REDUCING CO_2 EMISSIONS THROUGH RECOVERY OF FISH STOCKS

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FISHERIES MANAGEMENT IS CLIMATE ACTION
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Our Fish

frontiers in Marine Science

Research Topic

How Overfishing Handicaps Resilience of Marine Resources Under Climate Change

Exploring Changes in Fishery Emissions and Organic Carbon Impacts Associated With a Recovering Stock

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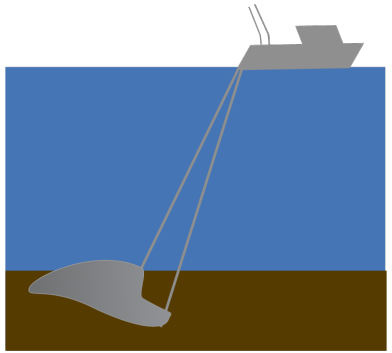
CARBON FOOTPRINT OF A FISHERY

- Data sources:
  - STECF (Scientific, Technical and Economic Committee for Fisheries)
    - Landings & effort data
  - ICES (International Council for the Exploration of the Sea)
    - Spawning stock biomass estimates (reproductive adults)

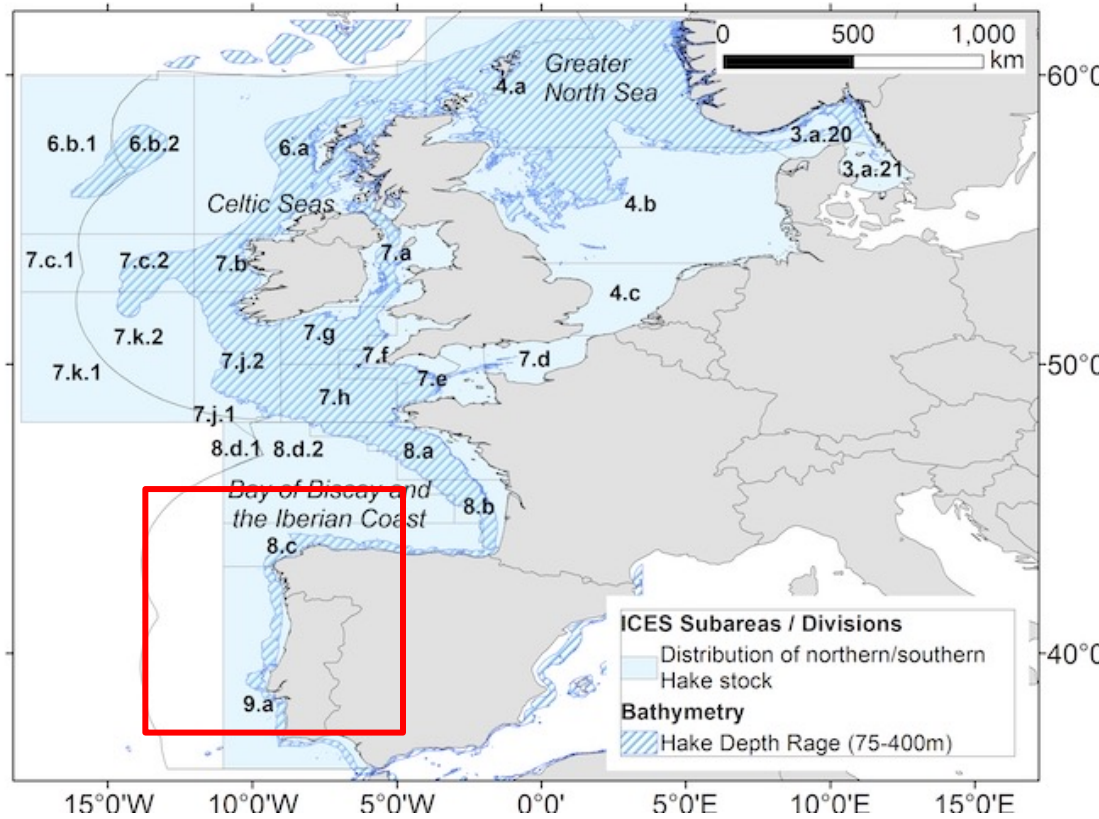
- Fuel:
  - Used to travel to and from a fishing location
  - Used to fish once at the location

- Disturbance of ecosystem carbon:
  - Sediment disturbance
  - Carbon in fish bodies (biomass)



NORTHERN AND SOUTHERN STOCK OF EUROPEAN HAKE

- *Merluccius merluccius*
- Reproductive adult hake
- 2008 and 2016

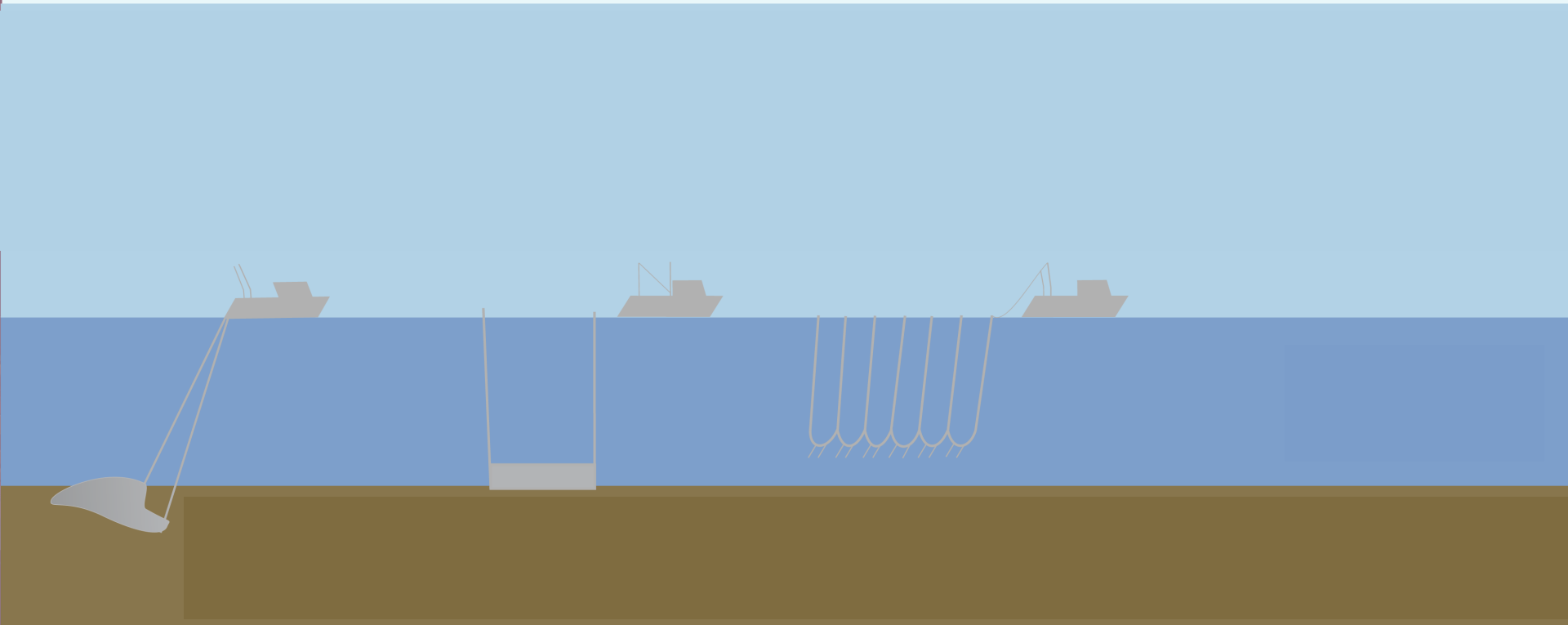


LIMITATIONS

- Mixed fishery – Results used for comparative purposes only!
  - Main fishing nations: France, Spain, United Kingdom
- Reproductive adult hake (SSB) estimated only for the Northern stock of hake
- Sediment carbon content: unknown. Mud to muddy sand areas.
- Other sources of emissons: imports when stock was low

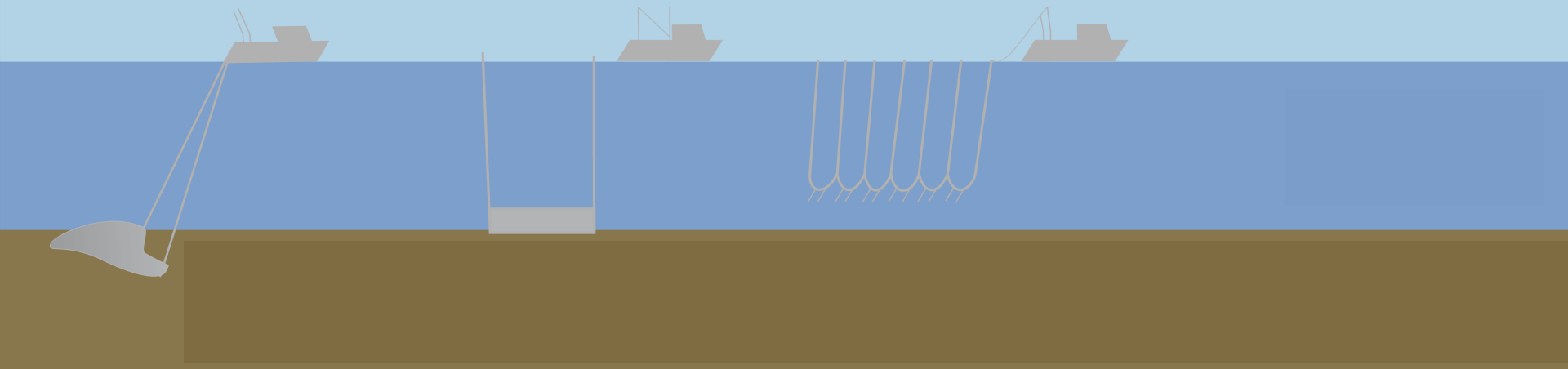
RESULTS:

Demersal trawlers and /or demersal seiners	Drift and/or fixed netters and polyvalent passive gear	Vessels using hooks	Total hake landings (all gear types)



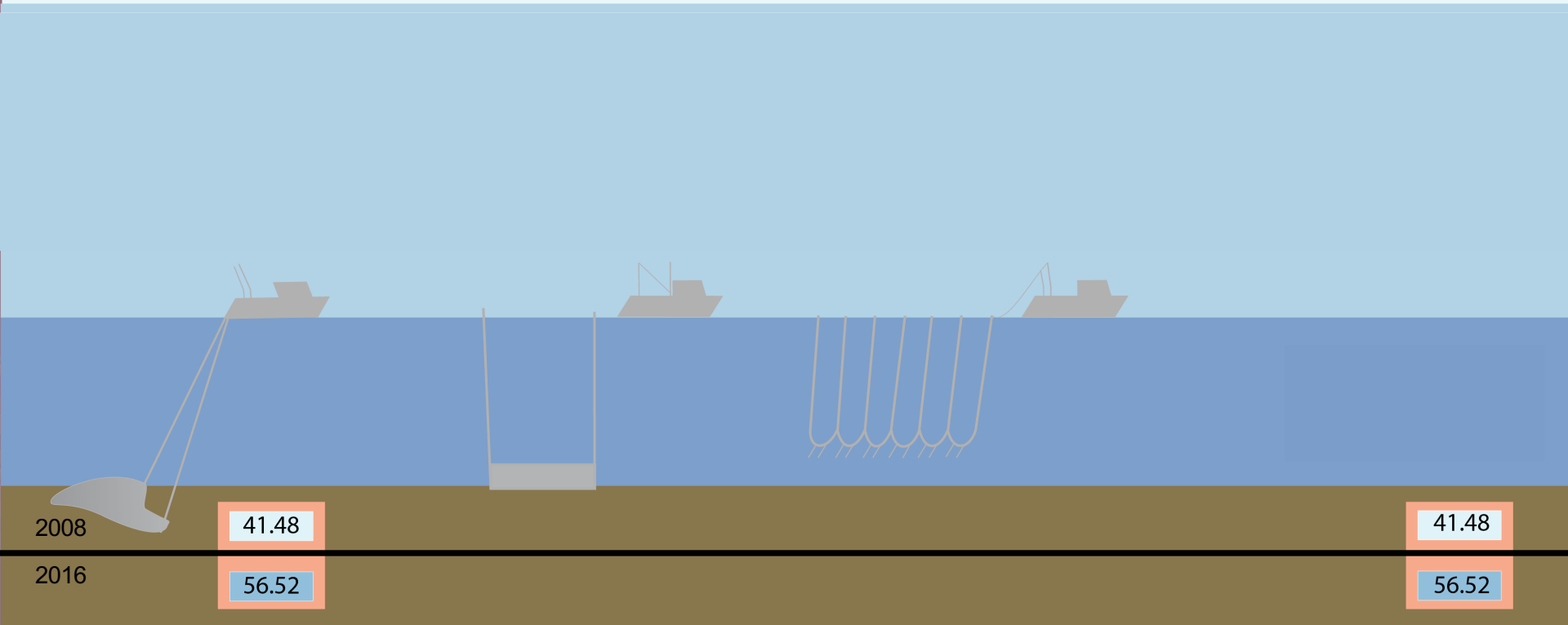
RESULTS: FUEL EFFICIENCY (KG CO_2 / KG HAKE)

	Demersal trawlers and /or demersal seiners	Drift and/or fixed netters and polyvalent passive gear	Vessels using hooks	Total hake landings (all gear types)
2008	3.42	1.76	4.08	3.12
2016	2.59	1.57	1.89	1.89

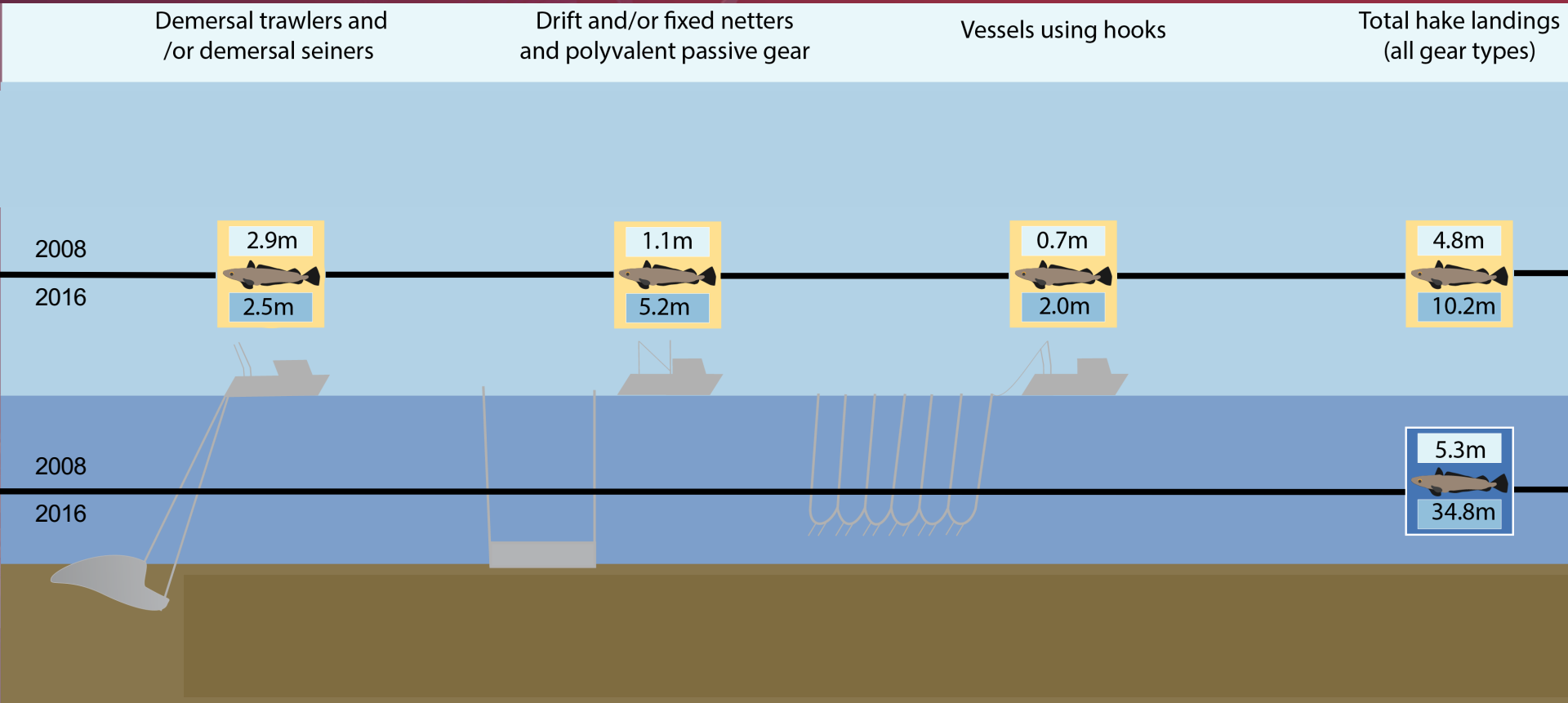


RESULTS: SEDIMENT DISTURBANCE (SA KM^2 / KG HAKE)

	Demersal trawlers and /or demersal seiners	Drift and/or fixed netters and polyvalent passive gear	Vessels using hooks	Total hake landings (all gear types)
2008	41.48			41.48
2016	56.52			56.52



RESULTS: FISH BODIES (KG CARBON: EMITTED/UNFISHED)



SUMMARY FOR CARBON FOOTPRINT

- Ending overfishing can:
  - Increase fuel efficiency
  - Increase the carbon in fish stocks
  - Reduce the proportion of carbon emitted from landed fish

THANK YOU

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