



Energy transition in the fisheries sector

Relevant examples of Research and Innovation projects from Horizon 2020 and Horizon Europe for the fisheries sector

INTER-ADVISORY COUNCILS (INTER-ACs) MEETING. 29 April 2022

GABRIEL MIALOCQ

HEAD OF SECTOR WATERBORNE AND AVIATION R&I. CINEA

Agenda

- Overview of CINEA and R&I portfolio of project
- Relevant examples of R&I projects from Horizon 2020 and Horizon Europe for the fisheries sector

Overview of CINEA and R&I portfolio of project

European Climate, Infrastructure and Environment Executive Agency (CINEA) in a nutshell



~ **58 billion** for the period
2021-2027

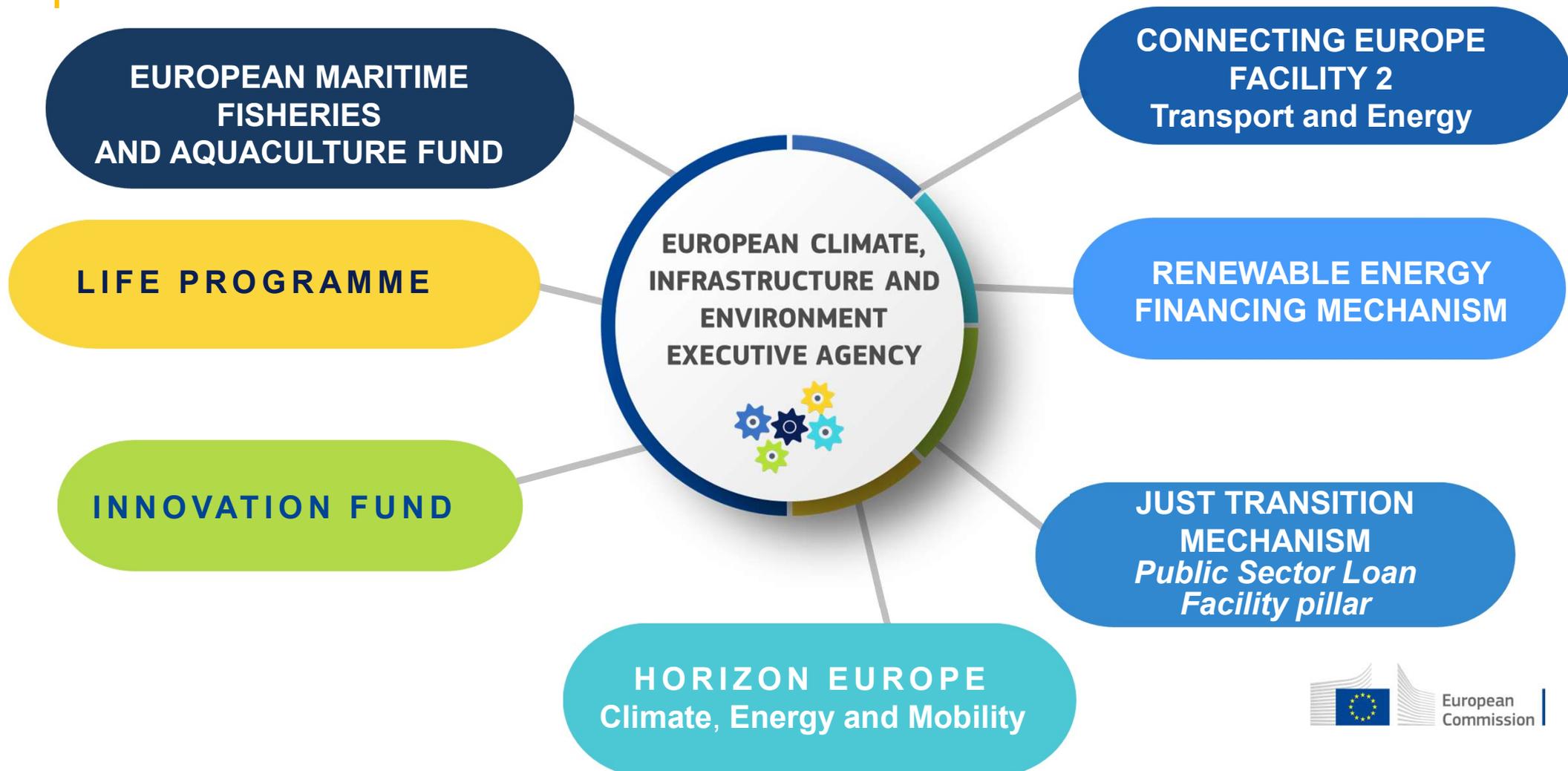


> **500 staff** by 2027



From 2800+ projects
managed in October 2021
to > **4500 projects** in 2027

CINEA is a key contributor to the Green Deal by implementing major EU programmes



CINEA

The Horizon 2020 Waterborne portfolio

H2020 WATERBORNE PORTFOLIO (2014-2021)

CINEA's Horizon 2020 waterborne portfolio covers projects funded via:

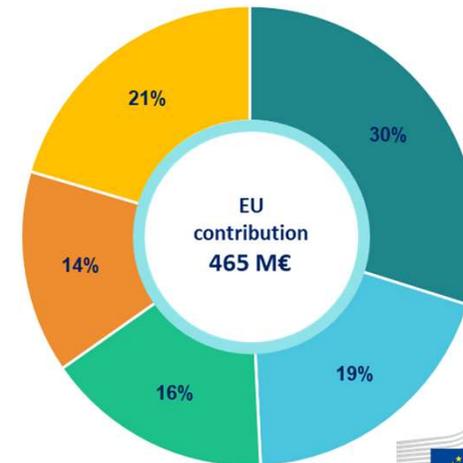
BLUE GROWTH
waterborne transport related topics

2020 GREEN DEAL CALL / AIRPORTS & PORTS TOPIC / PORTS SUBTOPIC

MOBILITY FOR GROWTH
waterborne transport topics (and related topics)



- Energy efficient and zero emission vessel
- Innovative shipbuilding and complex value-added specialised vessels
- Safer and more efficient waterborne operations
- Infrastructure
- New and improved waterborne transport concepts



Relevant examples of R&I projects from Horizon 2020 and Horizon Europe for the fisheries sector

Alternative fuels: project FASTWATER

- **Coordinator:** LUNDS UNIVERSITET
- **Budget:** € 6.400.000 (5M EU funding)
- **Duration:** 4 years. June 2020 – May 2024

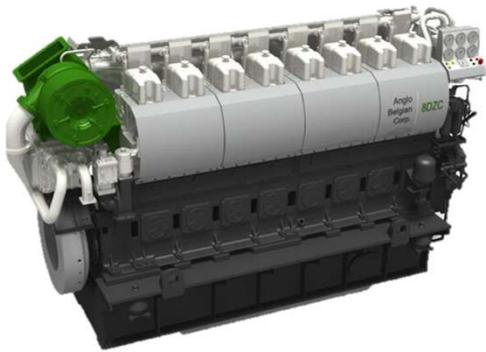
- **Website:** fastwater.eu

- **Objectives**

FASTWATER is developing and demonstrating an evolutionary pathway for methanol technology, including retrofit solutions as well as next generation systems. Universal, scalable retrofit kits, medium speed and high speed methanol engines will be developed, demonstrated and commercialized.

FASTWATER

- The demos include the following engines:



Medium speed dual-fuel engines
(2 MW demo engines, 1 – 4 MW
commercial offering)



High speed
"MD97" engine
(400 kW demo engine, 150 – 450
kW commercial offering)



High speed dual-fuel engine retrofit
(200 kW demo engine)

FASTWATER demonstrators

Harbour tug, medium speed engines,
2 x 2 MW, Antwerp, BE



Sailing end of 2022



River cruise vessel design, DE

Pilot boat, high speed engine 400 kW, Oxelösund, SE



In operation since Dec. 2021
No PM, no SO_x, -75% NO_x
CO₂ neutral: biomethanol



Sailing end of 2023

Coast guard vessel, high speed engine 200 kW,
Athens, GR

Electric shipping: project TrAM

- **Coordinator:** ROGALAND FYLKESKOMMUNE
- **Budget:** € 15.000.000 (11M EU funding)
- **Duration:** 5 years. 2018-2023
- **Website:** <https://tramproject.eu/>

- **Mission**

To develop and validate a concept for waterborne transport by implementing modular design and production methods, with a focus on electrically powered vessels

- **Targets:**

- 25% reduction in production cost
- 70% reduction in engineering hours
- Fully electric fast sailing ferry

TrAM demonstrator

Fast passenger ferry

- Service speed: 23 knots
- Length: 30 m
- Capacity: 147 pax + 20 bikes

- Will operate route around Stavanger-Norway
- Charging point developed in Stavanger
- Capacity: 2,3 MW
- Delivery 31st May 2022



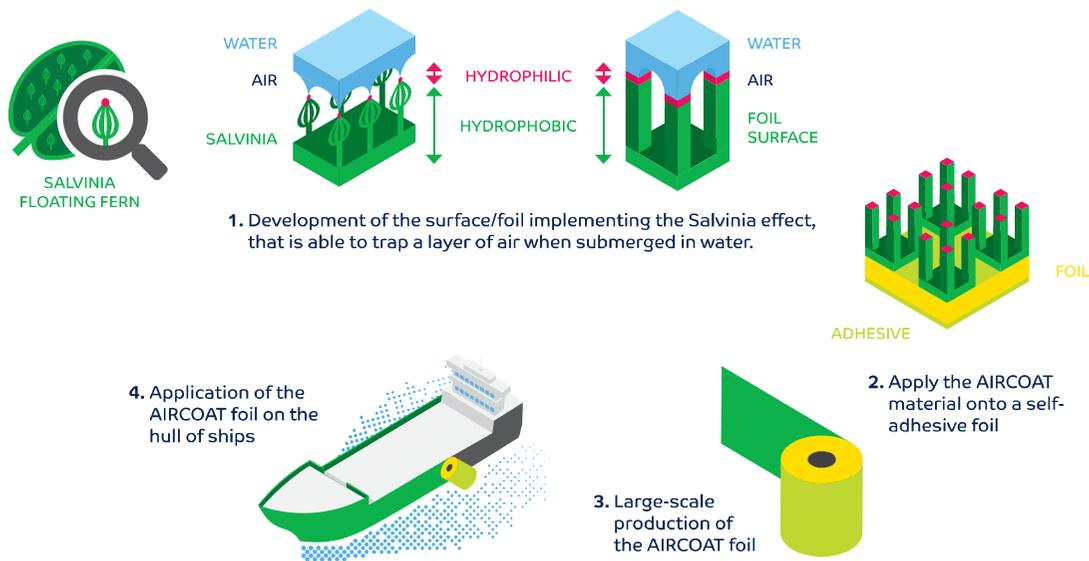


Energy performance: project AIRCOAT

- **Coordinator:** University of Vaasa
- **Budget:** : €5,299,097
- **Duration:** 4 Years. 2019-2023

- **Website:** <https://aircoat.eu/>

Objectives: To develop a passive air lubrication technology inspired by the Salvinia effect. 10% drag reduction proven



Fully coated Research Vessel



Wind technology: project WINGSAILS

- **Coordinator:** Bound4Blue, Kyma
- **Budget:** : 995.598 €
- **Duration:** 01/11/2019-01/06/2022

- **Website:** <http://aspiringwingsails.eu/>

Objectives:

- Use of B4B's new aspiring wingsail (patent pending) on a fishing vessel
- Demo journeys to evaluate performance + measure the fuel saving efficiency of the wingsail

Expected impact: reduce fuel use & emissions by up to 40% for the fishing vessel considered



Conclusion

- Fishing vessels can use results of R&I projects to select best available techniques for their use (newbuilt or retrofit)
- EU technology providers are gearing up to provide greener solutions for shipping sector. In particular in alternative fuels/engines + breakthrough technologies
- On the R&I side, focus on alternative fuels will accelerate in the coming years
- Fuel cells is also explored for mid range power needs
- Electrification is already demonstrated for smaller ships with lower autonomy
- Deployment of the technologies developed can be explored together with other funds

Keep in touch

Gabriel.mialocq@ec.europa.eu



cinea.ec.europa



[@CINEA_EU](https://twitter.com/CINEA_EU)

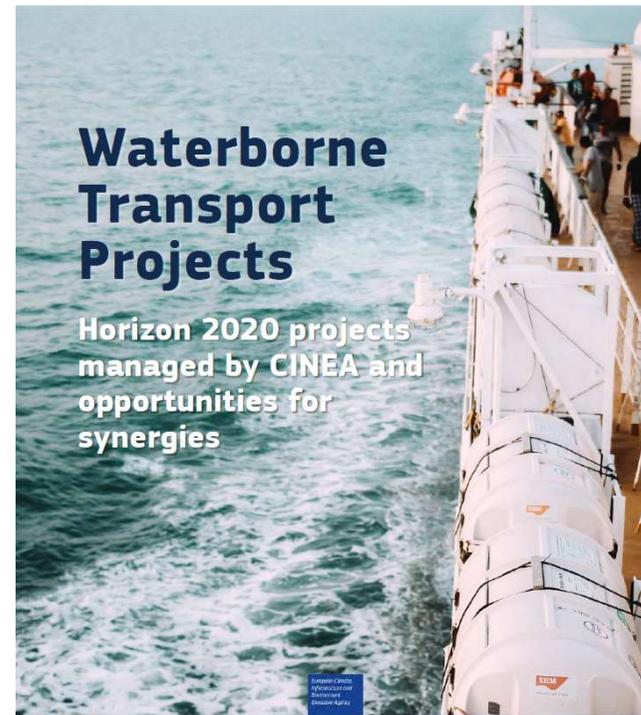


[CINEA - European Climate, Infrastructure and Environment Executive Agency](https://www.linkedin.com/company/cinea-europe)



[CINEATube](https://www.youtube.com/CINEATube)

Brochure available at:
https://cinea.ec.europa.eu/publications/h2020-waterborne-transport-projects_en



Thank you

Questions?



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Annex: additional project

Alternative fuels: project ENGIMMONIA

- **Coordinator:** Rina Consulting (Italy)
- **Budget:** € 9.500.000
- **Duration:** 4 years. 1 May 2021 - 30 April 2025
- **Website:** <https://www.engimmonia.eu/>
- **Objectives**

ENGIMMONIA tackles decarbonisation in multiple ways:

- promoting ammonia as the cleanest and most promising fuel for shipping sector also considering future EU RES driven electricity sector and understanding how to facilitate both ship and port refuelling;
- fostering replicability at business, regulatory, policy and naval classification levels, interacting with on-going international initiatives (IMO, EMSA, IACS etc.)

Challenges adressed

Commercially:

- Green ammonia production technology available, but not yet commercially developed.
- Investments necessary for large scale green ammonia production and infrastructure are two orders of magnitude larger than the cost of needed on-board equipment.

The “hen and egg” problem:

- Ship owners/operators, fuel producers, investors and regulators all require certainty that ammonia based ship propulsion can be implemented.
- Engine builders and ship yards require serious customer interest before offering solutions.

Demonstration of the technology is crucial.



Demonstration on board ANEK FERRY – ELYROS

Technologically:

Engine combustion and emission:

- Ammonia is a poor engine fuel. Ignition and combustion needs considerable engine modifications.
- Emission characteristics will be very different from conventional engines.
- Very large ammonia engines are unknown territory. The optimum configuration is unknown.

Ammonia is toxic and has an unacceptable odor in even low concentrations:

- On board handling and safety.