Department
for Environment
Food & Rural Affairs

Session 3: Mitigating the impact of fisheries on climate change

The policy-makers perspective: Overview of current policies and evidence-based pathways to reach Net Zero in the Fishing Sector

November 21st, 2023

Environment Agency

Forestry Commission

NATURAL ENGLAND

Towards UK Net Zero Emissions in Fisheries

- **Climate Change Act (2008, 2019)**
  - UK Government has committed to reaching 'Net Zero' carbon emissions by 2050, and to have reduced emissions by 78% by 2035 compared to 1990 levels
  - Advanced targets have been set out by Scotland with ambitions to reach Net Zero by 2045
- **Fisheries Act (2020)**
  - Climate Change Objective
    - The adverse effect of fish and aquaculture activities on Climate Change is minimised
  - Joint Fisheries Statement
    - Mitigation of climate change needs to be considered across the supply chain
    - Collaboration to support innovative solutions to realise carbon savings
      - The UK government has allocated £2m for projects aimed at modernising the fleet through engine replacement and modification. To date, 69 projects have applied requesting funding of £1.1m
- **Environment Act (2021)**
  - Five Environment Principles: integration, prevention, rectification at source, polluter pays, and the precautionary principle

Goal 1: Achieve Net Zero across English Seafood Industries by 2050

Goal 2: Quantify the impacts of, and adapt to, climate change across the English Seafood Industries

1. Vessel Emissions

Quantify vessel emissions and implement effective short-to-long term decarbonisation solutions

2. Supply Chain Emissions

Implement decarbonisation solutions and reduce emissions throughout the English seafood supply chain

3. Beyond Net Zero

Scale up low carbon seafood aquaculture and incorporate evidence on blue carbon into fisheries management measures

Fisheries and Climate Change

Secure a thriving and prosperous Net Zero English seafood industry with world leading best practise climate mitigating and climate adaptive fisheries management measures that puts resilience and opportunities at the forefront of its decision making

4. Risks & Impacts

Quantify the impacts and risks of climate change to fish stocks and fisheries

5. Opportunities

Implement process to identify and sustainably manage new commercially valuable species entering UK waters

6. Adaptation

Implement a bespoke suite of tools and management measures to enhance adaption to climate change

Vessel Emissions: Status and Priorities

What the evidence is telling us

- The UK fishing fleet is the 4th highest carbon emitter across 22 European countries
- 0.66% of UK domestic transport emissions comes from the UK Fishing Fleet
- Over the last 15 years the UK fishing fleet has reduced its carbon emissions by 32%
- More than 60% of emissions are released during the at sea stage
- Wide differences in carbon emission levels exist between the main fleet segments of the UK
- Most carbon emissions come from the combustion of fuel in propulsion

Future priorities

- Developing the 1990 baseline
- Improving estimations of fuel use
- Innovation to support *in situ* GHG monitoring

Engelhard et al, 2022; Metz et al, 2022

Decarbonisation Solutions for Vessels: Pathways to Net Zero

Technological pathway

Long term (>10 years)

2050

- Hydrogen
- Ammonia

Medium term (5-10 years)

- Liquefied Biogas
- Liquefied Natural Gas

Short term (0-5 years)

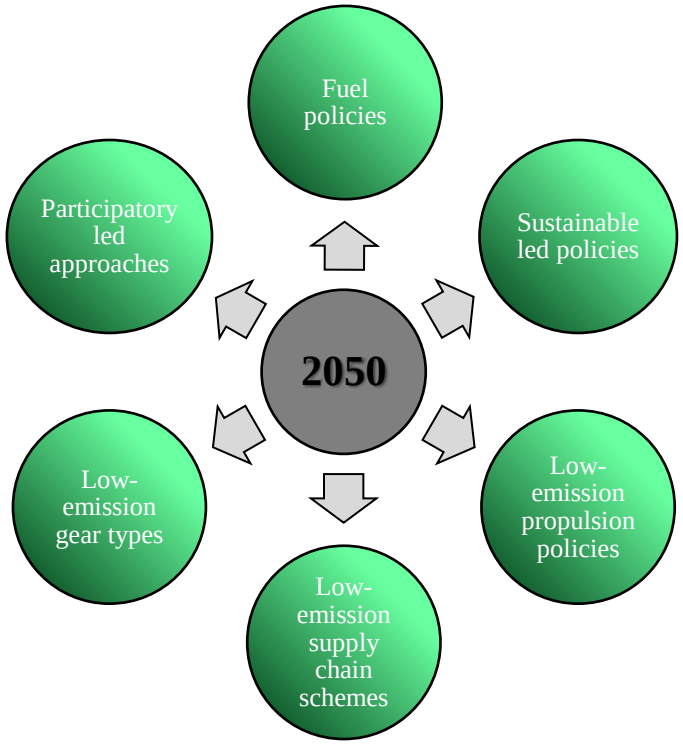
- Fully electric propulsion for inshore vessels
- Hybrid diesel-hydrogen/ammonia propulsion
- Switch to biofuels compatible with engine types
- Hybrid diesel-electric propulsion
- Vessel replacement

Operational pathway

2050

- Transition to lower emission gears
- Redirect fishing effort towards grounds closer to port
- Regular engine maintenance to enhance performance
- Removing excess weight to reduce fuel consumption
- Reducing steaming and trawling speed
- Regular maintenance to vessel hull to reduce drag

Managerial pathway



Engelhard et al, 2022;

Decarbonisation Solutions for Vessels: Status and Priorities

What the evidence is telling us

- Trials for short-term mitigating solutions have been successful in smaller vessels
- There is currently no better alternative than diesel for larger vessels
- Alternative diesel-like fuels can reduce emissions by 95%, but fuel stock is a barrier
- Ammonia fuel cells can reduce emissions by 100%, but further innovation is required
- Carbon abatement potential across the life-cycle of decarbonisation solutions are required
- Feasibility, saftey, cost, and existing infrastructure will influence uptake of decarbonisation solutions

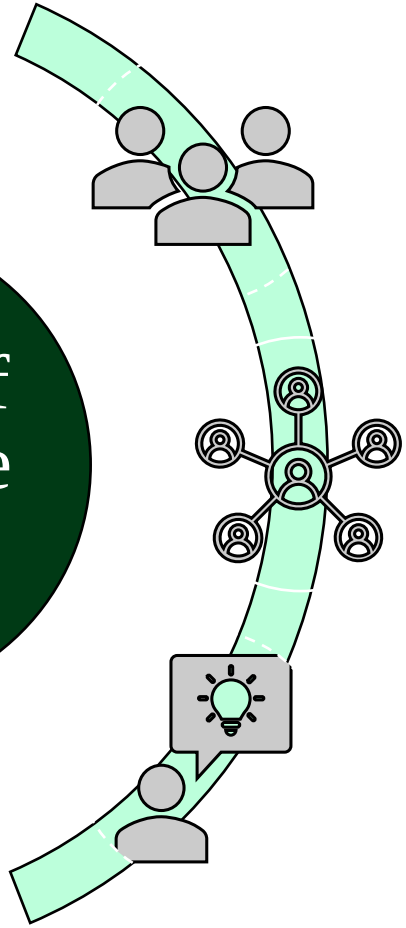
Future priorities

- Trial affordable interim solutions across the UK fishing fleet
- Continue research into viable alternative fuels for the fishing sector
- Assess the drivers and barriers impacting the uptake of solutions

Monhart et al., 2023; Owen, 2023

Collaboration to support Net Zero in UK Fishing Sectors

Vessels of the Future Forum



Collaboration between Industry, researchers and government to help our fishing and aquaculture fleet transition to Net Zero

Established working groups for Skills and training; Performance & Energy Efficiency; Infrastructure & feasibility; Supply chain readiness

Developed online Knowledge hub aimed to share information and updates and drive collaboration across sectors

Convened by Seafish – the UK public body supporting the UK seafood sector to thrive.

Thank you
Any questions?