

A pathway to decarbonise the EU fisheries sector by 2050

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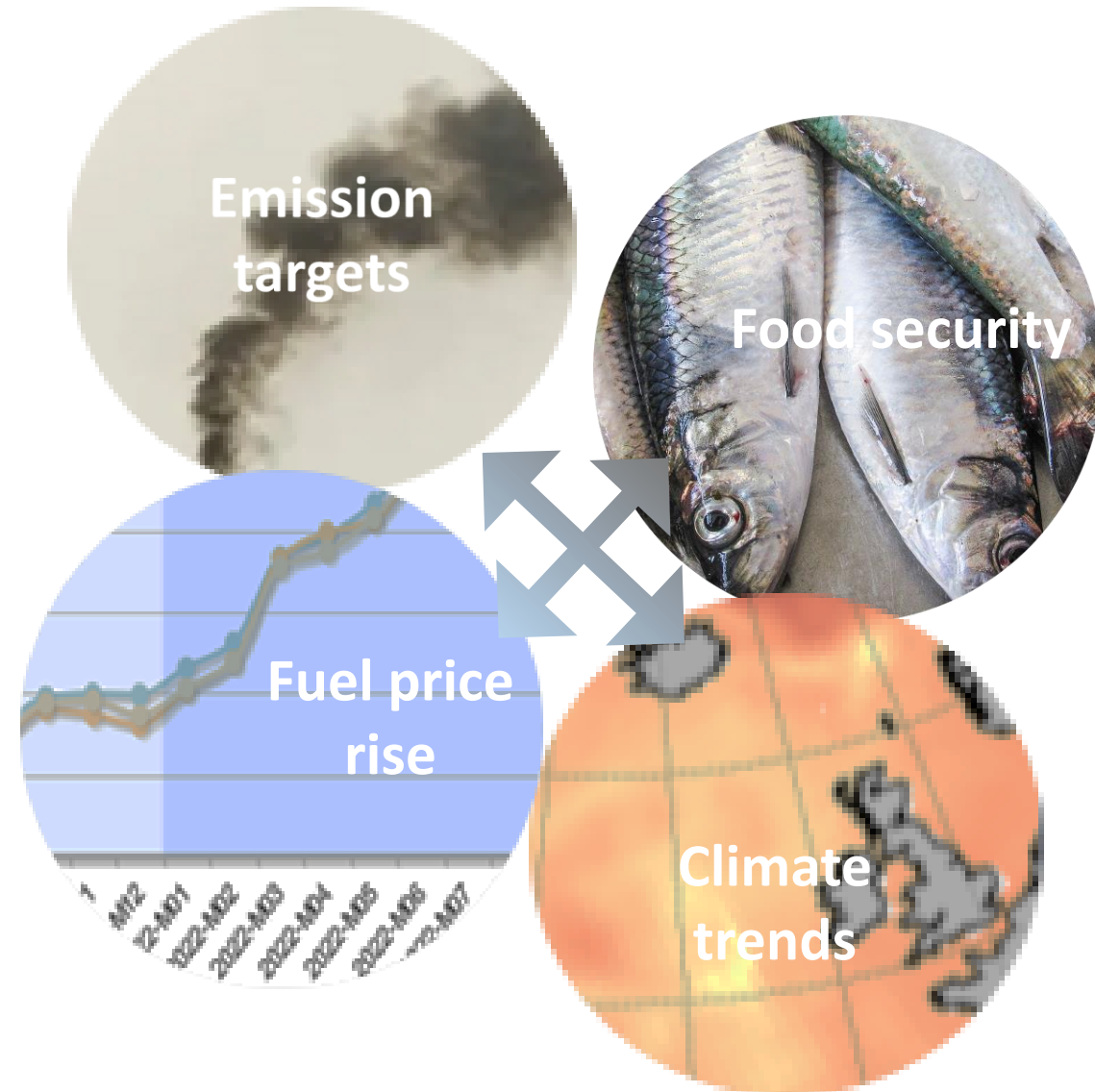
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The challenge: energy transition of the EU fisheries

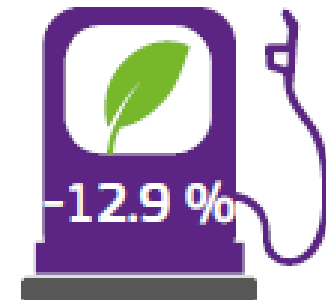
- 30-40% reduction of CO₂ emissions by 2030, a carbon-neutral fishing sector by 2050
- Ensure fisheries' contribution to food and nutrition security
- Reduce fisheries' operating costs, impacts from volatile energy prices, and dependency on foreign and unreliable fossil fuels
- Face climate change and its impacts on ocean productivity and fishing opportunities i.e. changing fish stocks productivity (growth, renewal), spatial distribution and timing



Face the unavoidable plurality of objectives: with win-wins

Reduction targets are feasible as there are existing solutions...

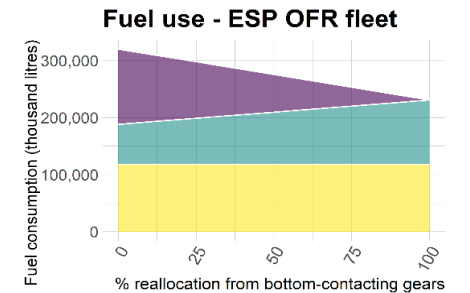
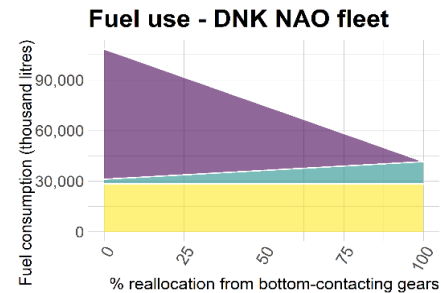
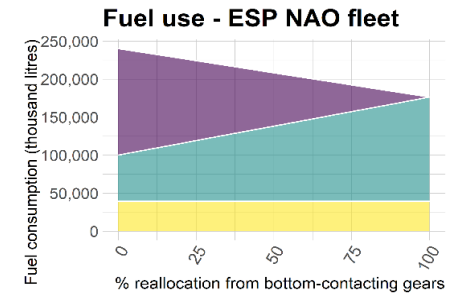
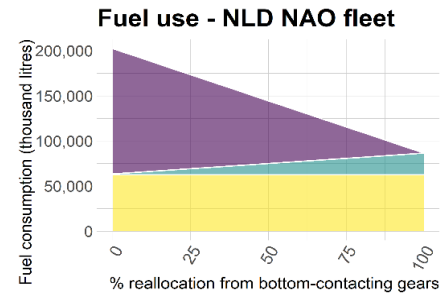
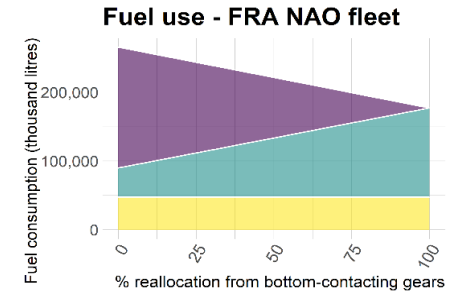
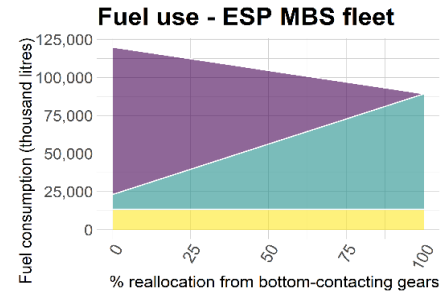
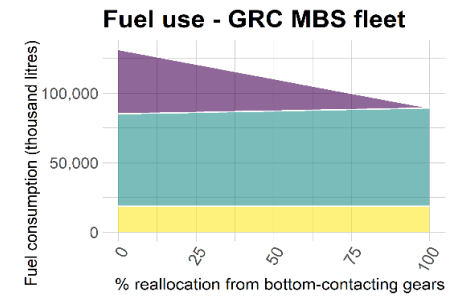
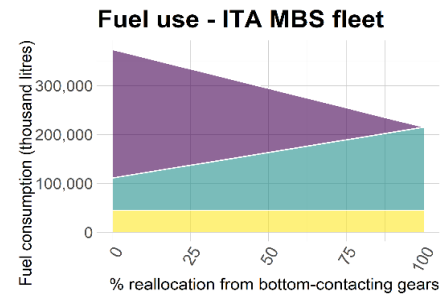
1. Implement technological solutions on the market or close-to-market innovative energy-efficient technologies (fishing gear modifications)
2. Implement more extensive changes in the long term (retrofitting vessels, shift towards “best available fishing techniques”, develop alternative fuels and propulsion)
3. plus stop the indirect emissions from degrading “blue carbon” habitats
4. Common Fisheries Policy (CFP) and environmental governance to incentivise a shift towards sustainable and responsible fisheries (e.g. eco-certification, funding) and unlock barriers



2009
to 2019

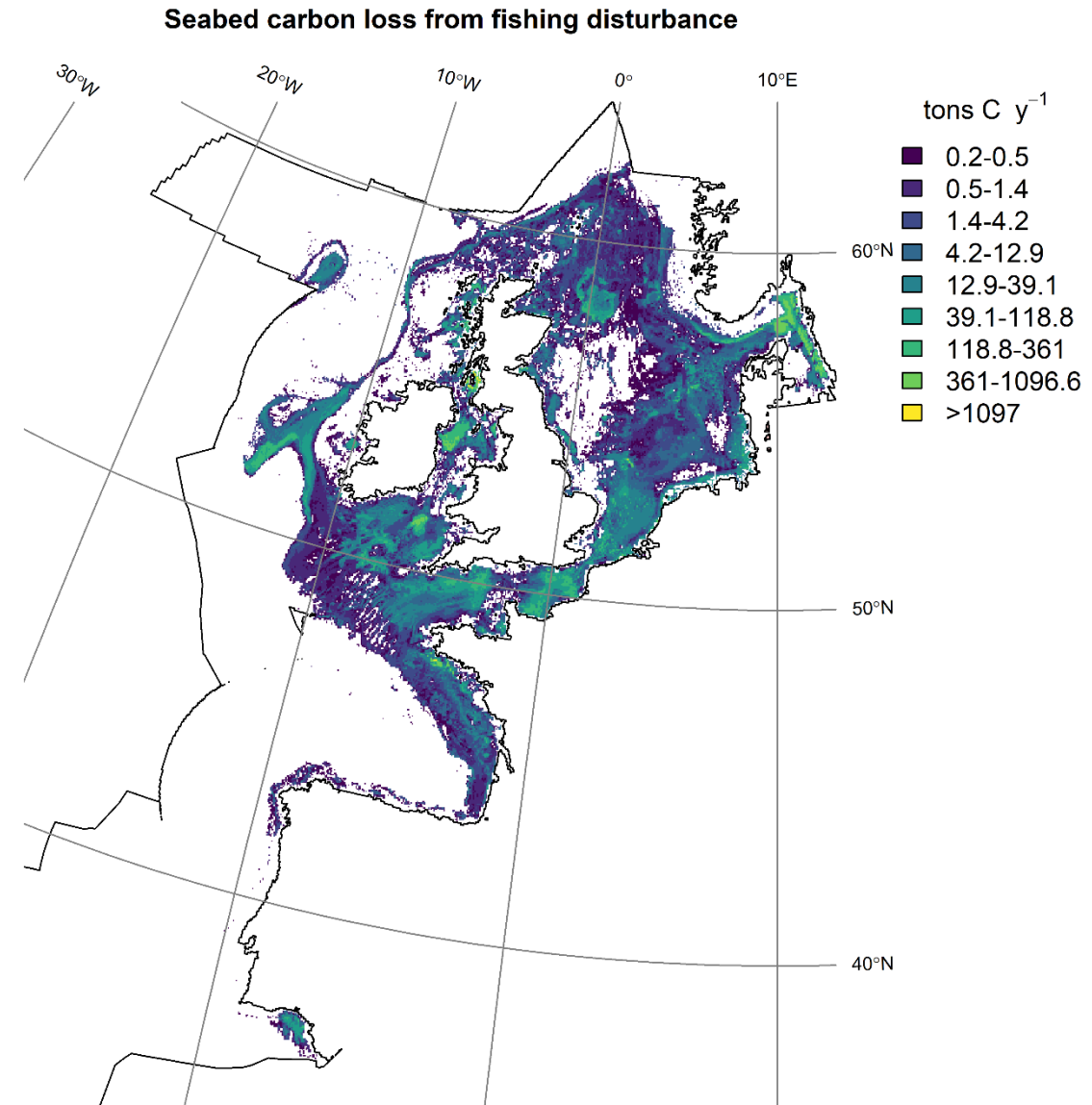
Phasing out the more energy-hungry fishing techniques...

- Bottom trawling is the least efficient fishing technique (litre burnt per kg landed), e.g. 11.4 litres of fuel per kilo caught Shrimp in the west Med.
- Bottom trawling would benefit the most from technological improvements as it is not the best available fishing technique
- Shifting from fuel intensive bottom trawling to passive gears can save millions litres of fuel (34% fuel reduction in EU when phasing out 100% of mobile bottom contacting gears)



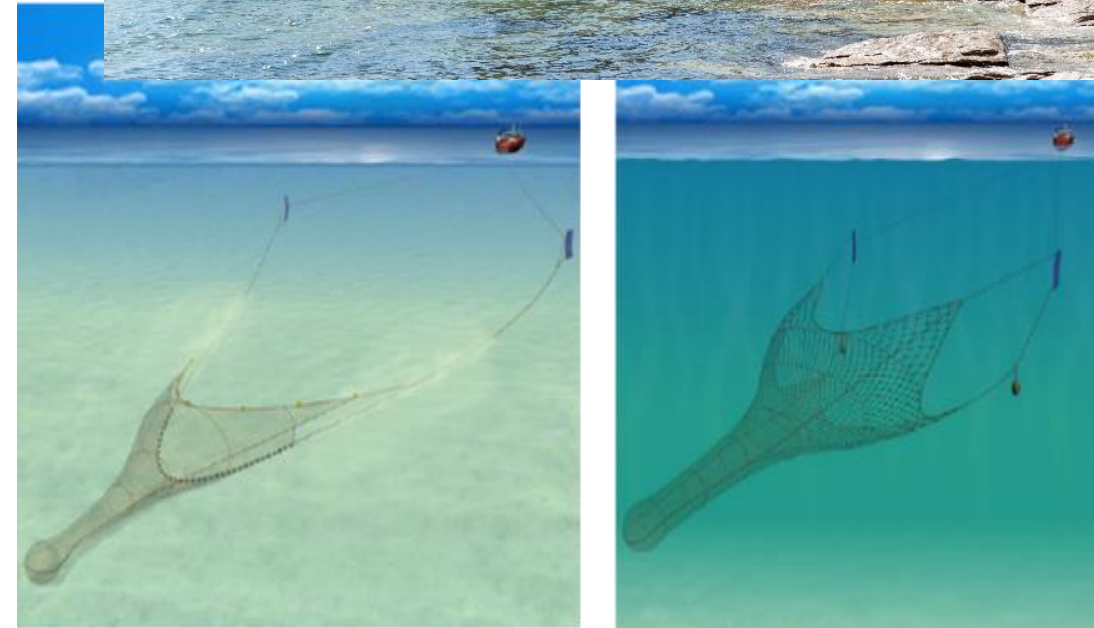
Phasing out the more energy-hungry fishing techniques...

- Bottom trawling impacts the seafloor integrity and contributes to a bad environmental status
- The elephant in the room: Bottom trawling may release large amounts of blue-carbon (~ up to 15-fold the direct emissions)
- Necessary to take action and implement area-based management plans in sensitive and vulnerable and blue carbon marine habitats. i.e. in existing (Natura 2000) and new dedicated areas



Existing and new technical solutions for cleaner production...

- Gear modifications to reduce the drag and impact (“flying doors”, innovative trawl design etc.)
- Retrofitting for optimizing vessel hull shape, inverted bow, anti-fouling, etc.
- Alternative, greener fuels (for large vessels LNG, catalysis hydrogen, bio-methanol, ammoniac)
- Alternative propulsion (electrification for small vessels, hybrid engine, wind-powered vessels, etc.)
- Slow steaming, route optimization, feedback underwater sensors (“precision fishing”) for improved catch rates etc.



Up to 40-100% reduction in CO₂ emission expected

Barriers to decarbonising the EU Fleet

Feasibility of converting to other fishing practices

- New equipment required to use passive gears on former trawlers
- Vessels out of water for a few months with possible foregone revenue

Feasibility of converting to alternative propulsion, or greener fuels

- Electric propulsion requires recharging facilities in ports, grid infrastructure, with competition to other energy-demanding sectors
- Need more space onboard to fit new, larger, heavier engines for alternative fuels (all with less energy per volume)
- Need for qualified crew, marine engineers and new education schemes

Lack of incentives to change behaviour

- Limited knowledge transfer on the technologies
- Mistrust toward innovation
- Financial risks and payback time changing catch rates, investing in new materials, or retrofitting vessels
- Fossil fuel use is currently subsidised

Ecological risk on components of the marine biodiversity induced by shifting toward passive gears

- Not all marketable species and areas are accessible to passive gears
- Not all effort can be reallocated to all types of species
- A new challenge with biodiversity (e.g. bycatch, ghost nets, etc.)

Barriers to decarbonising the EU Fleet

Seafood market disruption

- Lack of consumers' demand for fish products with a small carbon footprint

Unintended effects in implementing Marine Protected Areas

- Displacement effect can cancel out the beneficial effect when the reallocation occurs in surrounding areas

Misfit legislation & management barriers

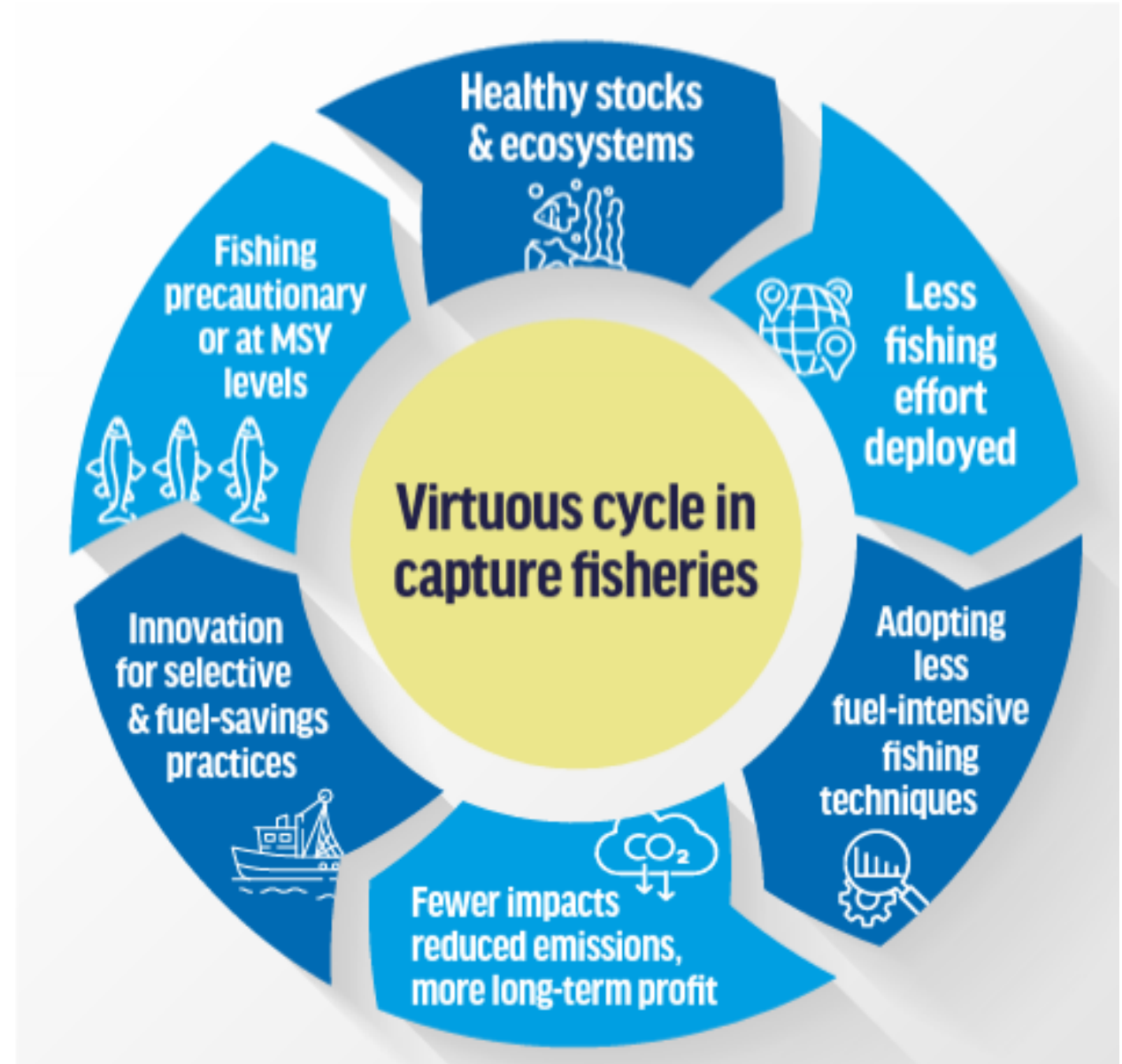
- Need for clearer restricts on using bottom-contacting gears
- Incompatible fishing capacity limits with the use of alternative fuels
- Not eligible for EMFAF funding because of capacity limits (abnormal vessel shapes induced by capacity limits)

Research needs to document issues with evidence-based and experiential knowledge & develop innovations

- Developing pilot studies and demonstration programs for maritime climate solutions and trial schemes with electricity or new fuels
- Lack of knowledge on success criteria & a uptake of innovations
- Lack of knowledge on blue carbon habitats (seabed mapping, carbon sequestration, habitat restoration, carbon release rates, etc.)

Joint accountability of management and responsible fishing: a win-win

- Accessing funding is not permitted for fisheries not in balance with the fishing opportunities
- Correct implementation of the CFP to protect stocks & preserve habitats is a prerequisite for a resilient sector and successful energy transition
- Limiting the dependency on fossil fuels will increase resilience to possible future crises. Ensured by fishing strategies with precautionary fishing effort targets and CFP minimal effects objectives



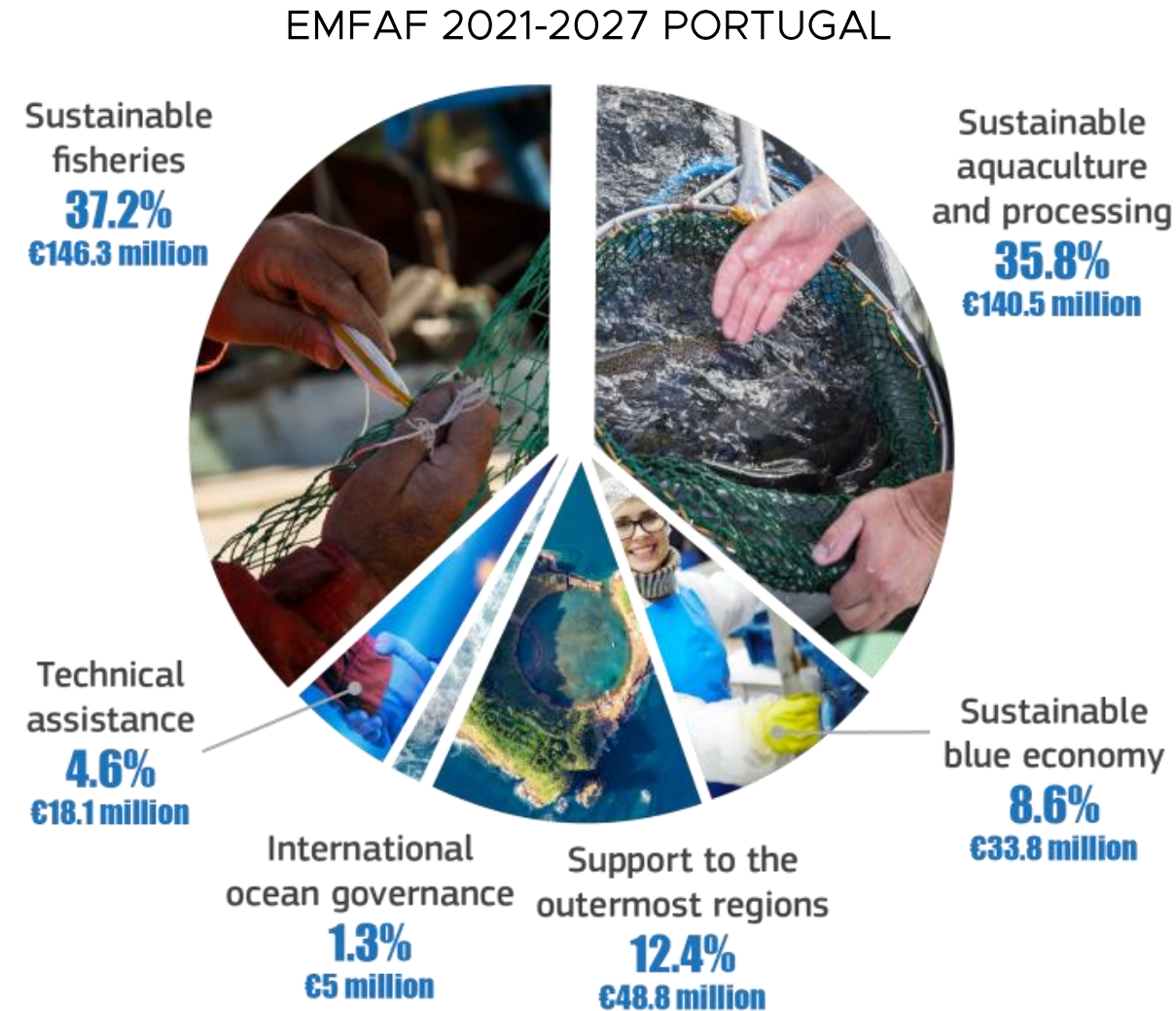
Decarbonisation win-wins

- Fishing less = earn more
- Fishing with larger gear meshes = consumes less fuel
- Fishing with existing efficient technological solutions = save fuel, costs & improve catches
- Switching to alternative fishing techniques = preserve seafloor integrity, its biodiversity & saves carbon stored in the seabed
- Switching to alternative low-carbon fishing techniques = higher economic resilience to future crises
- Promoting small-scale fisheries = save fuel, habitats & help the energy transition when downsizing engines (lighter engine, better recharging time, etc.)



Recommendations on short term actions

- Robust data collection to collate accurate and standardized data on fuel consumption at the fishing vessel level (carbon auditing).
- An Implementation of existing energy efficient technologies, as well as further research and innovation
- Dedicated financial instruments for funding the energy transition as EMFAF is insufficient
- Reduce bad incentives for status quo with a tax on fuel use (reinvested into the transition), end subsidies, and promote small-scale fisheries



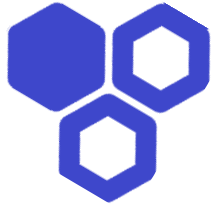
Recommendations on long term actions



Full implementation of the CFP for all EU stocks to be fished sustainably (i.e. maintain the 2013 CFP ambition)



Phase out the most energy-inefficient fishing techniques (Art. 17)



Implement a network of MPAs based on blue carbon habitats (Art. 11)



Develop energy-efficient alternative propulsion technologies



Develop ecolabelling based on a carbon footprint scoring system (Art. 17)



Improve the EU political soft power with leadership in international commitments, and promote clean technologies



Reduce imbalanced fleet-segments in EU (Art. 22.2)

A roadmap to decarbonise the EU Fleet

- Fishers in Europe acknowledge their energy dependence on unreliable external source and rising fossil fuel costs
- Support healthy ecosystems and promote fish of better quality and nutritional content, more value on the seafood market = win/wins for a viable fishing sector
- Reduce the activity of the most harmful fishing practices and an inefficient use of energy and money, while avoiding the release of carbon stored in the seabed, and promote cleaner production jointly with other sectors = win/wins
- A viable and safe socio-ecological path instead of responding to intense crises with short-term thinking (e.g. tax cut prolonging non-viable fisheries). As a co-benefit, the energy transition will also help improve fishing sector's economic resilience



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