CAPACITY CEILINGS IN EU FISHERIES:

OBSTACLE OR OPPORTUNITY FOR THE DECARBONISATION PROCESS?

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THE DECARBONISATION PROCESS?

DECARBONISE NOW

Report prepared by Sara Hornborg and Friederike Ziegler, RISE Research Institutes of Sweden, on behalf of ClientEarth

Background

Capacity ceiling as an obstacle for decarbonisation of fisheries

- **Intending to decrease overcapacity and halt overfishing**
  - cap set on gross tonnage (GT) and total power (kW) by the Common Fisheries Policy (CFP)
  - if fleet is imbalanced, based on different metrics (e.g., VUR[1], SAR[2]), national action plan required
- All alternative energy sources require **larger storage volume** (less energy density)
  - potential conflict from need to increase vessel size?

[1]VUR: Vessel Utilization Ratio (days at sea)
[2]SAR: Stocks-At-Risk (catches)

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Study objectives and method

To which extent are the capacity ceiling a problem – and which steps can be taken regardless?

1. **Provide an overview of the current capacity (kW and GT) in each Member state relative to the capacity ceilings set.**
   - Annex II in the CFP; Balance capacity indicators (STECF 22-15) and member state reports
2. **Analyze tangible scenarios for a stepwise decarbonization process for five case study fishing segments.**
   - Spanish demersal trawler fleets, French purse seiners in distant waters (>40 m); Italian vessels (<12 m); Dutch pelagic fleet; Portuguese longliners (24-40 m)

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EU capacity ceilings

- At national levels, GT and kW have decreased and are below ceilings
- Certain fleets are still imbalanced
  - Indications that larger vessels utilize vessels more (in days) but are to a higher degree dependent on overfished species
- All case study fleets show biological imbalance

	CFP ceiling		"Available room" to ceiling	
Member state	**GT**	**kW**	**GT**	**kW**
Belgium	18 962	51 586	27%	13%
Bulgaria	7 250	62 708	19%	17%
Denmark	88 762	313 333	22%	33%
Germany	71 117	167 078	24%	25%
Estonia	21 677	52 566	25%	6%
Ireland	77 568	210 083	12%	10%
Greece	84 123	469 061	26%	23%
Spain*	423 550	964 826	21%	19%
France*	214 282	1 166 328	18%	19%
Croatia	53 452	426 064	19%	18%
Italy	173 506	1 070 028	18%	14%
Cyprus	11 021	47 803	65%	16%
Latvia	46 418	58 496	53%	35%
Lithuania	73 489	73 516	52%	45%
Malta	14 965	95 776	57%	26%
The Netherlands	166 859	350 736	40%	29%
Poland	38 270	90 650	8%	7%
Portugal*	114 549	386 539	25%	10%
Romania	1 908	6 356	15%	0%
Slovenia	675	8 867	0%	2%
Finland	18 066	181 717	19%	6%
Sweden	43 386	210 829	35%	31%
Average			**27%**	**18%**

Green shade represents ≥50% availability, yellow ≥25% availability before hitting the ceiling.

Scenario 1: ≥30% reduction in fuel consumption

- **Energy efficiency important part of the energy transition**
  - *Spanning from no cost to substantial investments*: change in behaviour (e.g., speed), fishing technology used, maintenance (e.g., efficient antifouling), vessel investments (e.g., change in propulsion system, new vessel)
- **Fleet specific actions, e.g.:**
  - Energy audits and crew training (monitoring ~€4,500 per vessel)
  - Management actions: promote energy-efficient fishing gears, halt overfishing
    - *Aligned with CFP and intention behind capacity ceilings!*

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Scenario 2: hybrid solutions (≥50% reduction)

- **Changes in energy carriers with little or no change to GT or kW**
  - E.g., use batteries to reduce diesel use (energy audits still essential!)
- **Fleet specific recommendations, e.g.:**
  - Optimum engine use (“peak shaving” of diesel use) through batteries (70-80% reduction)
  - Drop-in biofuels (up to 80% reduction)
  - Sail-assisted propulsion

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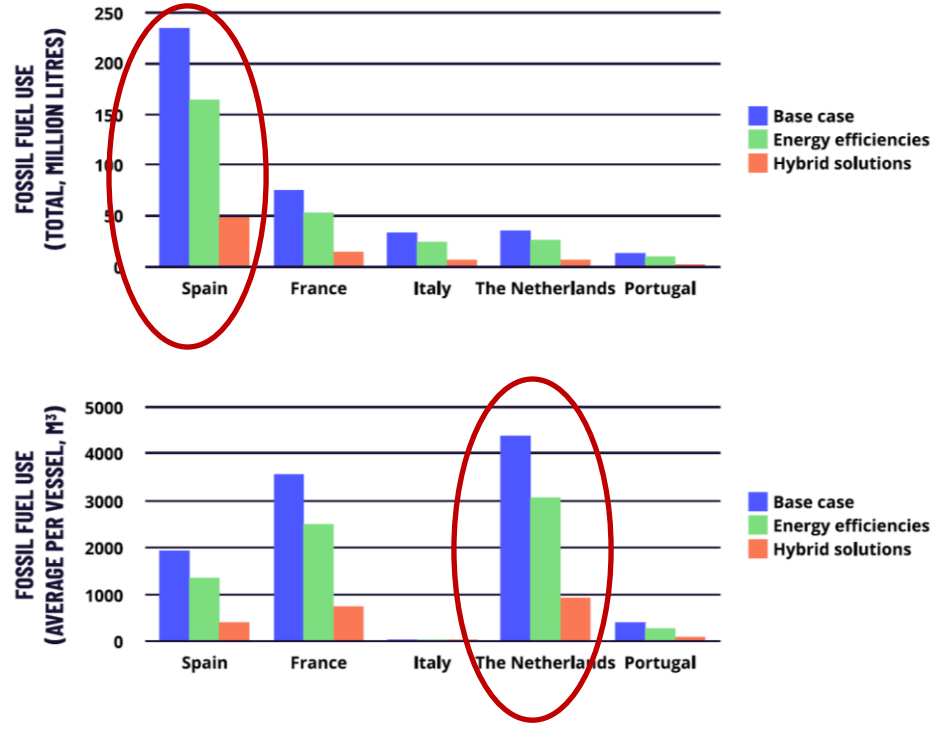
Spain: demersal trawl
France: purse seine (distant waters)
Italy: vessels under 12 m (multiple gears)
The Netherlands: pelagic fleet
Portugal: longline

Scenario 1&2

Hybrid solutions as an additive progress

- Emission cuts depends on starting point
- Reduction magnitude differs
  - Fuel use efficiency (l/kg)!

Figure 2 Fuel use savings from energy efficiencies (30% reduction) and hybrid solutions (additional 70% reduction, in total 79% reduction from base case) in terms of total fuel use for the fleets (top panel) and on a vessel basis (bottom panel).



Scenario 3: full decarbonization

- Important with societal investments in **green energy availability** for reducing emissions!
  - Methanol lowest hanging fruit today (storage volume x 2)
  - Full electrification possible for smaller, coastal vessels
- Overall: **larger vessels and greater fishing distance requires larger storage volumes**
  - Average annual current fuel use per vessel = 2 – 4 364 m^3 (per fishing day 0.02 - 26 m^3)
  - Theoretical estimate: small *proportional* change in GT?
    - Decommissioning vessels where overcapacity exist could support extra GT needed

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Take-home messages

- **Current capacity ceilings and their intention is not a hindrance**
  - All case study fleets showed biological imbalance, intention not fulfilled
  - Win-win opportunities with action plans – time for new approach?
- **Energy audits and monitoring of individual vessels are key**
  - Energy use should be reduced as far as possible regardless of scenario
- **Taking steps towards decarbonization can be made today**
  - *Management:* Decreasing overcapacity is key, but also promoting energy-efficient fisheries
  - *Fishers:* Energy efficiencies and hybrid solutions may be implemented at different costs

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Thank you!

Learn more about what RISE do on seafood at:

https://www.ri.se/en/what-we-do/expertises/seafood

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