Wind propulsion for commercial shipping

Katja Baumann

21st of April 2017

MARIKO

External structure

Hochschule Emden/Leer – Fachbereich Seefahrt

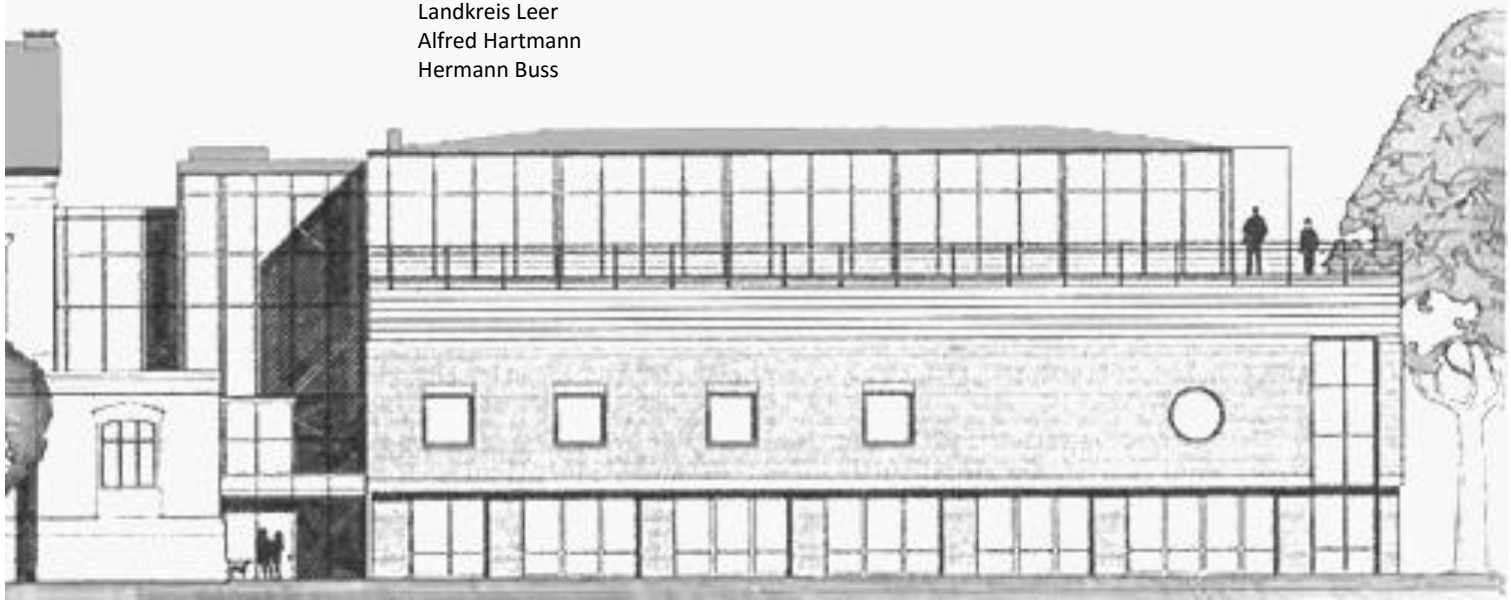
MARIKO – Das Maritime Kompetenzzentrum Leer

MARIKO GmbH

Reederverein Ems-Dollart e.V.

Nautitec GmbH & Co. KG

Gesellschafter:
Landkreis Leer
Alfred Hartmann
Hermann Buss



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Maritime Training

Maritime training of seafarers according to international STCW standards:

- Basic Safety Training
- Survival Craft and Rescue Boat
- Fast Rescue Boat
- Advanced Fire Fighting
- Security Awareness Training
- Refresher for all trainings

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Research, innovation and cooperation

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Maritime Innovations in Green Technologies

GreenShipping Niedersachsen

D-ZIB Deutsches Zentrum für innovative Binnenschifffahrt
EIBIP | European Inland Barging Innovation Platform

Maritimes Cluster Ems-Achse

LNG Initiative Nordwest

OFFSHOREHUB DIE OFFSHORE-REGION EMS-ACHSE

MariTIM
Maritime Technologien und Innovationen
Modellregion Deutschland/Niederlande

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Wind propulsion ideas and concepts

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Properties of a modern wind propulsion system in commercial shipping

- Safe operation
- Easy to handle
- No additional crew
- No special training needed
- Good efficiency

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Hybrid wind propulsion

Wind propulsion system is only used additionally if conditions are favorable

Main engine can be throttled back as wind propulsion increases

Saving fuel while still maintaining reliable service speed and schedule

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- 12 innovation projects in 4 work streams

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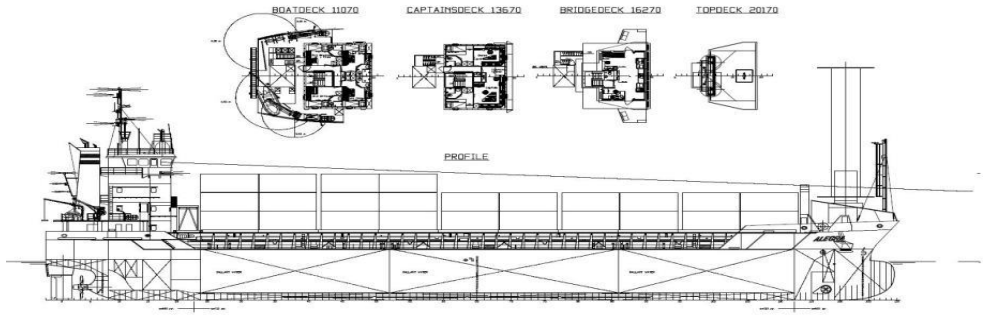
Wind Propulsion in Commercial Shipping

Innovation Projects

- Windship – Engineering and Design
- Windship Modelling and Voyage Optimization
- Green Water Taxi



Goals

- Development of market-ready wind propulsion systems (EcoFlettner)
- Improvement of thrust prediction programs for additional power from wind propulsion
- Integration of wind propulsion power in route planning and -optimization
- Development of high efficient small scale wind assisted ships

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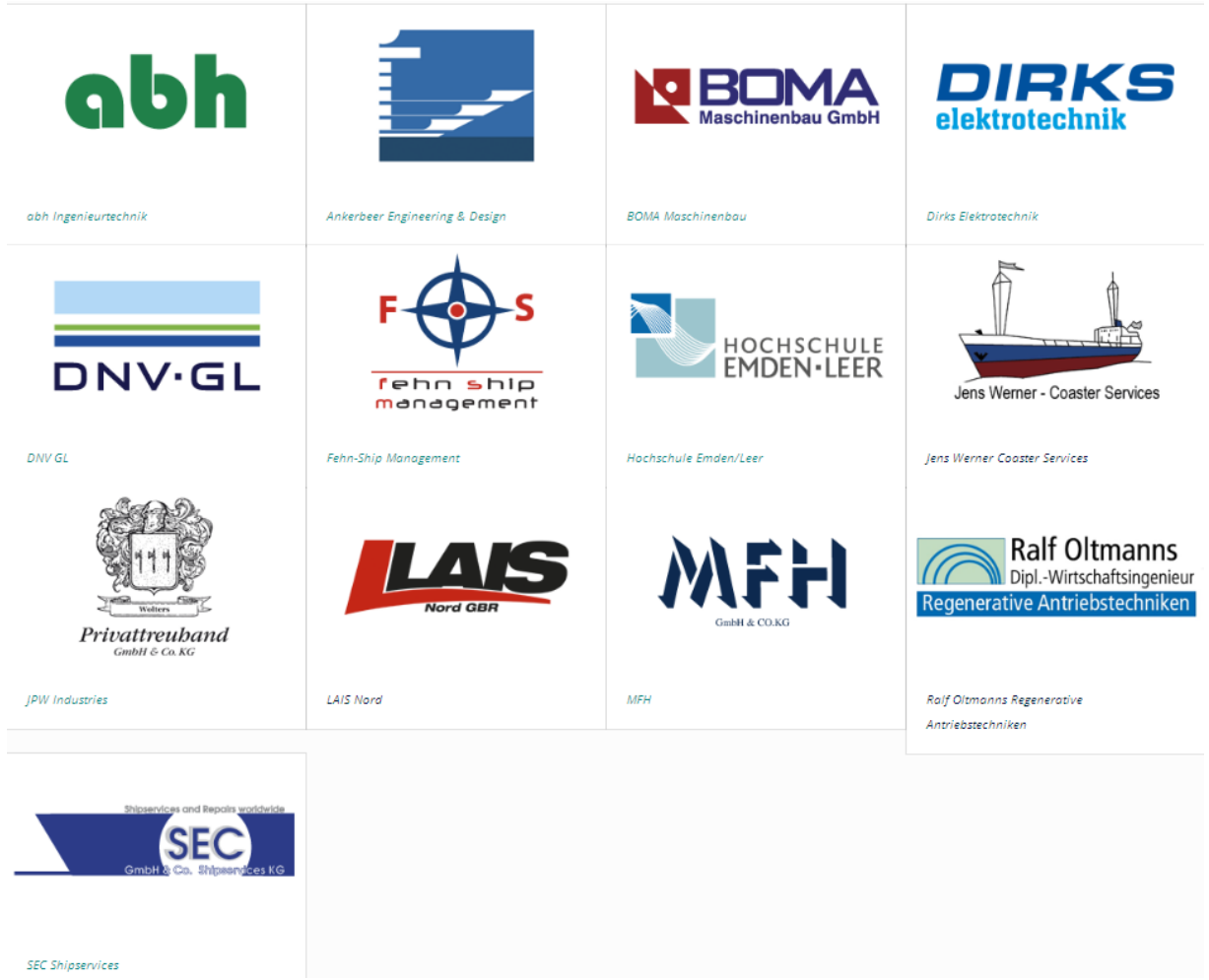
Wind ship – Engineering and Design



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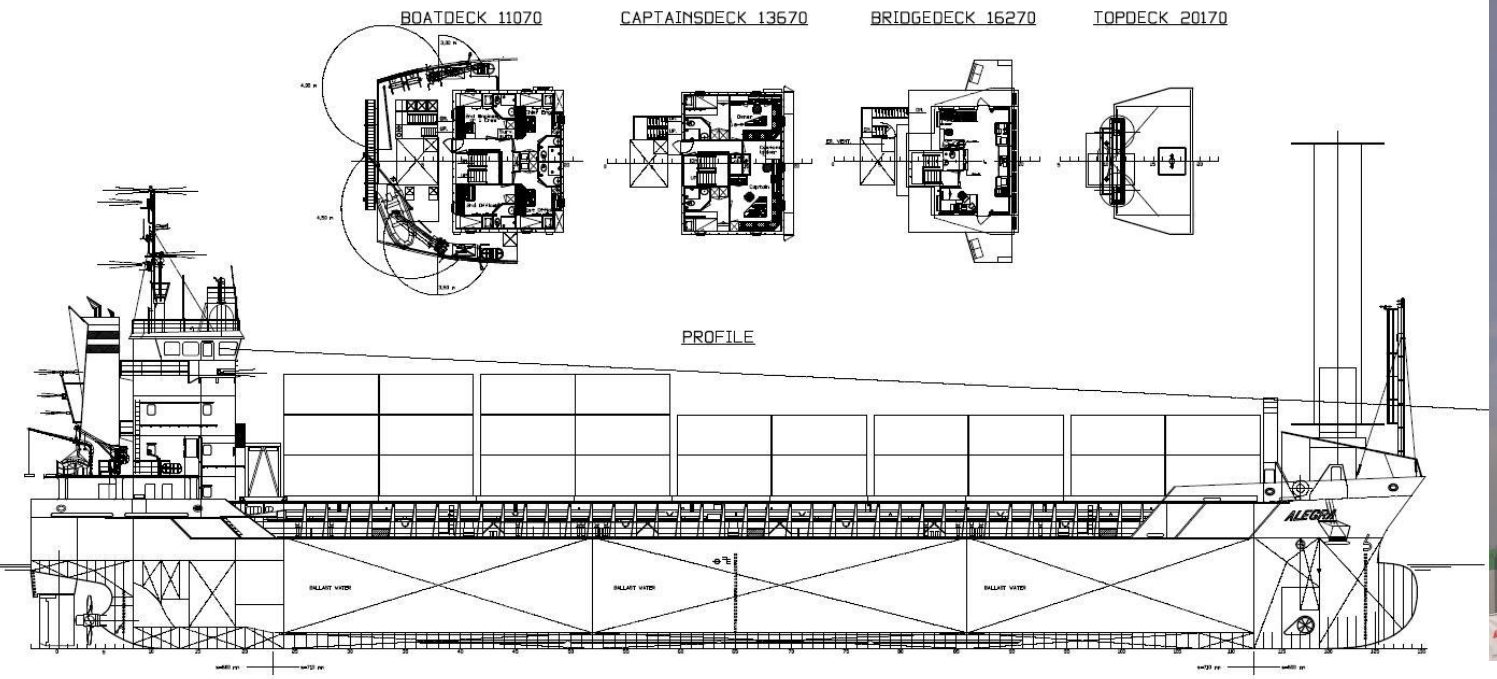
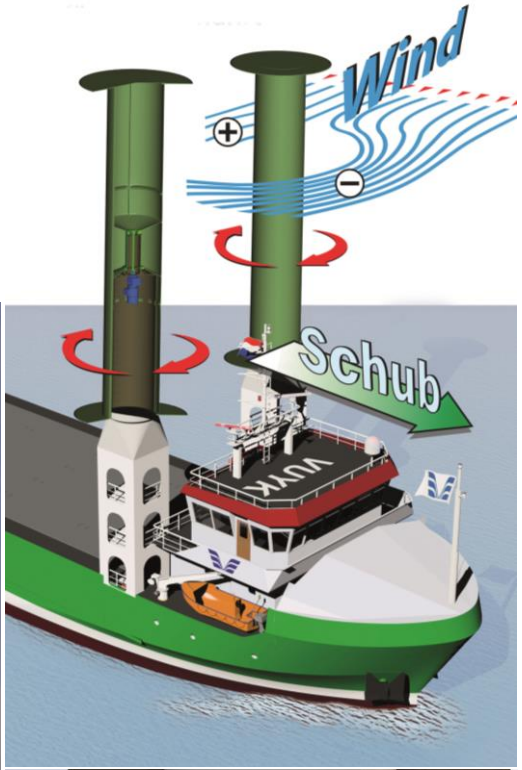
Wind ship – Engineering and Design





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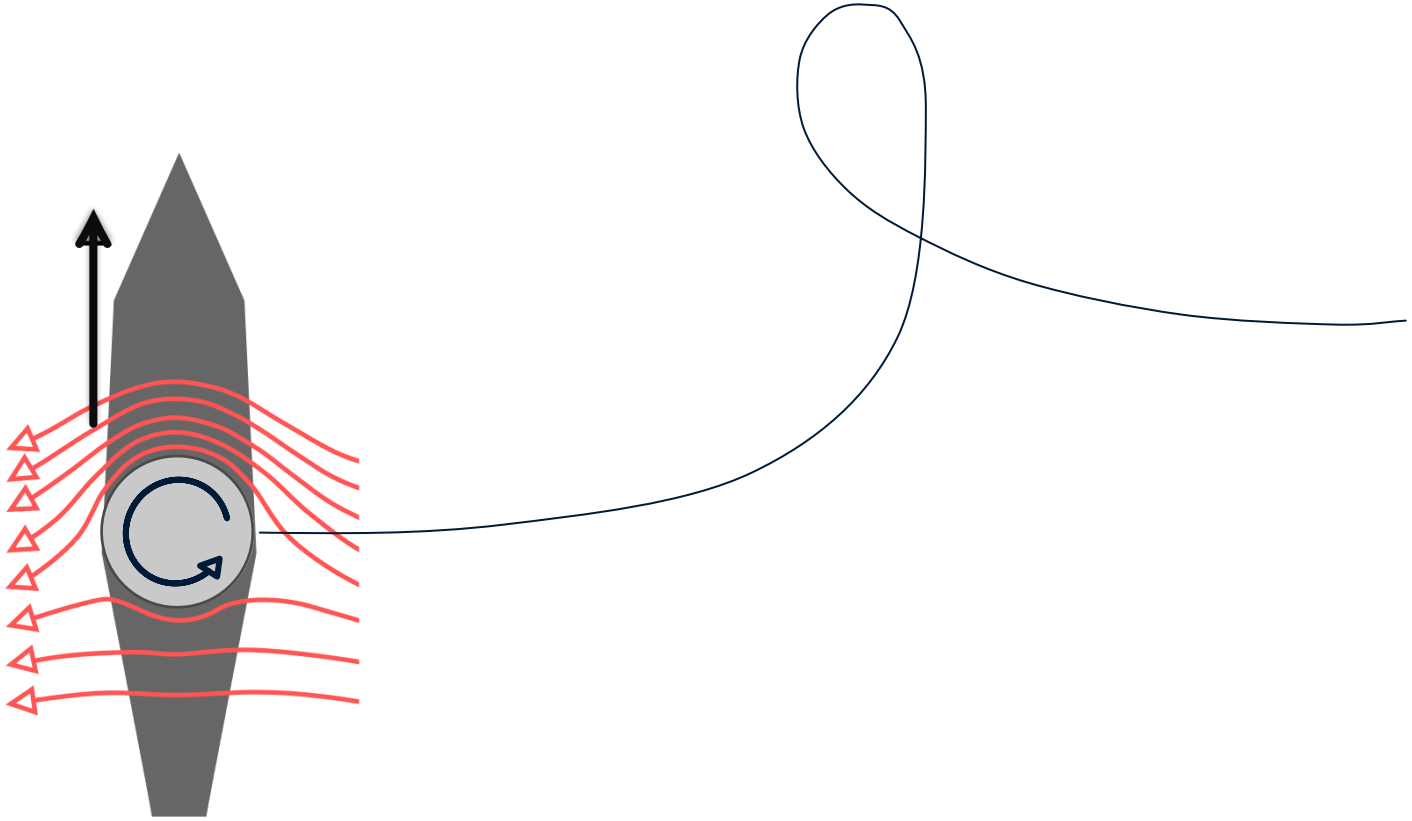
Wind ship – Engineering and Design



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Wind ship Modelling and Voyage Optimization

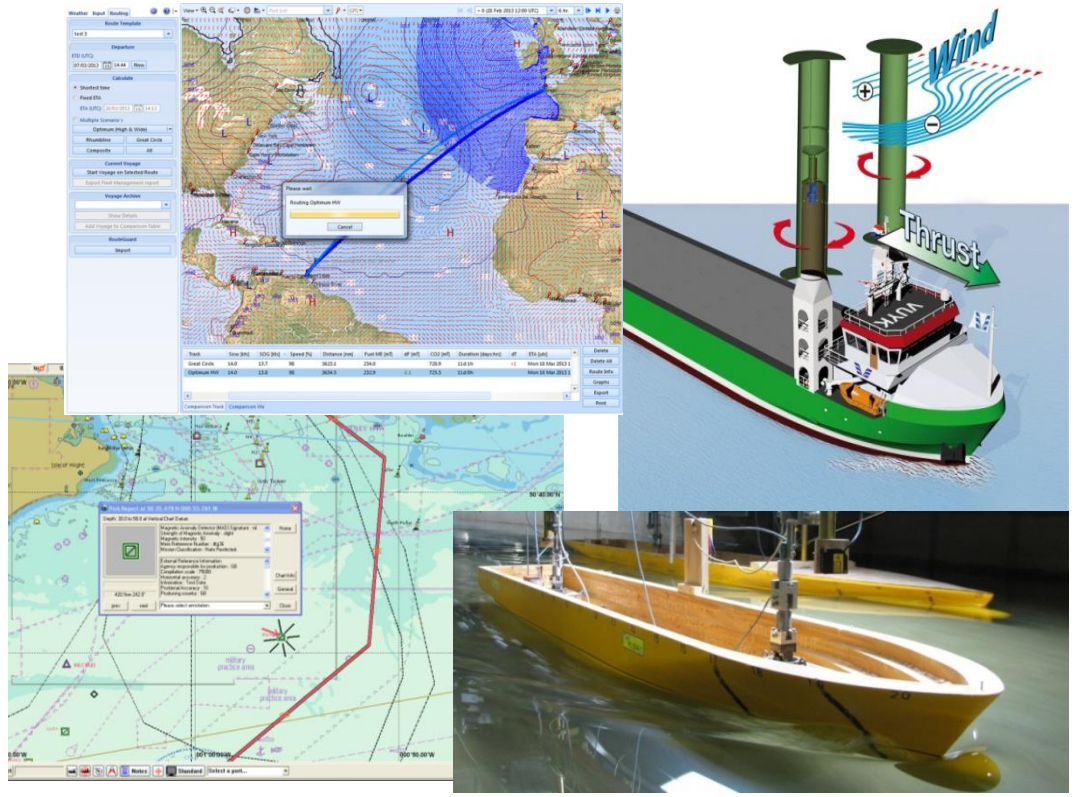
DST

Hochschule Emden/Leer

Meteo Group

Pronk Maritiem

SevenCs



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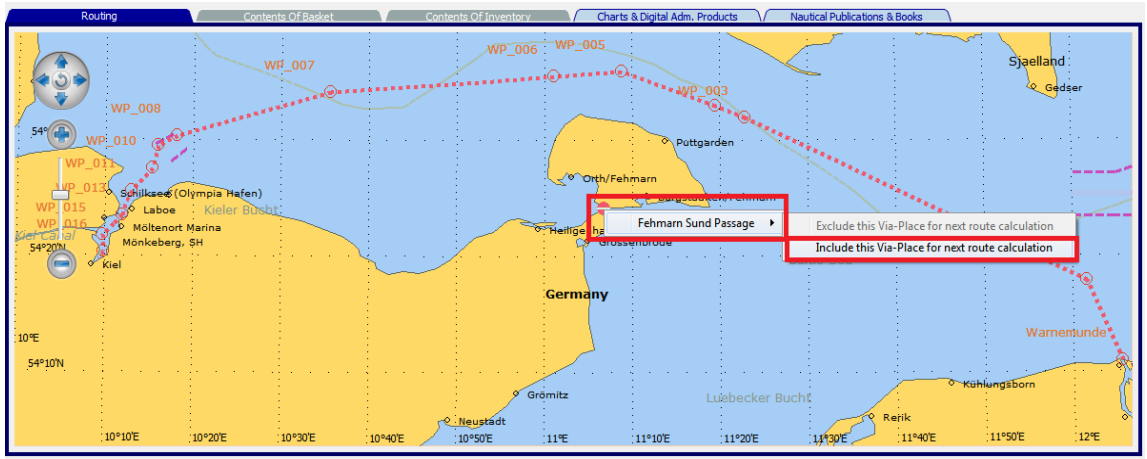

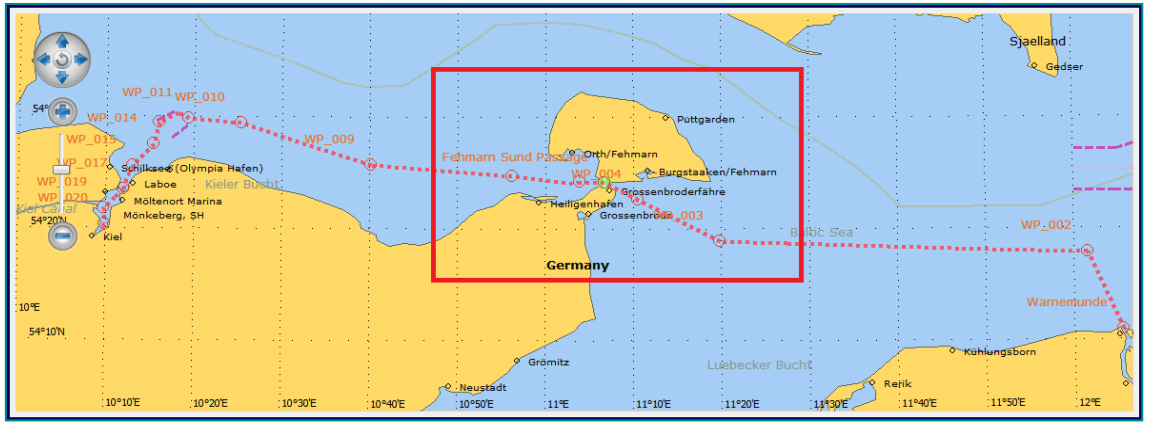

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Green Water taxi

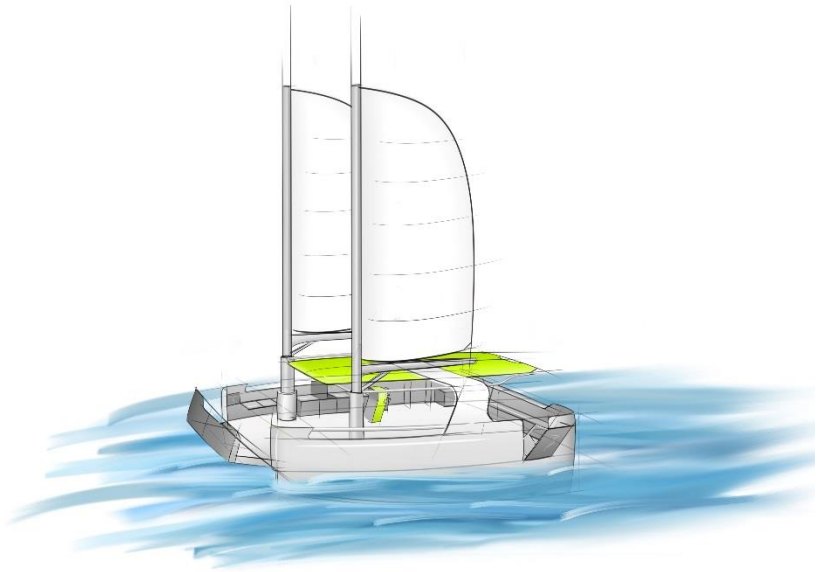
AG Reederei Norden-Frisia

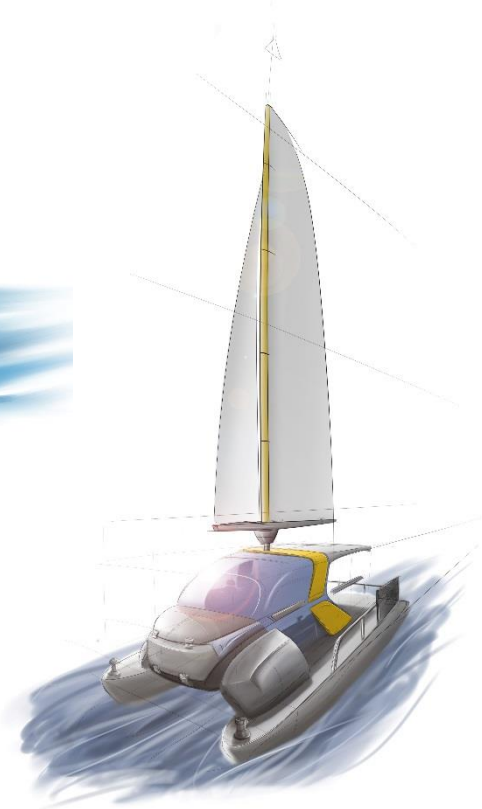
DW Shipconsult

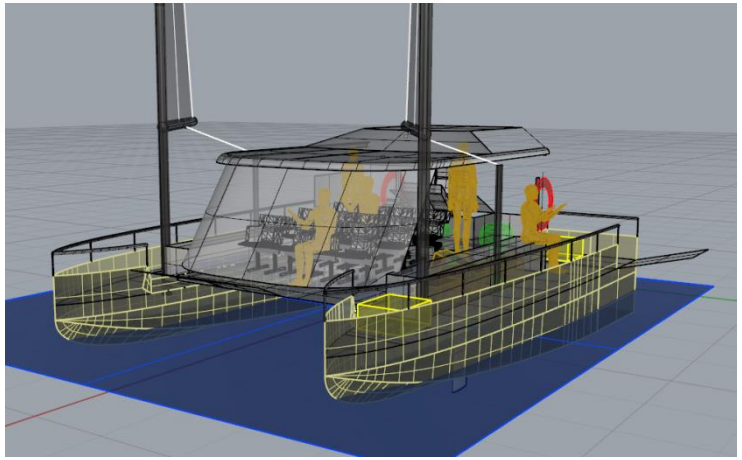
Hochschule Emden/Leer

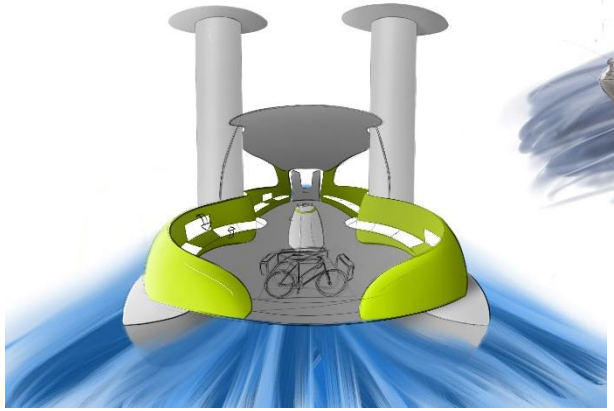
MFH

RR Maritime Engineering B.V.









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Kompetenzzentrum GreenShipping Niedersachsen

Handlungsfelder

Schiffstechnik & Design

- Antifouling
- CO_2 Monitoring
- Performance Monitoring

Innovative Antriebssysteme

- Alternative Kraftstoffe
- Abgasreinigung
- Projekt: GreenSailer

Simulation & Sicherheit

- Projekt: GreenMEPS

Logistik und Routing

- Trim Optimization

Green Ports

- Regenerative Landstromversorgung
- Schiffsrecycling

GreenShipping Niedersachsen

Green Sailer

Multifunktionsschiff mit Zero-Emission-Technologien

University of Applied Sciences
HOCHSCHULE EMDEN·LEER

Forschung

- Green Shipping
- innovative Schiffstechnologien
- Meeres- und Klimaforschung

Ausbildung

- Praktika und Studienfahrten
- Nautik und Schiffsbetriebstechnik
- Meereswissenschaften

Ladung

- Fair Trade and Transport
- Carbon Free Transport – Zero Emissions
- Küstenverkehr und Inselversorgung

Passagiere

- Nachhaltiger Seetourismus
- Bildungsreisen – schwimmende Universität
- Notfallversorgung

Thank you for your attention

Contact

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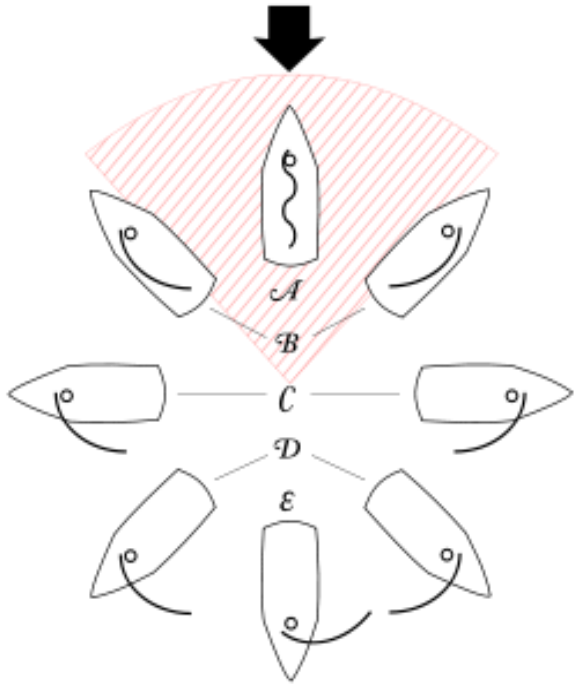

Operational profile

- Wind from dead ahead not possible
- Wind from dead astern not effective
- Reaching is most effective

→ Wind conditions along the route are crucial for determining the saving potential

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Green Water taxi

Parametric Fast Hull

Working principle

Parametric fast hull	Conventional hull
Lifts at even keel	Climbs the bow wave

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