



# From Sea to Fork: Strengthening sustainability in fisheries

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# Fisheries sustainability: where do we stand?

- Let start with a very good news: fisheries management is improving in Europe, and stocks are recovering

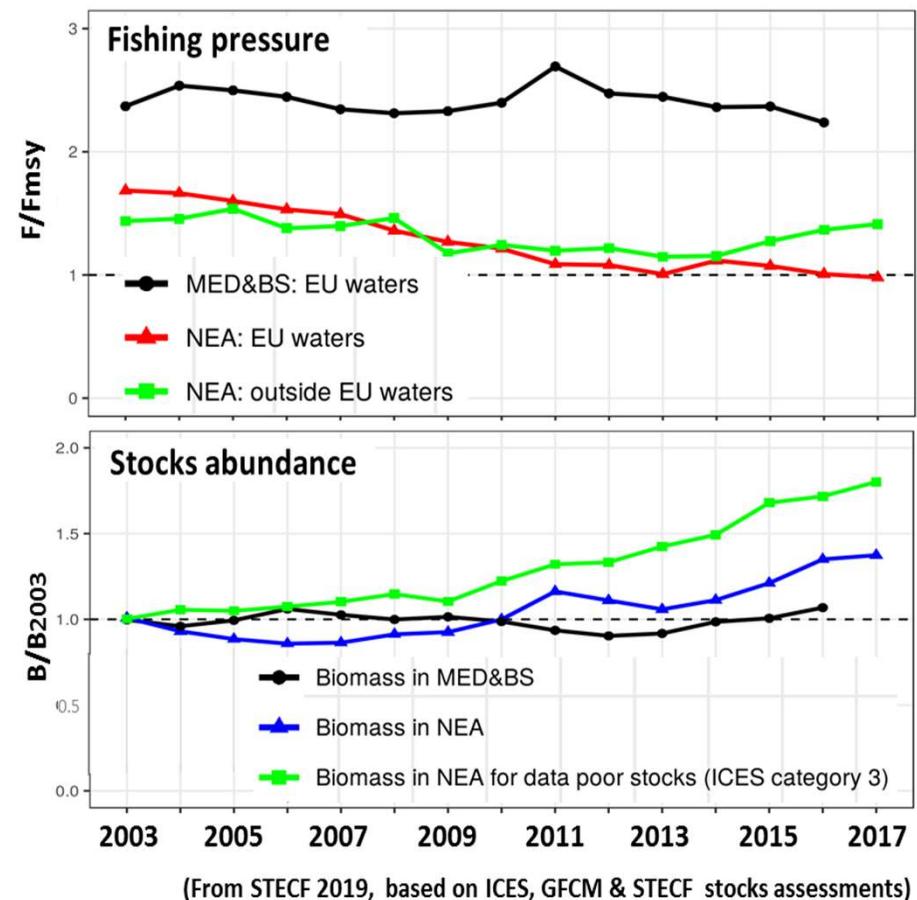
## The big picture (STECF, 2019)

➤ Over the last 20 years, the fishing pressure almost halved in the NEA

From 45% caught/year, to 25%...

...close to the F<sub>m</sub>sy target (on average)

➤ The abundance of fish stocks increased by about 40%



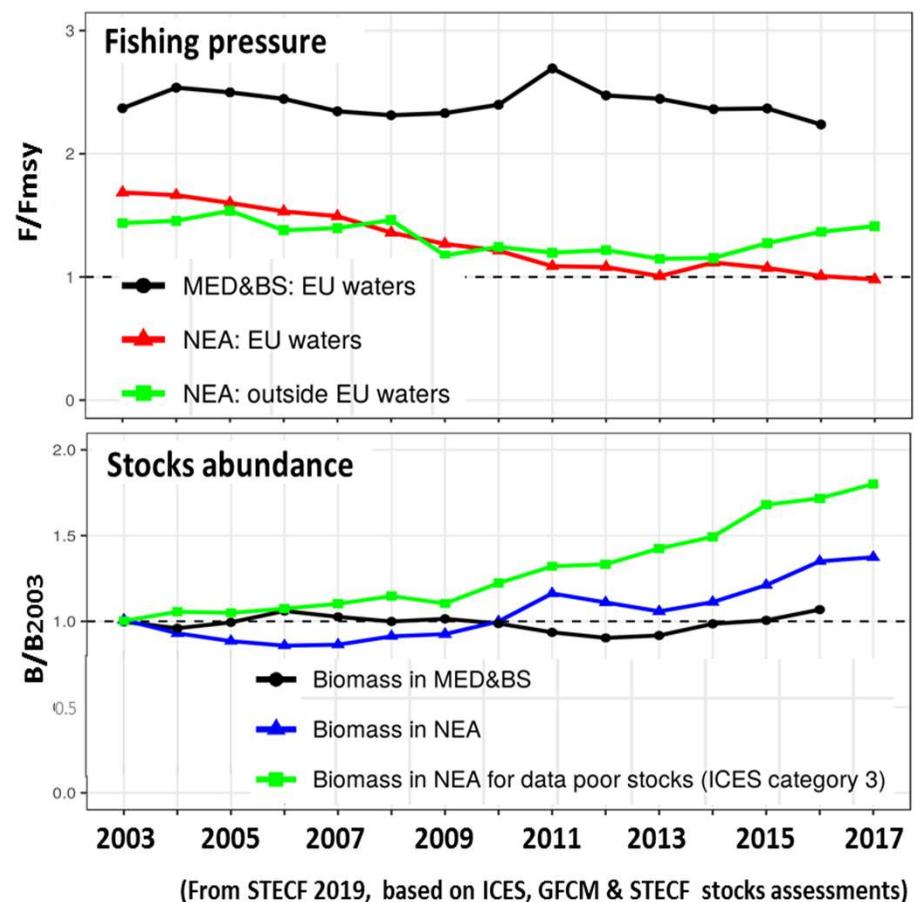
# Fisheries sustainability: where do we stand?



- **BUT:**

1. No improvement in the Mediterranean sea

- 90% of assessed stocks still overfished



# Fisheries sustainability: where do we stand?



- **BUT:**

1. No improvement in the Mediterranean sea

- 90% of assessed stocks still overfished

2. Even in the NEA, a huge variability among stocks

- 40 % of assessed stocks still overfished
- and PCP targets not reached for more than half of the UE catch

3. The CFP targets have become **insufficient**

Stocks status in the Atlantic (from ICES assessment)

Number of stocks	Not Overfish.	Overfished	
Inside safe biol. limites	17	12	
Outside safe biol. Limit.	6	11	
Unknown biolog. limites	18	6	
Tot	59%	41%	

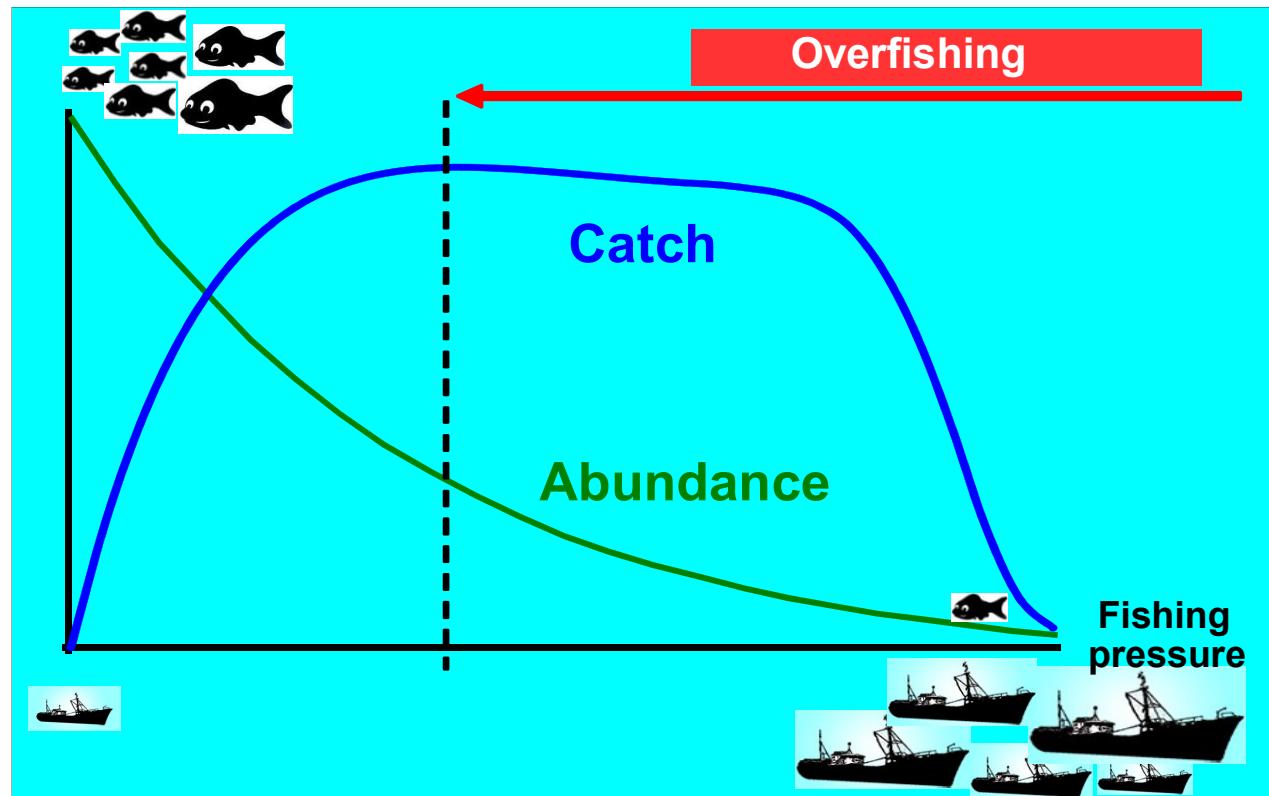
  

% of known stocks	Not Overfish.	Overfished	Tot
Inside safe biol. limites	37%	26%	63%
Outside safe biol. Limit.	13%	24%	37%
Tot	50%	50%	

## Fisheries management at MSY???



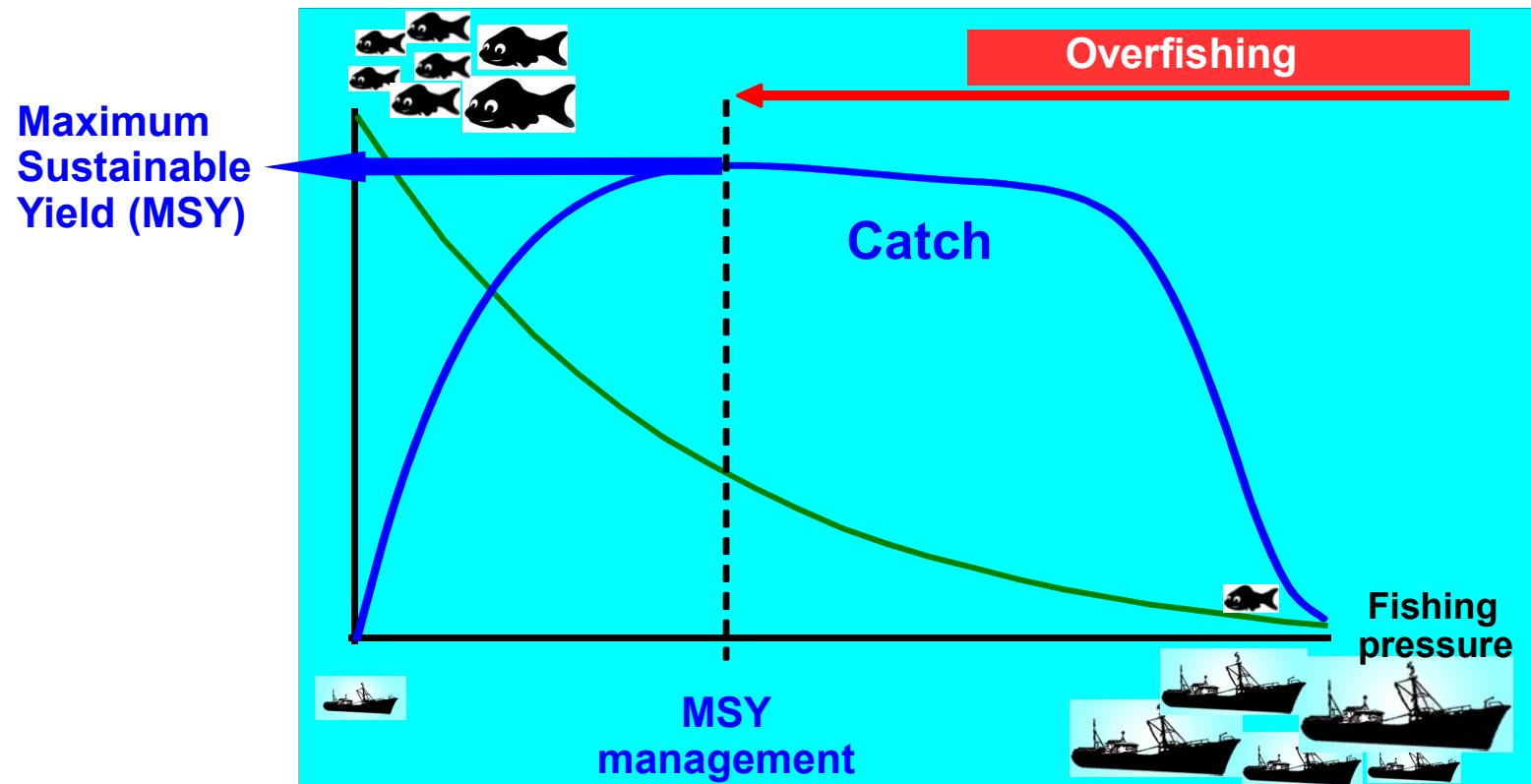
- The Maximum Sustainable Yield (MSY): a operational concept useful for fisheries management
  - More boats, less fish in the sea (fishing is impacting)
  - **Overfishing means too much fishing pressure** (thus, less catch)





## Fisheries management at MSY???

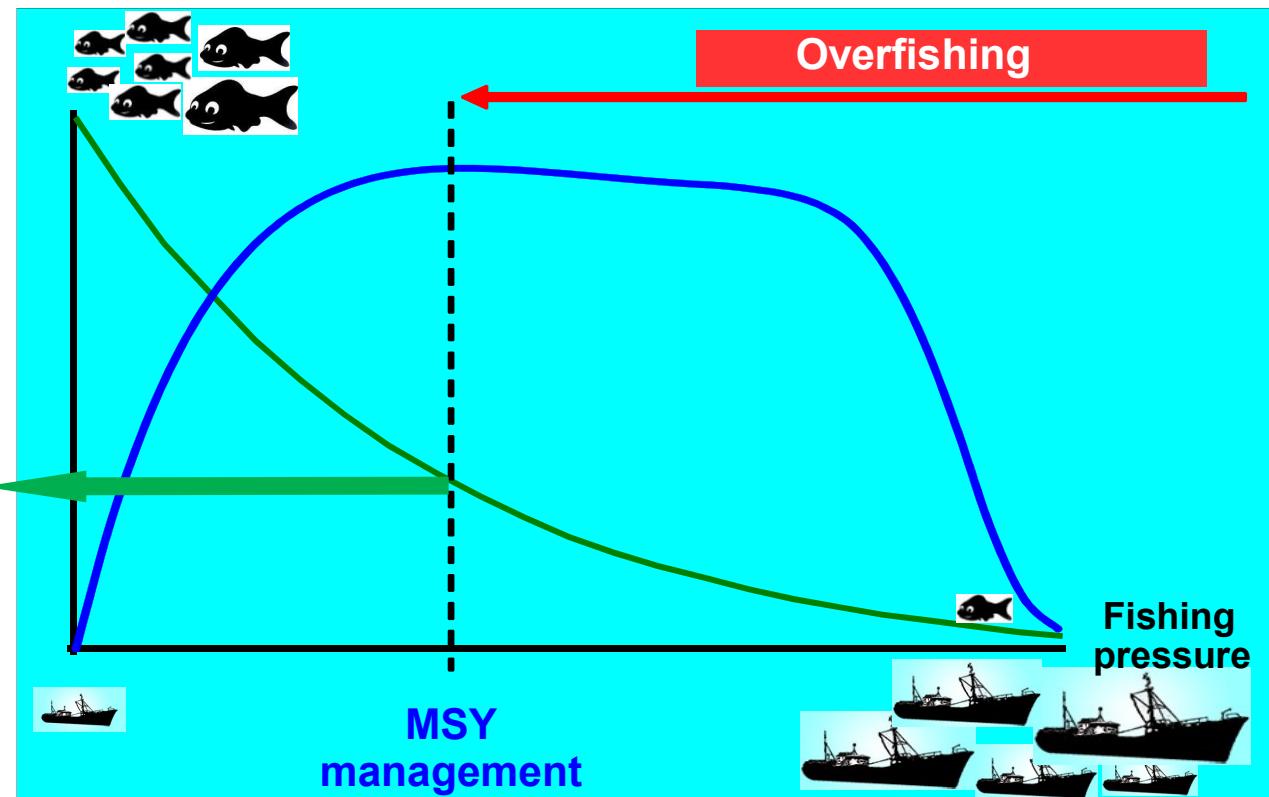
- The Maximum Sustainable Yield (MSY): a operational concept useful for fisheries management
  - Managing the fishing pressure (through TAC and quotas)



## Fisheries management at MSY???



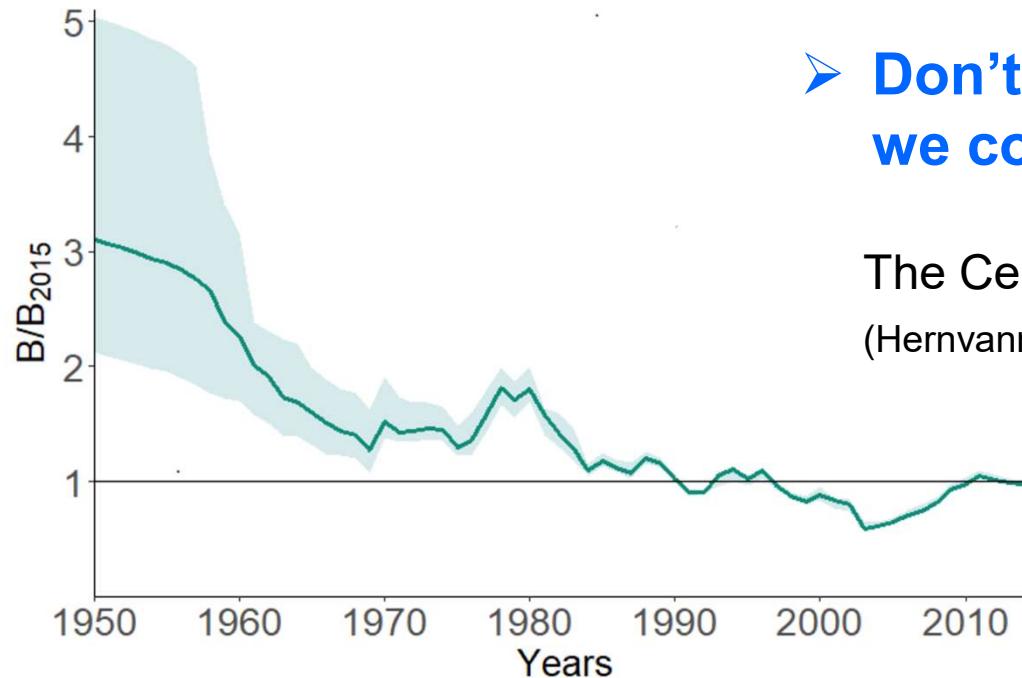
- The Maximum Sustainable Yield (MSY) **is not sufficient**
  - A large impact on every fish stock (not sustainable for ecosystems)



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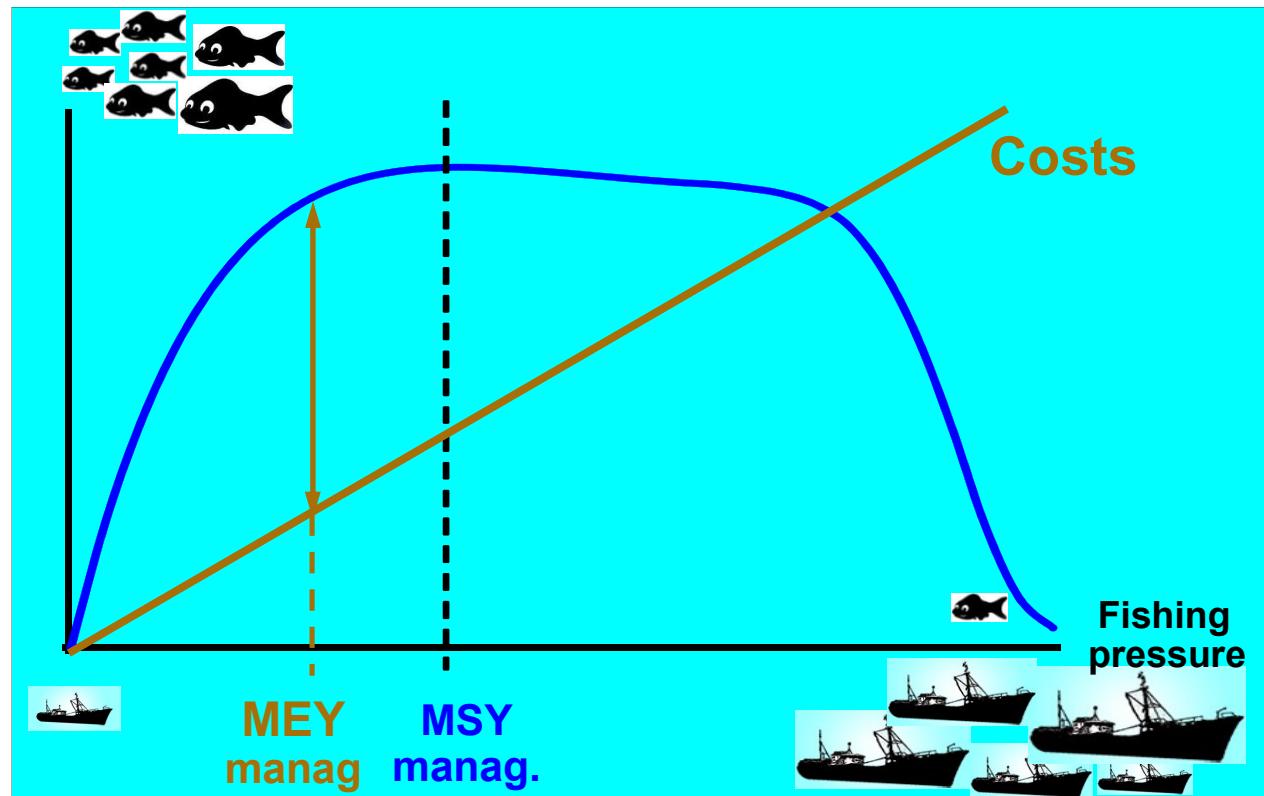
➤ **Don't forget where do we come from**

The Celtic sea as a case study  
(Hernvann & Gascuel, 2020)

## Fisheries management at MSY???



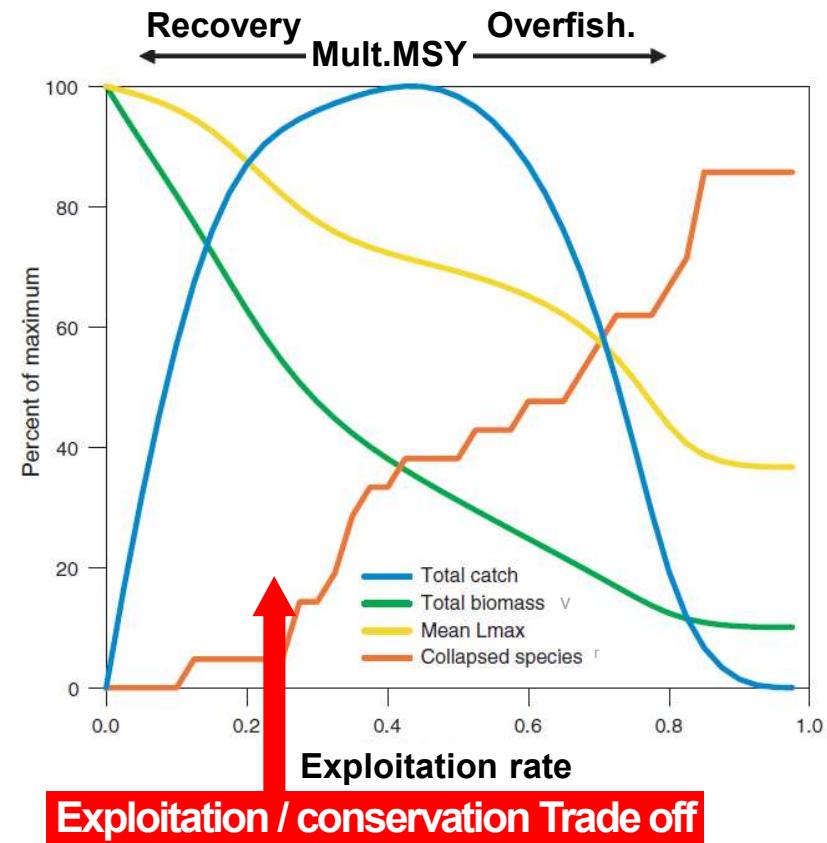
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  - A poor profitability for fisheries (below **Maximum Economic Yield**)





## Fisheries management at MSY???

- The Maximum Sustainable Yield (MSY) **is not sufficient**
  - A large impact on every fish stock (not sustainable for ecosystems)
  - A poor profitability for fisheries (below **Maximum Economic Yield**)
  - **Ecosystems and trade off also implies a more conservative target**



(Worm, Hilborn et al., 2009)

# Fisheries management at MSY???



- We can do much better than MSY

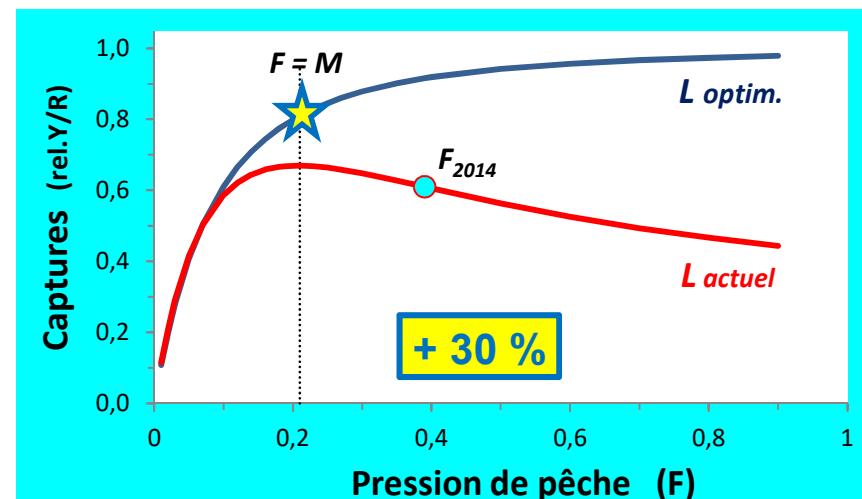
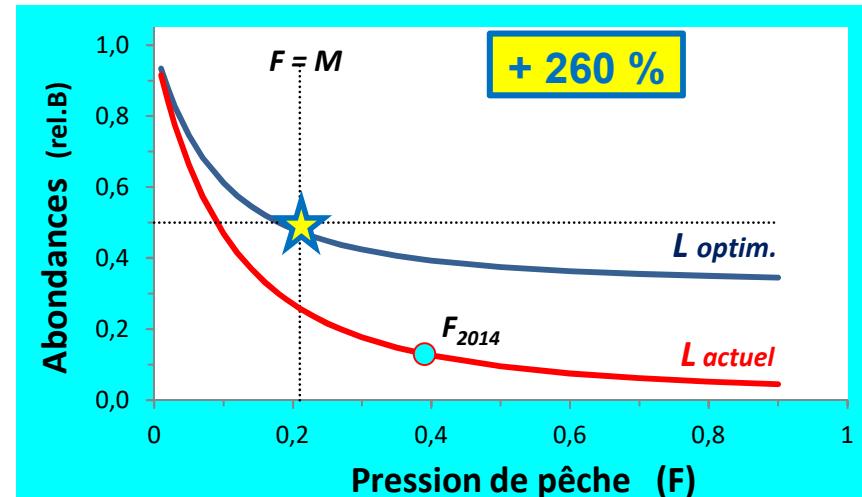
➤ **Size matters:** by increasing mesh sizes and/or minimum landing sizes (MLS)...

**It would be possible**

- to fish (a bit) more,
- while impacting much less

**Optimal management**  
(based on quotas and improved size-selectivity)

➤ a major challenge for a blue green new deal



The North sea example (Froese et al., 2016)

## Fisheries management at MSY???



- MSY is much better than nothing...
- ...but we should do much better, by
  - Adopting more precautionary (and profitable) targets
  - Reducing the impact on fish stocks, thanks to larger mesh sizes ...

From MSY to MEY and optimal management  
for every fish stock

# A transformative change towards the fishing-ecology

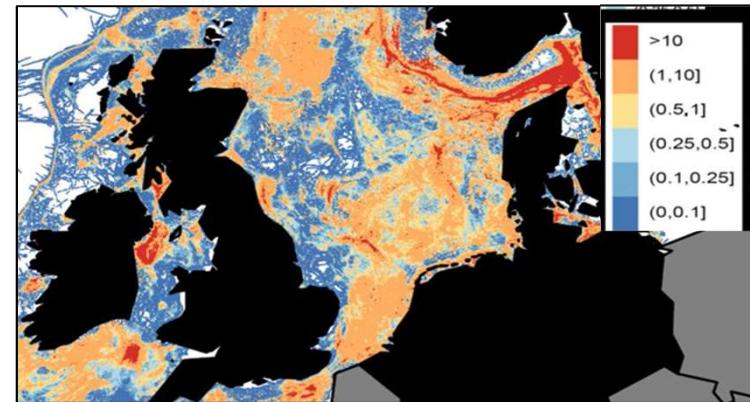


We have to face:

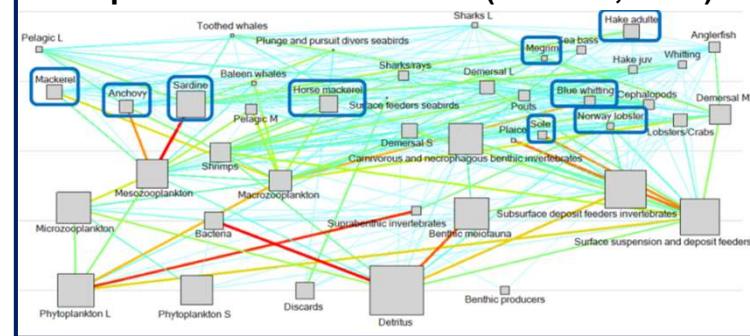
- The fishing impacts on the sea floor,
- the impacts on biodiversity, food webs...
- ... and the expected impact of climate change: lower and more variable landings

## Adaptation:

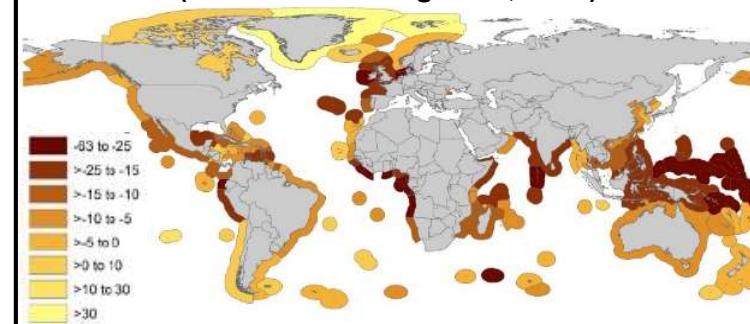
- ✓ Decrease all fishing impacts
- ✓ ... to increase the resilience of ecosystems



Trophic model in Celtic sea (Moullac, 2016)



Change in fisheries potential catch by 2050  
(RCP8.5 - Cheung et al., 2016)



# A transformative change towards the fishing-ecology



## A new way of fishing: **the fishing-ecology**

- Use all our knowledge, mobilize research and innovation, train / involve / mobilize all stakeholders, change governance, to...
- **minimize all the impacts** of fishing on resources and ecosystems, by
  - Changing from MSY to optimal management of fish stocks,
  - Promoting low-impact fishing gear and (everywhere possible) small-scale fisheries
  - Strengthening protection in MPAs
  - Setting up an European ecolabel (Fishing-ecology?) for all fish products
  - ...
- and to **maximise the economic, social and societal utility** for fishers and all the society, of every fish that Nature provide us

## Take home messages



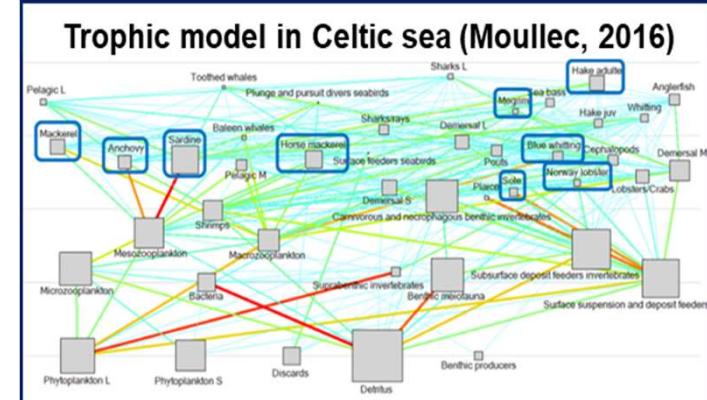
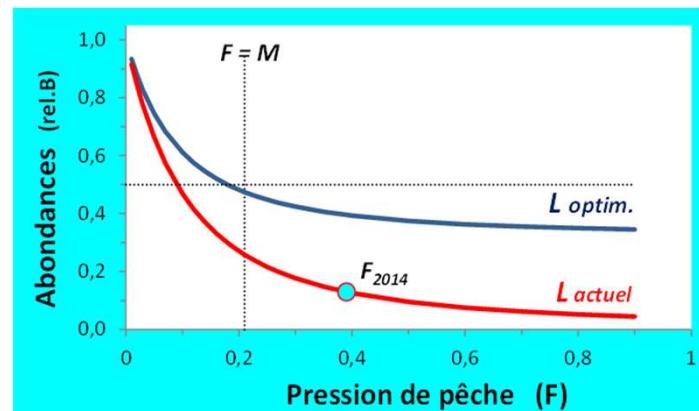
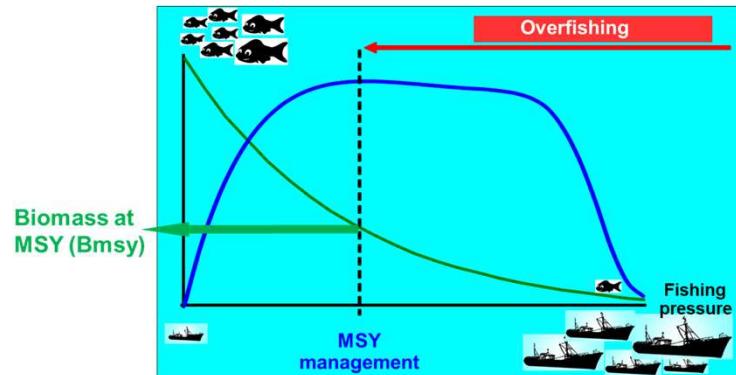
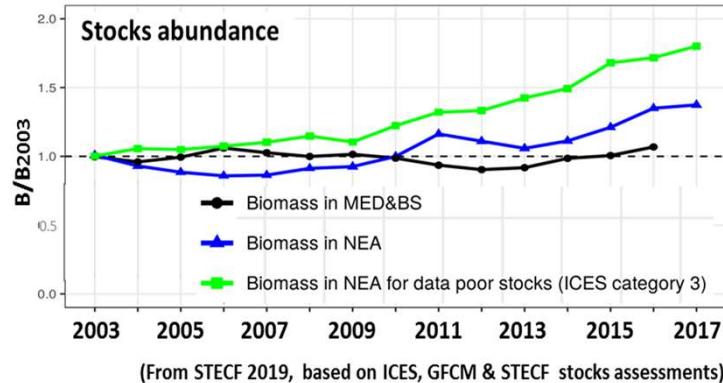
- UE proved that managing fisheries can reverse the tide.
- We are still using old single-species approaches (e.g. MSY), while scientific knowledge on ecosystems accumulates
  - ... telling us that rules for sustainability have to changed
- We can do much better for fish, fisheries and ecosystems, by
  - minimizing fisheries (human activities) impacts on ecosystems
  - maximizing economic & social utility of every catch

**Toward a new paradigm, the fishing-ecology?**

# Thank you...



@DidierGascuel



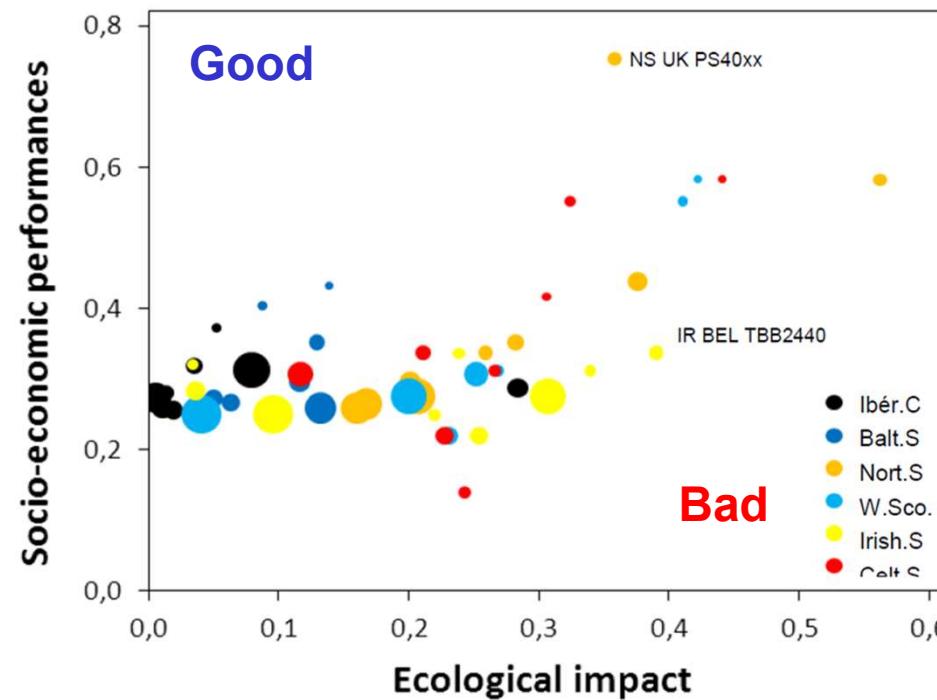
[www.revolution-mer.org](http://www.revolution-mer.org)

# An operational pathway towards the fishing-ecology



## A fleet-based management should be implemented

- by assessing all ecological impacts and all socio-economic performances, at the fleet segment level,
- and by using fishing rights as incentives to improve practices and promote change



European fleet  
segments (STECF,  
2014)