



**BLUE
MISSION
BANOS**



Funded by
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**Supporting the Mission Ocean Lighthouse
in the North and Baltic Sea**

**EU Instruments supporting
Green Shipping**

Jaap Gebraad

Waterborne



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Karl Jivén

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EU instruments
to support
Green Shipping

What are the obstacles for the industry today

Karl Jivén

Researcher, IVL Swedish Environmental Research Institute

Lighthouse Focus group - Fossil free shipping

Background:

- The transition we are facing is huge
- Anyone who today has to order a new ship that is expected to last 20-40 years is faced with difficult choices
- There is also a lack of solutions for existing ships
- Need for further national investment for better coordination in the area of "maritime transition towards sustainability"

The goal of Lighthouse regarding focus groups is to:

- Generate concrete project ideas based on identified needs and opportunities,
- Initiate and coordinate applications or project proposals for the industry program Sustainable Shipping as well as other financiers

*Started
Feb 2022*

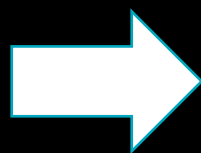
LIGHTHOUSE REPORTS

Lätta elfartyg – Electric Light

Lightweight and electrically propelled Ro-Pax ships



An innovation project carried out within the Swedish Transport Administration's industry program Sustainable Shipping, operated by Lighthouse



LIGHTHOUSE
SWEDISH MARITIME COMPETENCE CENTRE

LIGHTHOUSE REPORTS
Low carbon marine freight
the possibility to introduce biobased fuels as marine fuels

Triple F
Reportnumber 2019.X.X

August
2019

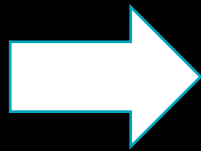
A feasibility study

www.lig

Biofuels for low carbon shipping

HULDA WINNES, ERIK FRIDELL, JULIA HANSSON AND
KARL JIVÉN,
IVL SWEDISH ENVIRONMENTAL RESEARCH INSTITUTE

TRIPLE F
FOSSIL FREE FREIGHT



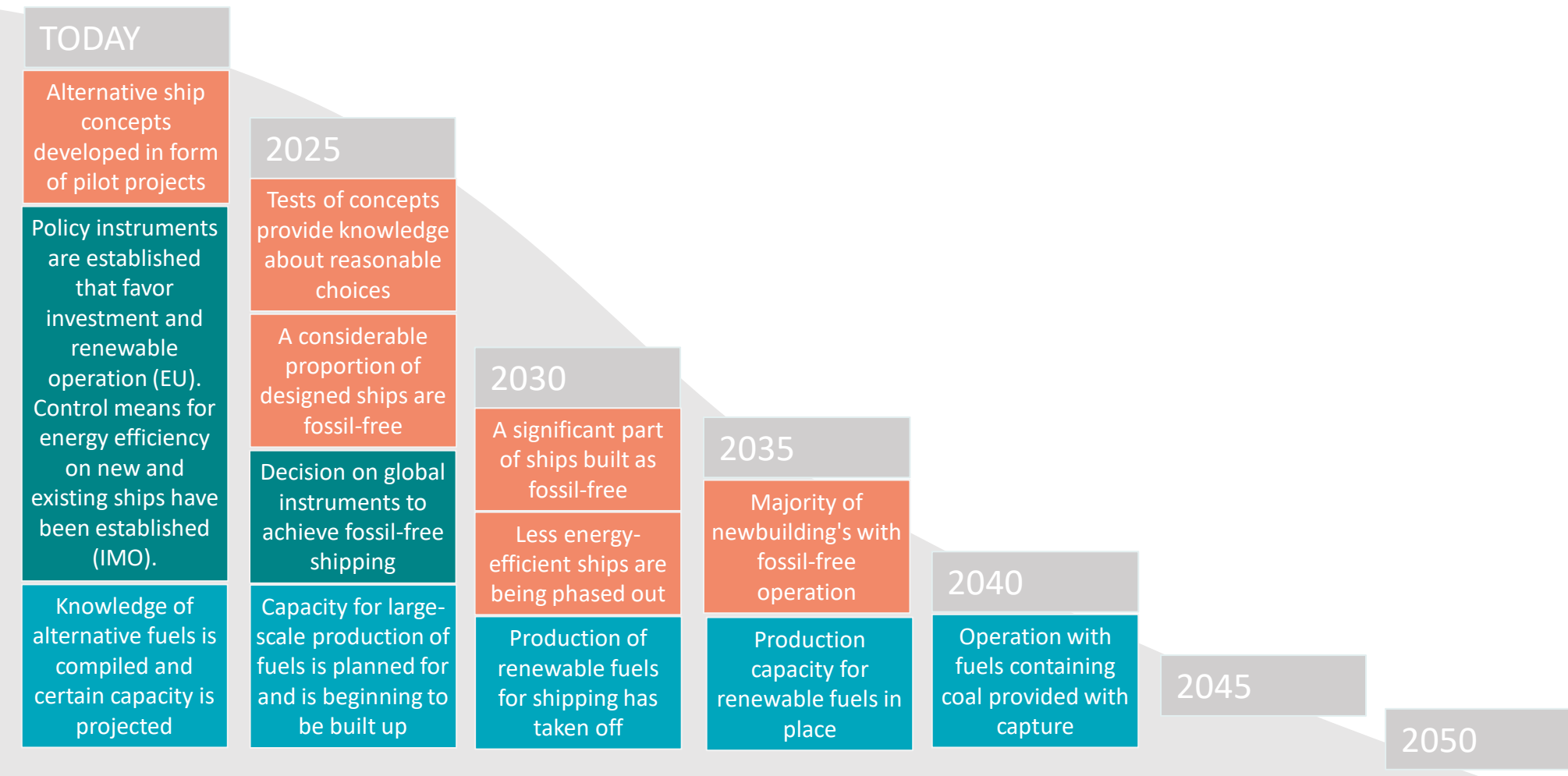
Sail into
the future



TERNTANK
Shipping, Chartering &
Ship Management

What will it take to bring about the transition?

- Energy efficiency and fossil-free ship operation
- Funding and policy instruments
- Fossil-free fuel including CCS



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TODAY

Alternative ship concepts developed in form of pilot projects

Policy instruments are established that favor investment and renewable operation (EU). Control means for energy efficiency on new and existing ships have been established (IMO).

Knowledge of alternative fuels is compiled and certain capacity is projected

2025

Tests of concepts provide knowledge about reasonable choices

A considerable proportion of designed ships are fossil-free

Decision on global instruments to achieve fossil-free shipping

Capacity for large-scale production of fuels is planned for and is beginning to be built up

2030

A significant part of ships built as fossil-free

Less energy-efficient ships are being phased out

Production of renewable fuels for shipping has taken off

2035

Majority of newbuilding's with fossil-free operation

Production capacity for renewable fuels in place

2040

Operation with fuels containing coal provided with capture

2045

2050

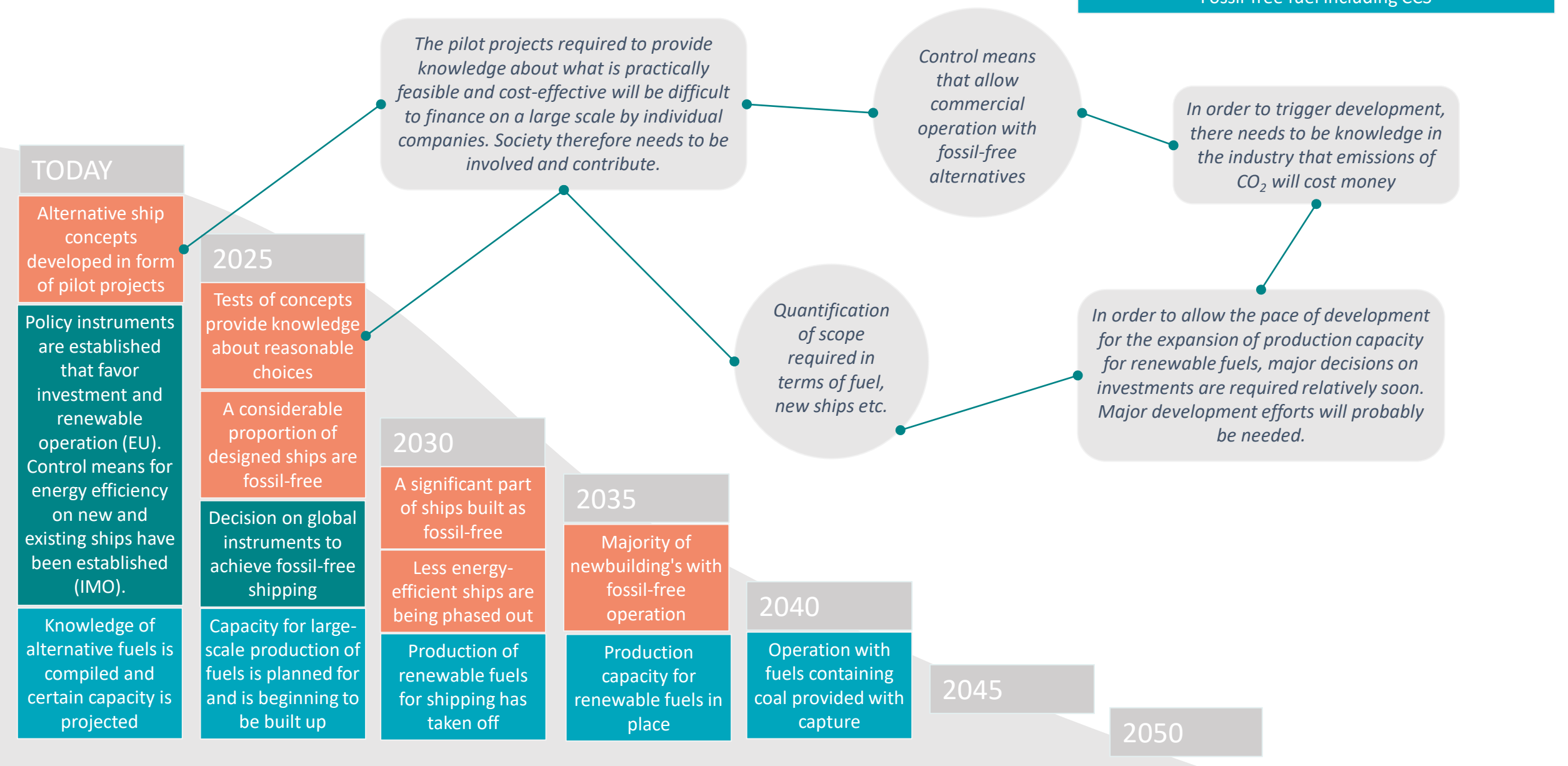
The pilot projects required to provide knowledge about what is practically feasible and cost-effective will be difficult to finance on a large scale by individual companies. Society therefore needs to be involved and contribute.

Control means that allow commercial operation with fossil-free alternatives

In order to trigger development, there needs to be knowledge in the industry that emissions of CO₂ will cost money

Quantification of scope required in terms of fuel, new ships etc.

In order to allow the pace of development for the expansion of production capacity for renewable fuels, major decisions on investments are required relatively soon. Major development efforts will probably be needed.



Lighthouse Focus group - Fossil free shipping

Knowledge base for fossil-free shipping (June 2023)
with associated material in areas such as:

- Possible solutions for fossil-free shipping
- Information on regulations and policy tools
- Initiatives and research projects listed
- Compilation of possible financing support
- Compilation of current forums, initiatives and cooperation bodies for the transformation of shipping



What needs to happen to complete the transition?

- Implementation of sufficiently effective control instruments
- New solutions to be developed, tested and refined
- Solutions needs to be scaled up without large effects on other areas
- More of partnership and cooperation between all actors

Next phase:

- Concepts to become more mature and proven
- Drive down costs for sustainable solutions
- Secure the financing of fore-runners

THANK
YOU!

Any questions,
please get in touch!

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Jennie Larsson

Swedish Maritime Authority



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Sustainable alternative fuels in the waterborne transport sector in Sweden

Waterborne: States Representatives Group Meeting
2023-03-30



Jennie Larsson, Research Coordinator, Swedish Maritime Administration

Anders Palm, Research Coordinator, Swedish Maritime Administration

Responsible Administrations

Transport Agency

- Regulation
- Supervision
- Permit applications
- Maintaining records

Maritime Administration

- Dues and fees on merchant shipping
- Fairway dues
- Shall be leaders in the transformation to a Fossil free fleet (governmental funding)
- Dredging fairways
- Navigational charts – new S100 standards (more info to plan more sustainable routes)

Coast Guard

- Responsible for detecting and responding to oil spills and leakages at sea
- Environmental monitoring
- Receiving notification in advance from merchant ships

Agency for Marine and Water Management

- Responsible to protect, restore and ensure sustainable use of our sea and lakes
- Regulating marine management (noise, water pollution, water quality, etc)
- Responsible for national marine spatial planning
- Environmental monitoring
- Ship wrecks
- Funding & Support

Transport Administration

- Responsible for long-term planning of the transport system for all types of traffic
- Funding & Support through shipping portfolio

Env. Protection Agency

- Conducts and coordinates Sweden's environmental work
- Work to preserve biodiversity, reduce climate impact and contribute to a resource-efficient society
- Regulations regarding biodiversity
- Funding for research on batteries

Energy Agency

- Leading society's transition to a sustainable energy system
- Funding and support for Research and Innovation (not specifically for shipping anymore)

National Road and Transport Research Institute

- Research institute in the transport sector
- Task to conduct research and development related to infrastructure, traffic and transport



Swedish focus regarding sustainable fuel alternatives

- When selecting sustainable fuel alternatives: Use a life-cycle perspective and evaluate the total environmental impact, not only emissions to air
- Emissions to water are becoming more important (pollution from scrubbers, tank cleaning, prewash and underwater noise, handling future "oil spills" and new fire risks with new fuels)
- Focus on energy efficient measures together with alternative fuels , such as retrofitting, antifouling, operational measures
- Focus on better navigational products (S100 standards) in order to be able to better plan energy efficient and less environmental damaging trips

PESTEL Analysis of Sweden





Political Aspects

- Political decision in 2017 to become fossil free in 2045. GHG emissions from national transport sector shall be reduced by 70% during 2010-2030
- Political situation might change
- Suggestion to update and renew the Swedish Maritime Strategy from 2015 (involve blue economy)
- Baltic Sea Action Plan

Economic Aspects



- Fairway dues and fees (environmental tariff)
- Reduced energy tax when connecting to shore power
- Eco bonus for transferring from land to ship
- Funding and support for more sust. fuel alternatives (R&I Funding)
- Fossil free fleet initiative – SMA given 45 million SEK to transform fleet
- Swedish shipping companies willing to transform



Social Aspects

- Collaboration platform and focus groups (Lighthouse)
- Collaboration platform for other transport sectors (CLOSER)
- Collaboration network for universities (Swedish Institute for the Marine Environment)
- Collaboration platform authorities (Vinnova)



Technical Aspects

- Focus on energy efficient measures together with alternative fuels, such as:
- Retrofitting
- Antifouling
- operational measures
- New digital navigational charts – S100 standards (possible to plan more energy efficient travels)



Environmental Aspects

- Need to include the total environmental impact when switching to alternatives, not only GHG emissions
- More focus on water regulations and destruction of the marine ecosystem (buffer for climate change)
- Suggestion to focus more on pollution from scrubbers
- New fuels might cause other environmental effects – need to explore (both impact from ordinary operation and accidents)



Legal Aspects

- Reduction duty (70% goal by 2030, fossil free 2045)
- Connect to shore power
- Tax and reduction duty on recreational vessels
- Green corridors – Sweden has signed the Clydebank-declarationen
- Work with EU and IMO



Swedish needs regarding sustainable fuel alternatives

- Environmental: more focus total environmental impact, not only emissions to air (water, noise, etc)
- Economical: Need for more funding for the transition
- Innovation: More funding for implementation and not only innovation
- Technical: Need for more clarity around which infrastructure to plan for/invest in (need for common planning)

Further Questions

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SJÖFARTSVERKET



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What are the actions needed? in your perspectives



What action can you contribute to?



Who else is needed in the actions?



New partnerships

2an Mission Arena sessions

