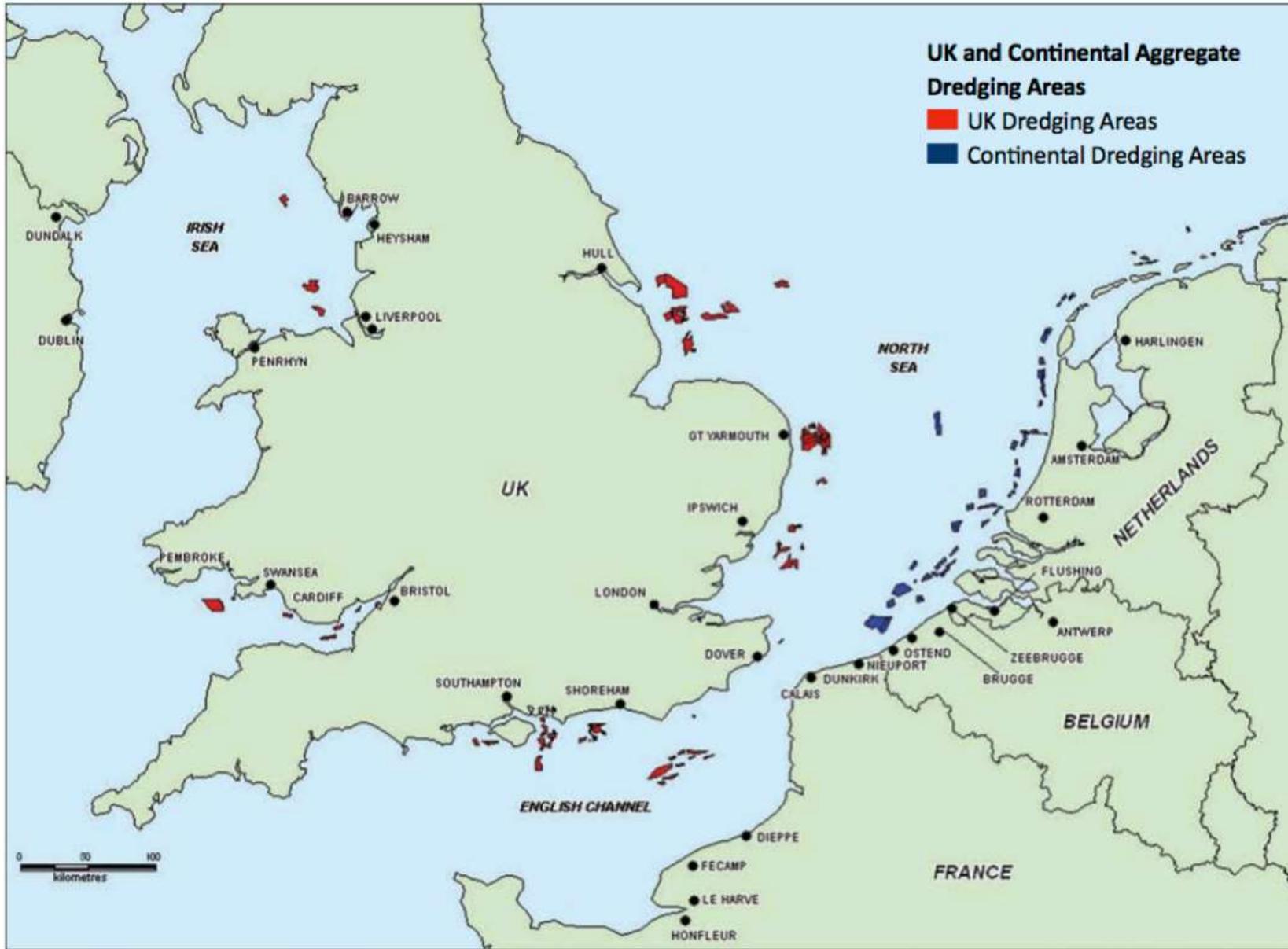


DAMEN

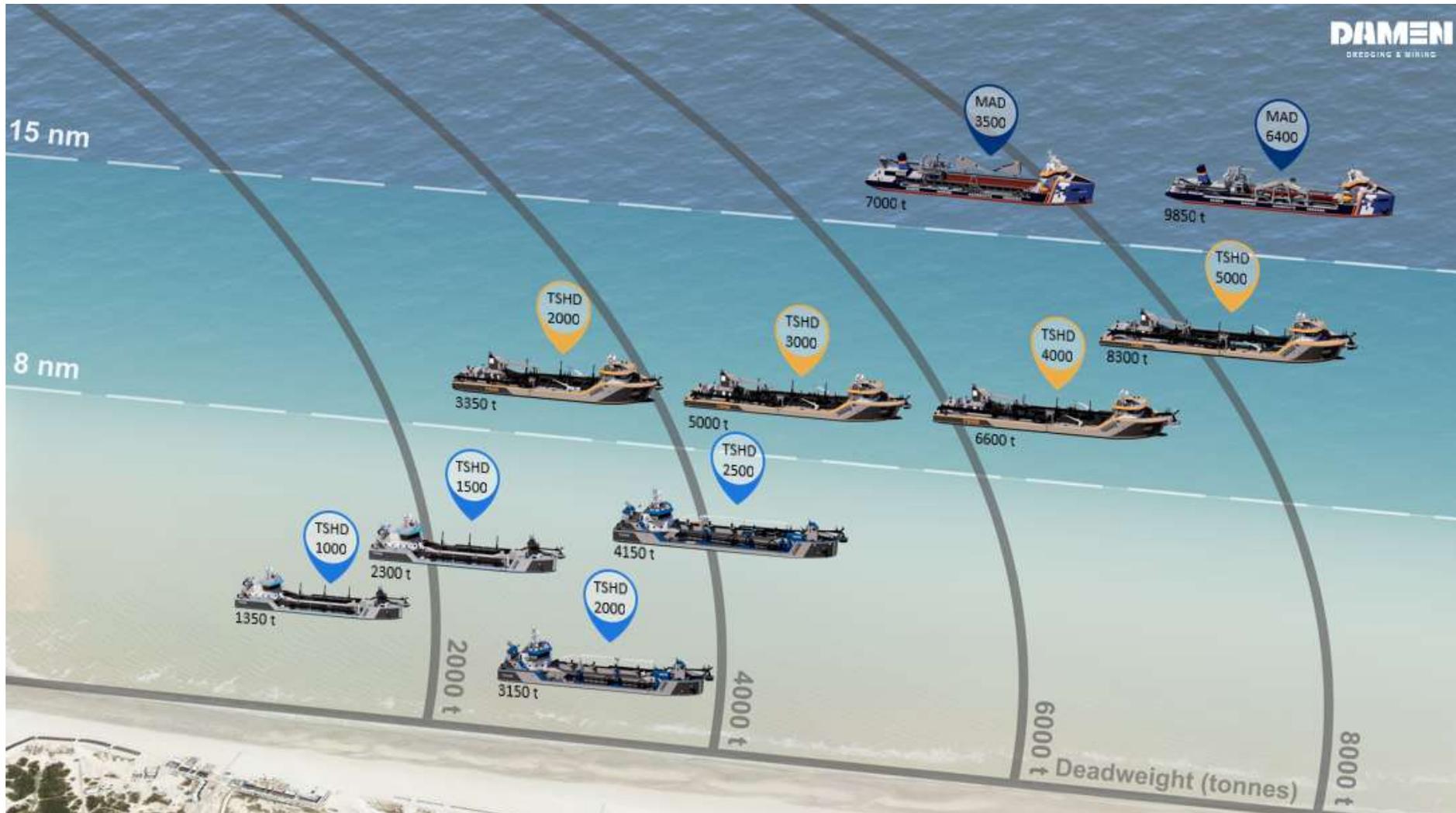


Safety & Maintenance in relation to MARINE AGGREGATE DREDGERS





Portfolio



MAD
(Marine Aggregates)

TSHD
(Multi Purpose)

TSHD
(Port maintenance)

Different Dredge Cycles

MAINTENANCE DREDGING

Dredging in harbors / rivers

Mostly short sailing distances

Dredging time < 1 h

No screening

Rainbow or bottom doors

AGGREGATE DREDGING

Dredging at open sea

Long sailing distances

Dredging time > 2,5 to 4 h

Screening possible

Dry unloading to shore

Part of supply chain



Fine sand
0.063 – 0.25mm



Medium sand
0.25 – 0.5mm



Coarse sand
0.5 – 2mm



Very coarse sand
2 – 4mm



Fine gravel
4 – 20mm



Medium gravel
20 – 40mm

Dredge Cycles

TSHD

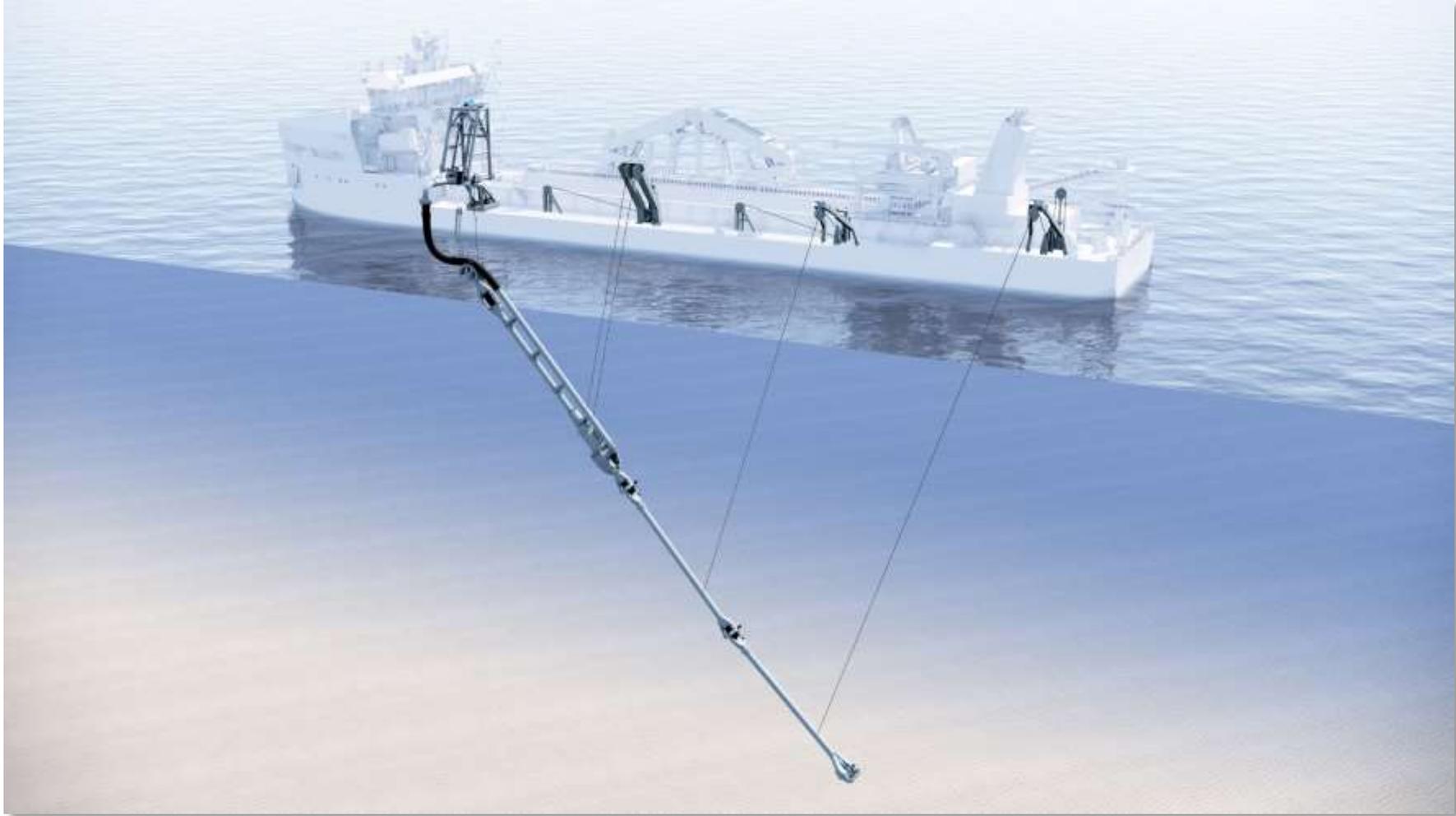


HOW IT'S WORKS IN PRACTICE

Aggregate Dredge Cycle



Loading and unloading

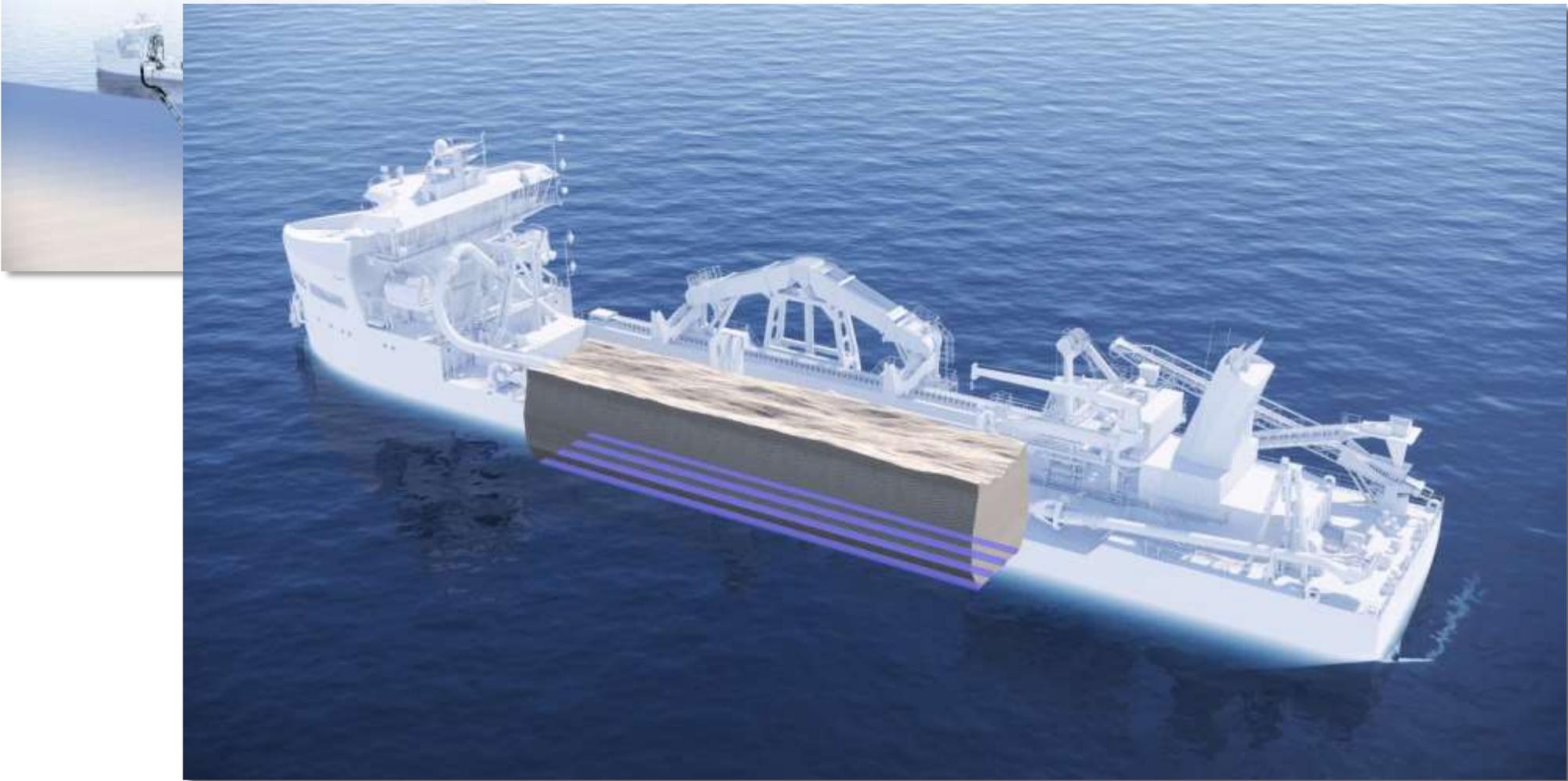


Loading and unloading





Loading and unloading



Loading and unloading



Loading and unloading





Loading and unloading





MAD References



Main vessel requirements

Maximum dimension: Shoreham lock

Hopper volume : Maximum volume / deadweight

Maximum draught : 7,0 m

Dredging depth : 55 m



MAXIMUM PAYLOAD WITHIN SHOREHAM LOCK DIMENSIONS

From theory to reality

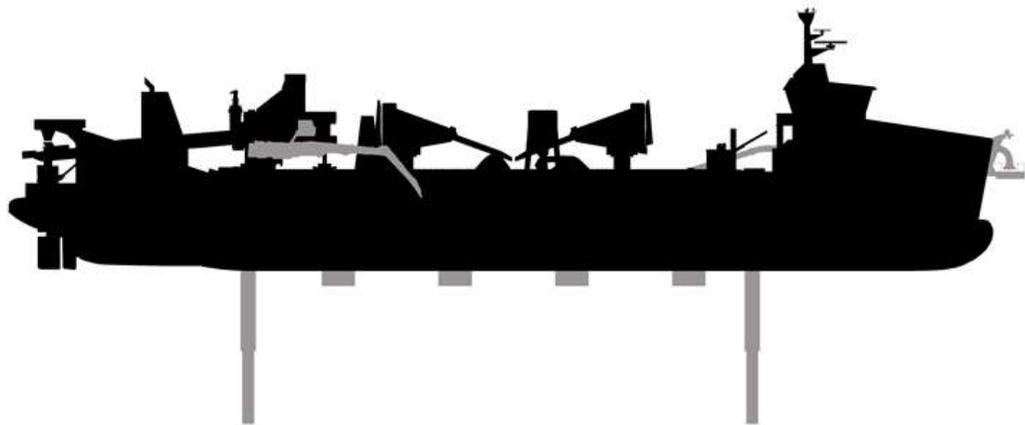


Powered by Capt. Pearson

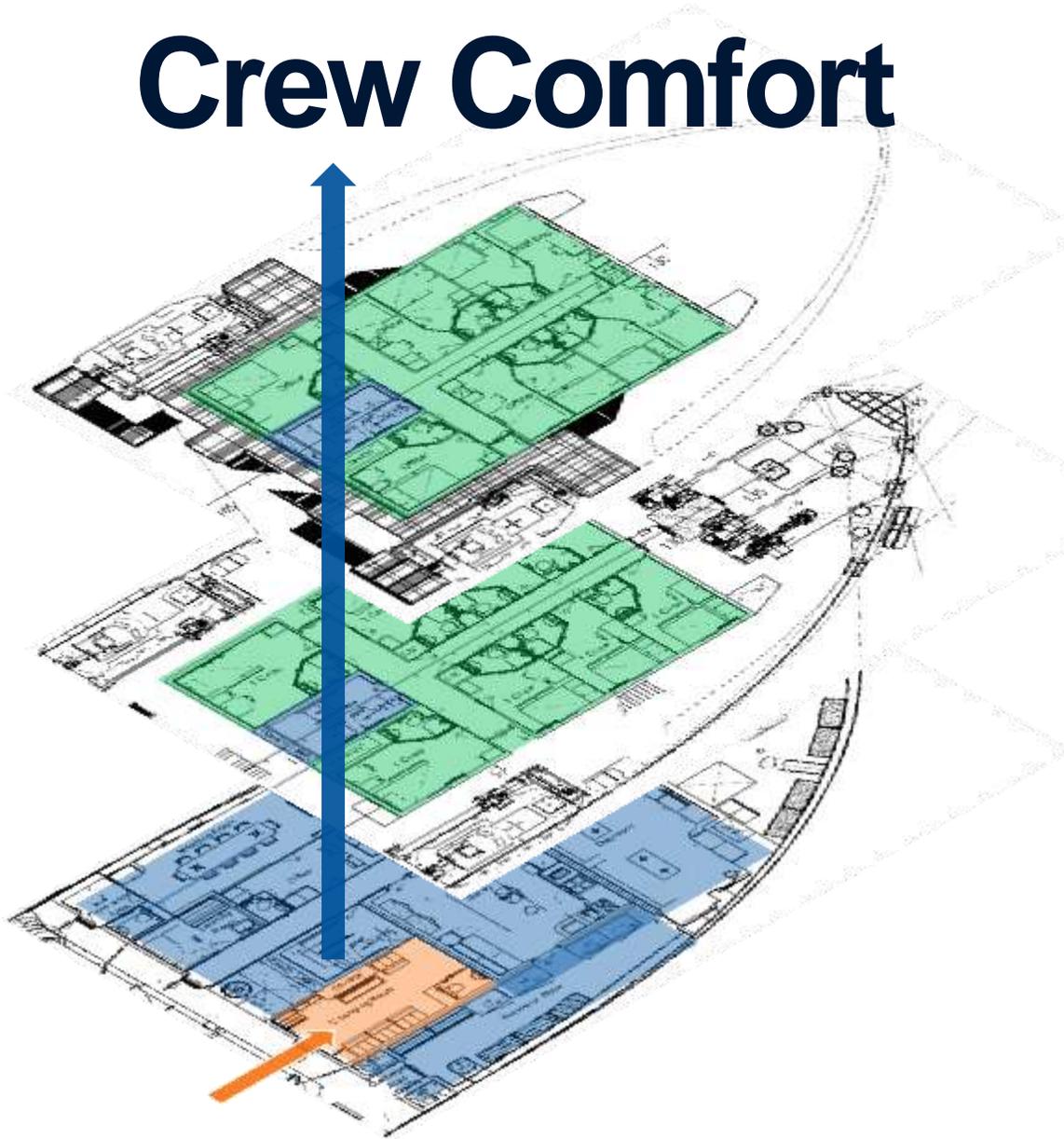
MARINE AGGREGATE DREDGER

Safety

- Mooring
- Walking Ways
- Working at height
- Crew Comfort



Crew Comfort



MARINE AGGREGATE DREDGER

Sustainability

Arnout Damen (CEO of Damen Shipyards Group)

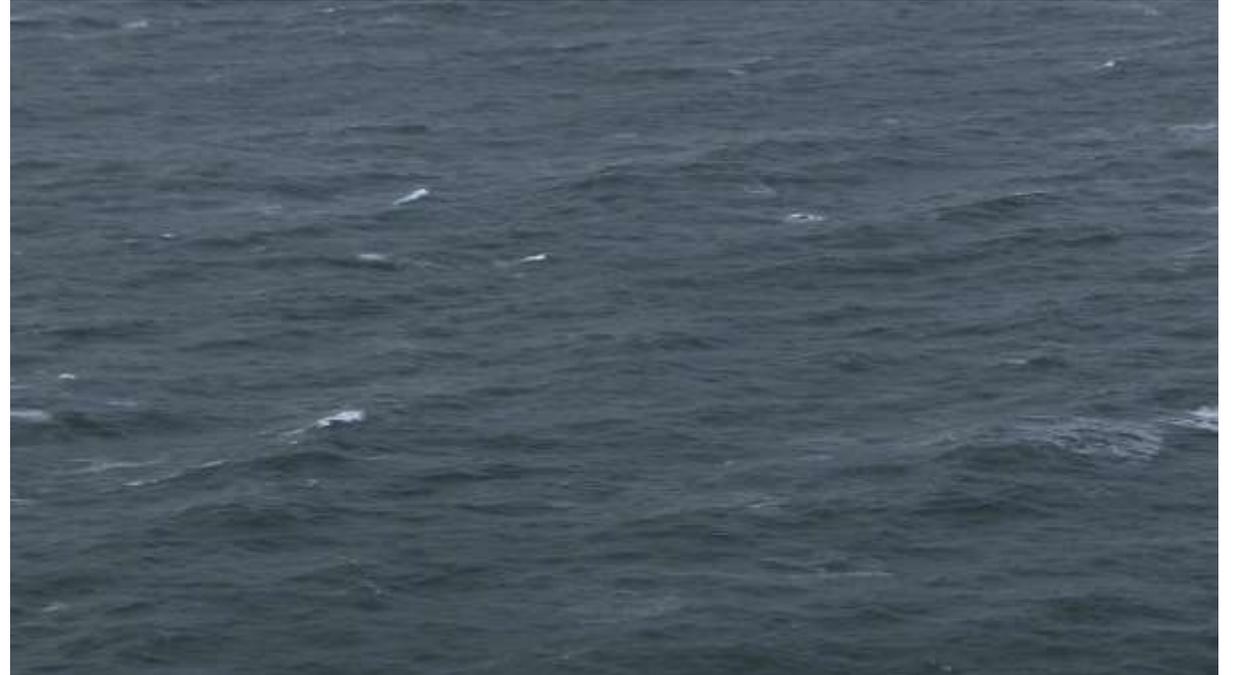
“Our ambition is to become the most sustainable and digital shipbuilder in the world.”

Our future is emission-free and connected.



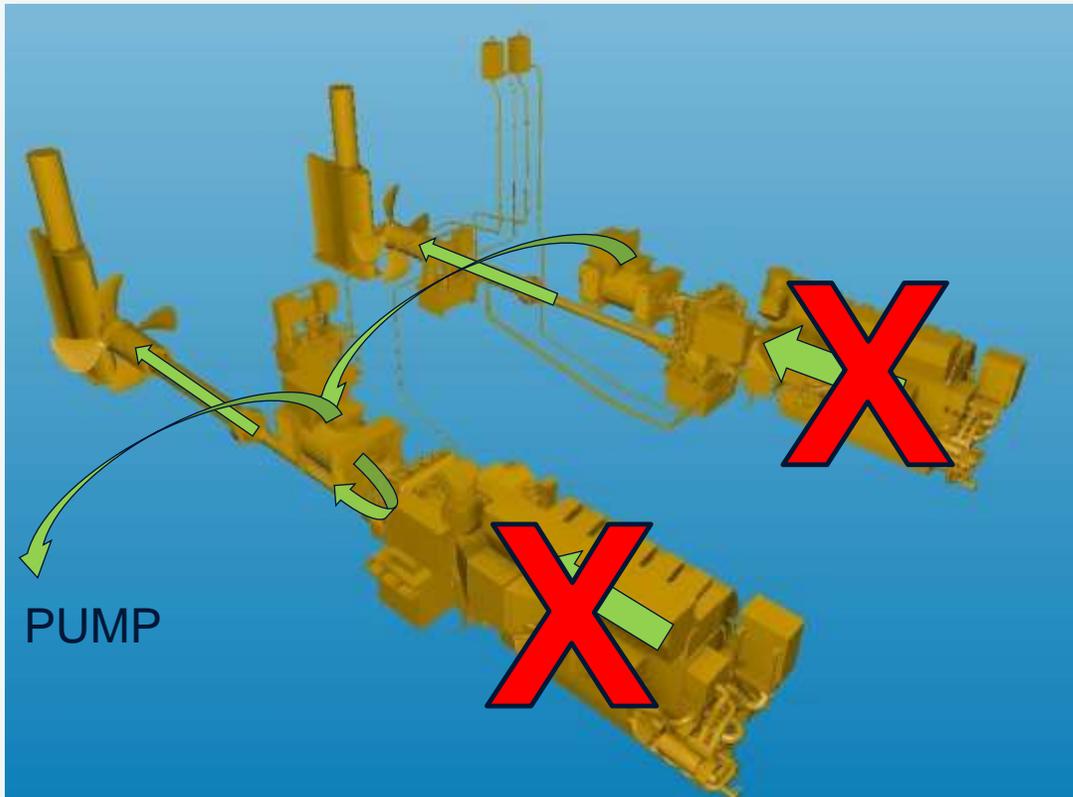
Sustainability

- Hull shape

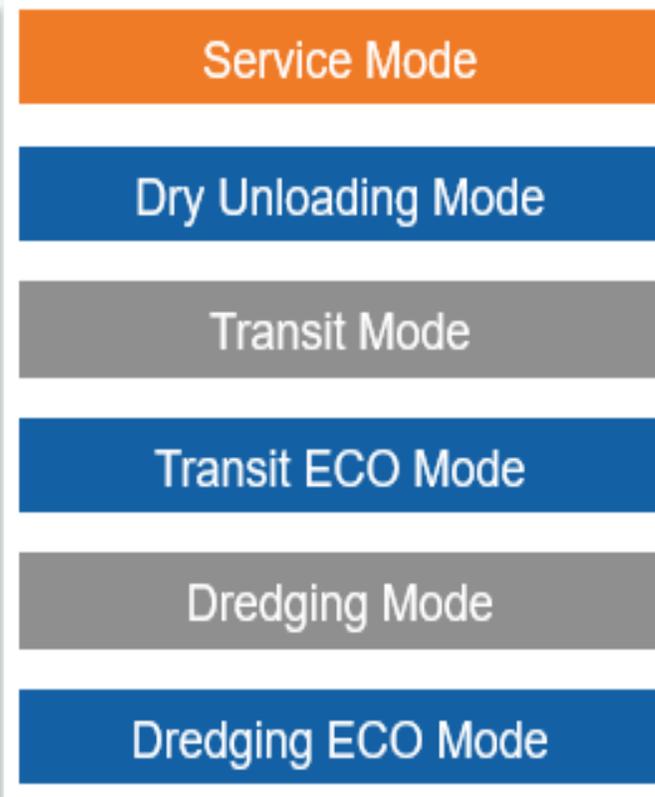


Fuel efficiency

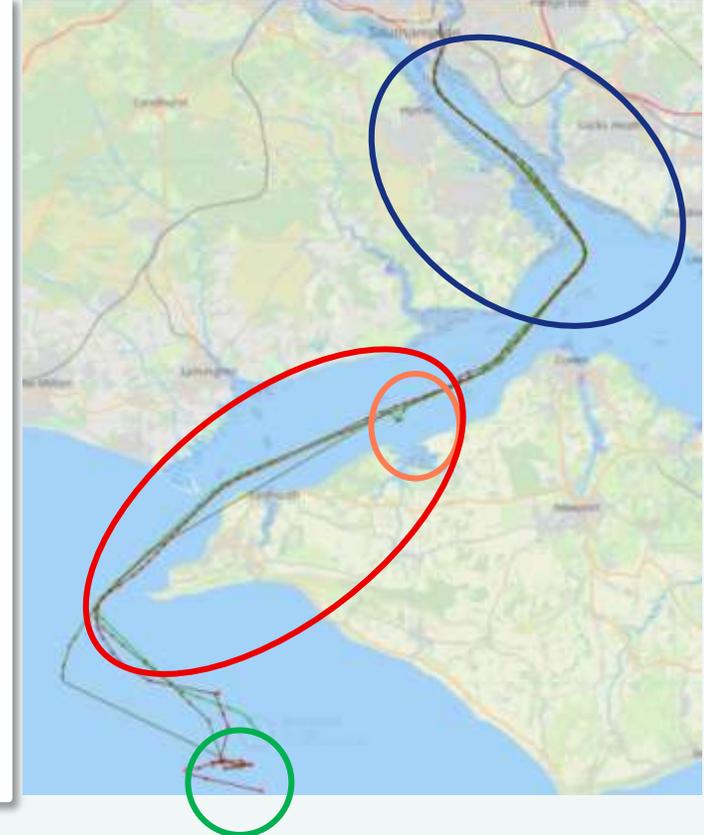
Propulsion system



Power management

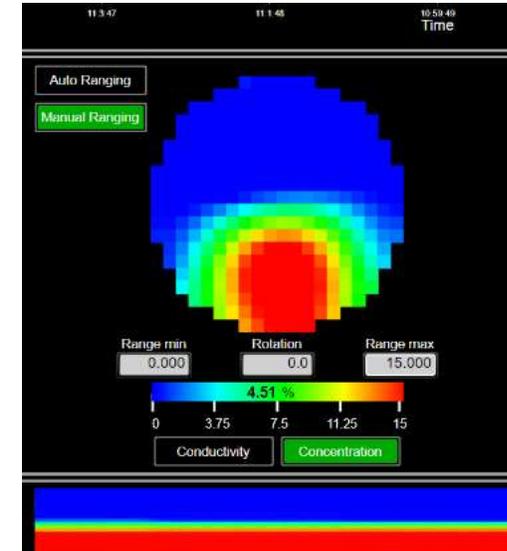


Dredge cycle



Sustainability

- Hull shape
- Fuel efficiency
- Non- radioactive density measurement



MARINE AGGREGATE DREDGER

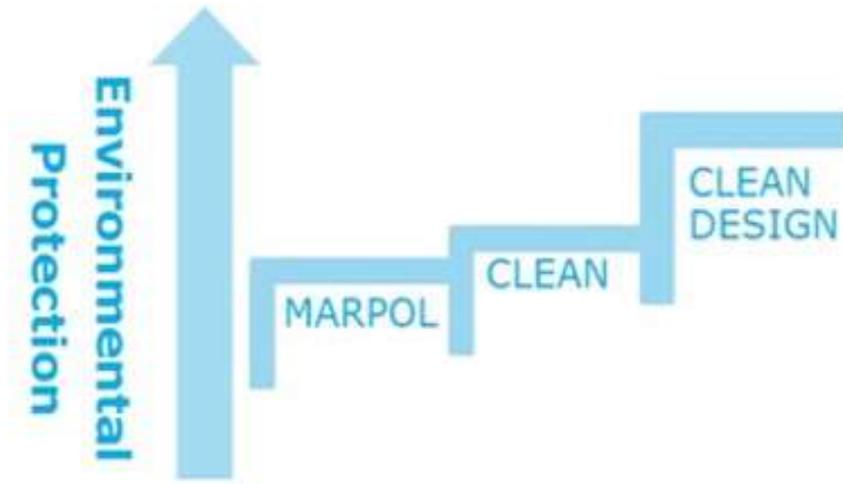
Sustainability

- Hull shape
- Fuel efficiency
- Non- radioactive density measurement
- Digital connected



Sustainability

- Hull shape
- Fuel efficiency
- Non- radioactive density measurement
- Digital connected
- ECO- Notation



MARINE AGGREGATE DREDGER

Maintenance



Maintenance

- Dredge pipes



Maintenance

- Dredge pipes
- Screening decks



Maintenance

- Dredge pipes
- Screening decks
- Winches below deck



MARINE AGGREGATE DREDGER

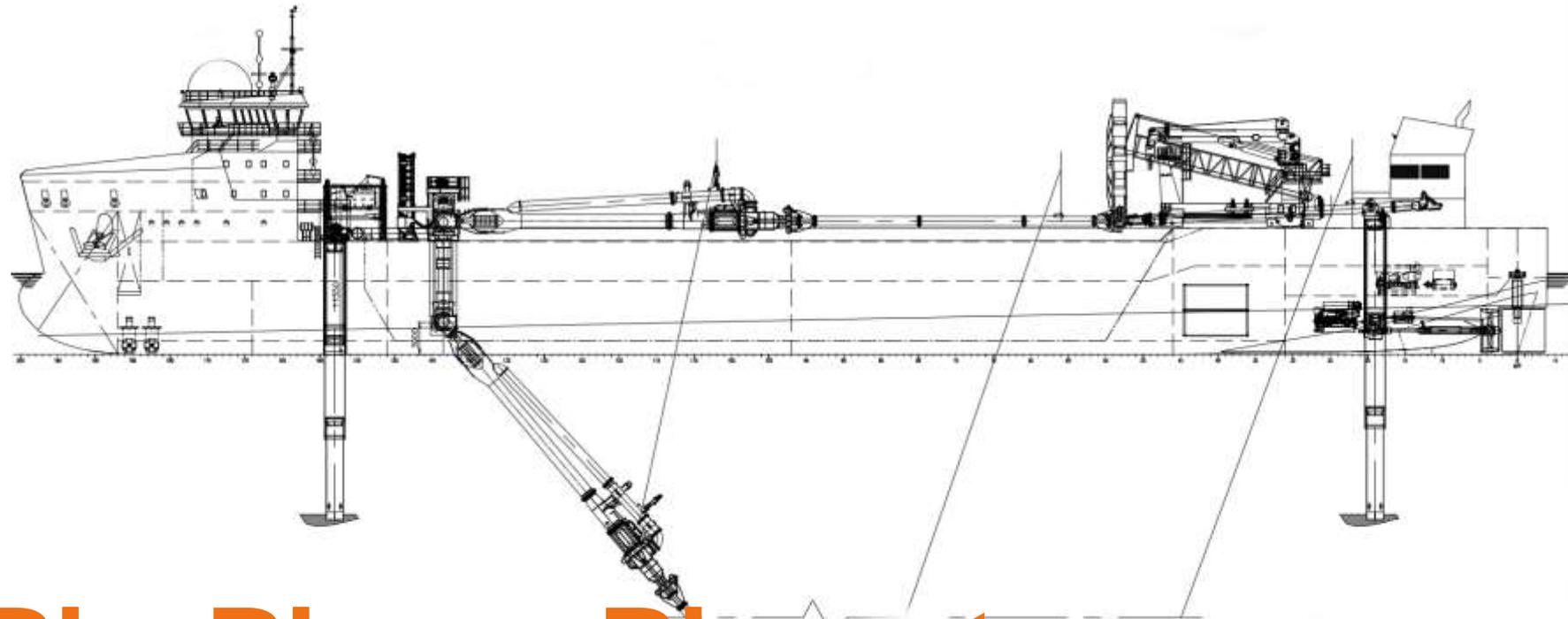
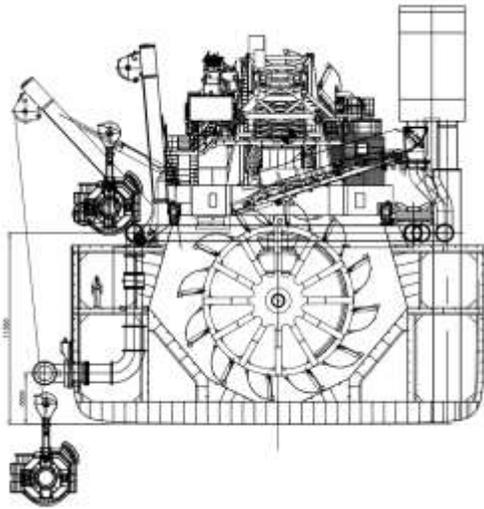
Maintenance

- Dredge pipes
- Screening decks
- Winches below deck
- Covered fore-castle



MARINE AGGREGATE DREDGER

MAD Developments



Big, Bigger, Biggest

MARINE AGGREGATE DREDGER

MAD Developments

- E-Tug



- E-Ferries



- E- Sand mining Dredger



Future Fuels

MAD Developments

- LNG driven Liquified Gas Carrier
- Diesel, Hydrogen and solar panels driven cargo vessel
- Ammonia
- TSHD conversion to LNG



Future Fuels

DAMEN

