



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
CAMPUS DI RAVENNA

Innovating the Adriatic fishery and aquaculture for a Blue Economy and a Blue Justice in the region



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2024

OPENDISTAL
20 SETTEMBRE





2024

OPENDISTAL
20 SETTEMBRE

Swartz et. al 2012 The Spatial Expansion and Ecological Footprint of Fisheries (1950 to Present). PLoS ONE doi.org/10.1371/journal.pone.0015143



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CHART 18
HOUSEHOLD NOMINAL
EXPENDITURE ON
FISHERY AND
AQUACULTURE
PRODUCTS IN 2019 AND
% VARIATION 2019/2018
(out-of-home
consumption is excluded)

Source: EUROSTAT
 (online data code: [prc_ppp_ind](#))
 Purchasing Power Parities
 PPPs – nominal expenditure

*In 2019,
 households of all
 EU countries spent
 more for buying
 fishery and
 aquaculture
 products than in
 2018.*

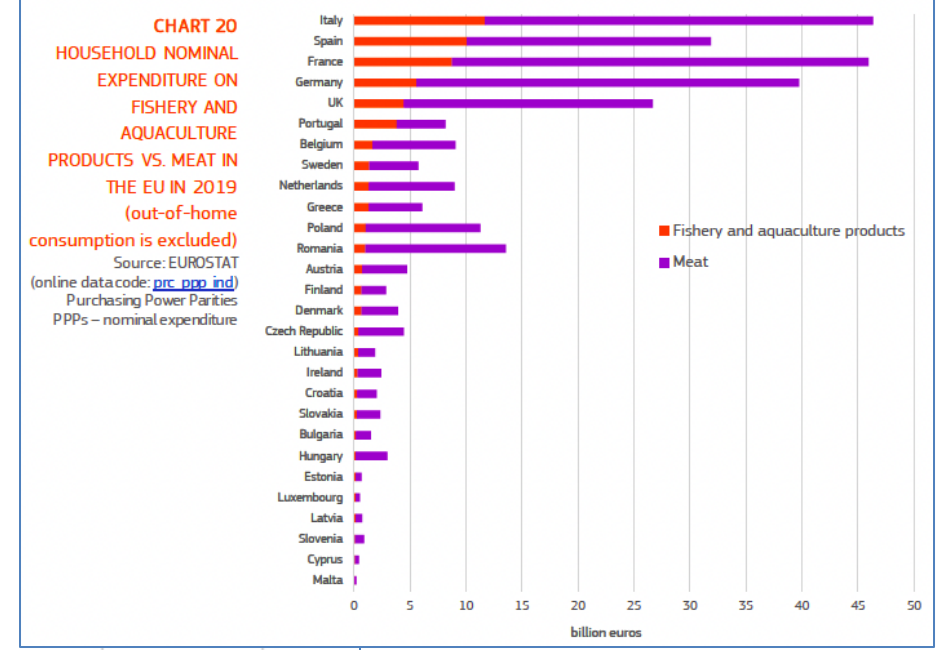
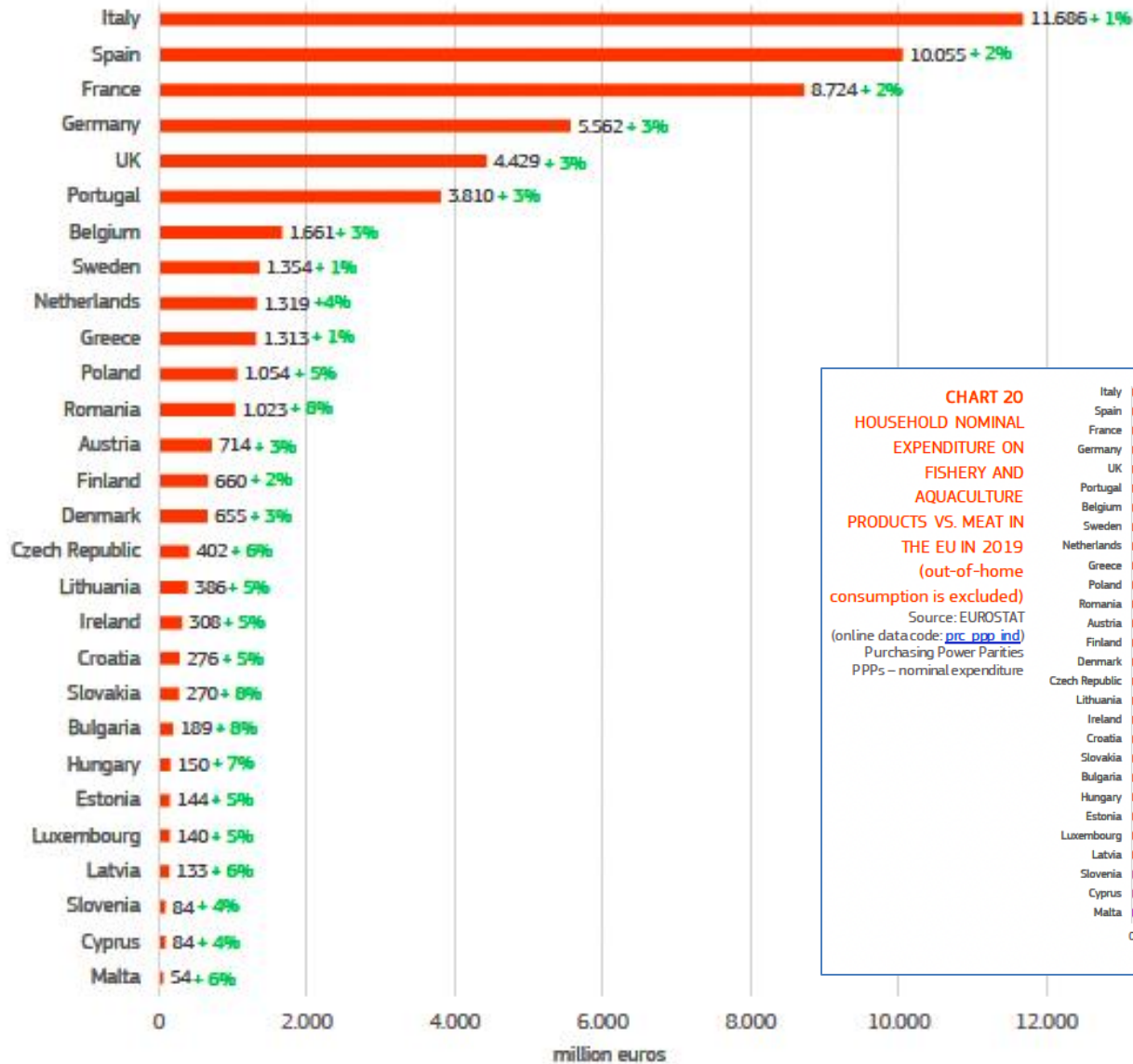


CHART 19
PER CAPITA HOUSEHOLD
NOMINAL EXPENDITURE
ON FISHERY AND
AQUACULTURE
PRODUCTS IN 2019 AND
% VARIATION 2019/2018
(out-of-home
consumption is excluded)

Source: EUROSTAT
 (online data code: [prc_ppp_ind](#))
 Purchasing Power Parities
 PPPs – nominal expenditure per
 inhabitant

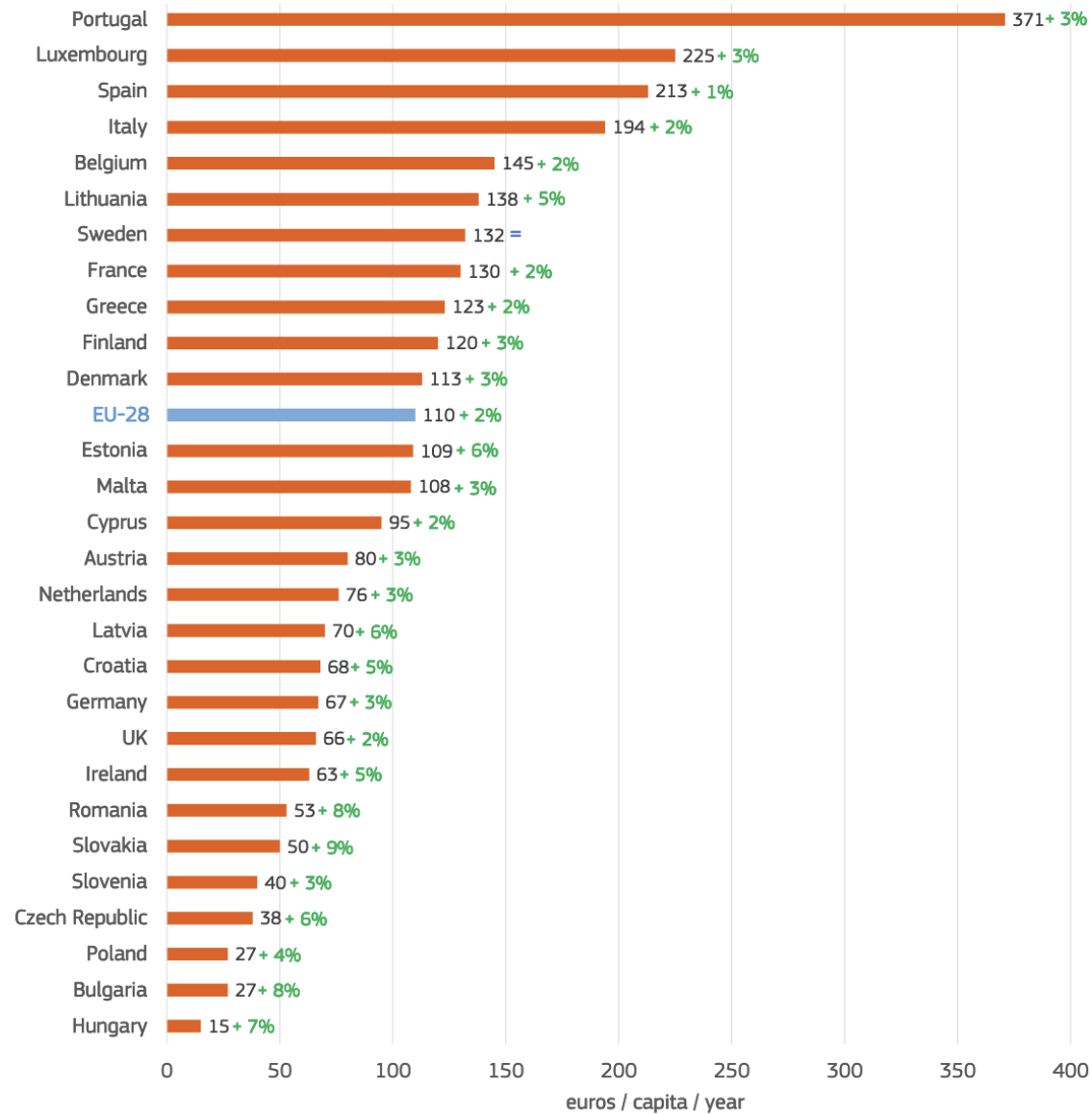


CHART 3
EU SUPPLY BALANCE
(2018, LIVE WEIGHT
EQUIVALENT,
FOOD USE ONLY)

Source: EUMOFA, based on EUROSTAT (online data codes: [fish_aq2a](#), [fish_ca_main](#) and [DS-016890](#)) and FAO data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports can be found in the Methodological background.



TOTAL FISHERIES AND AQUACULTURE PRODUCTS

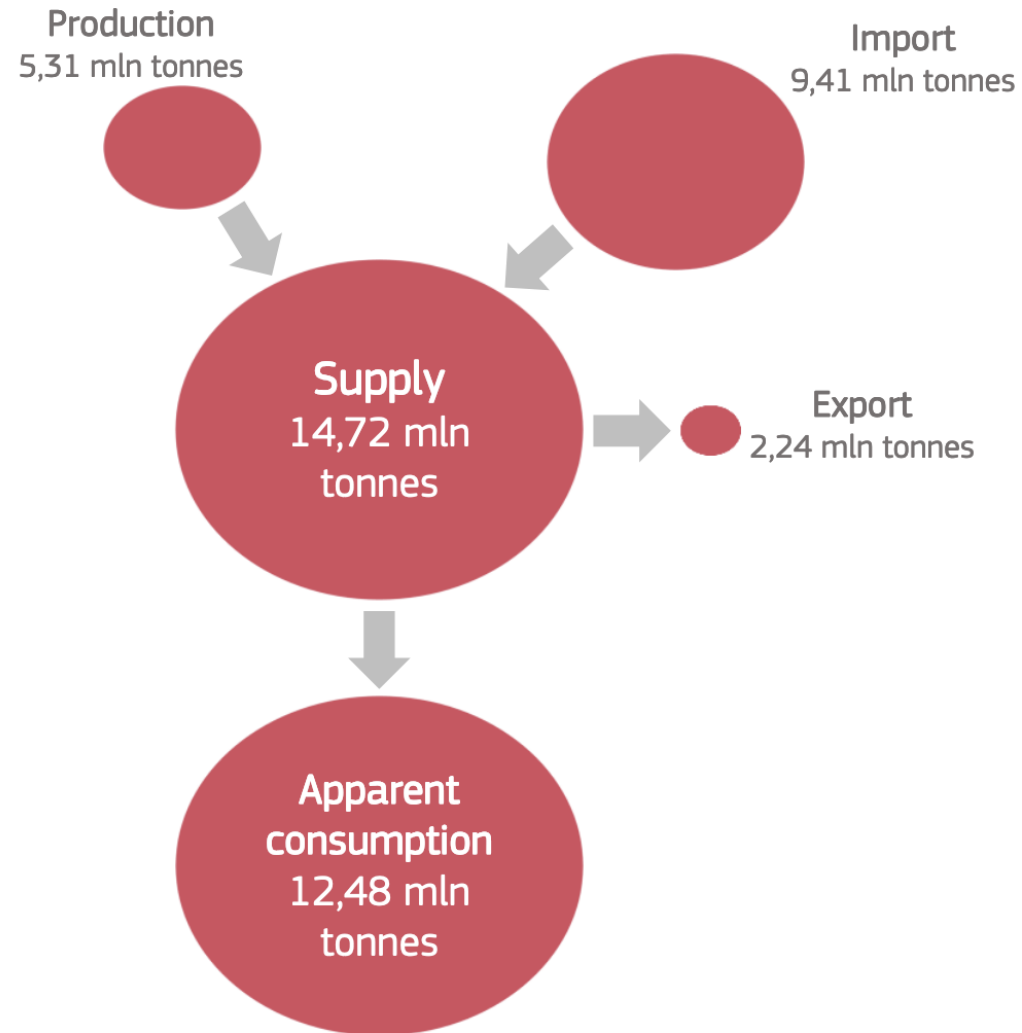
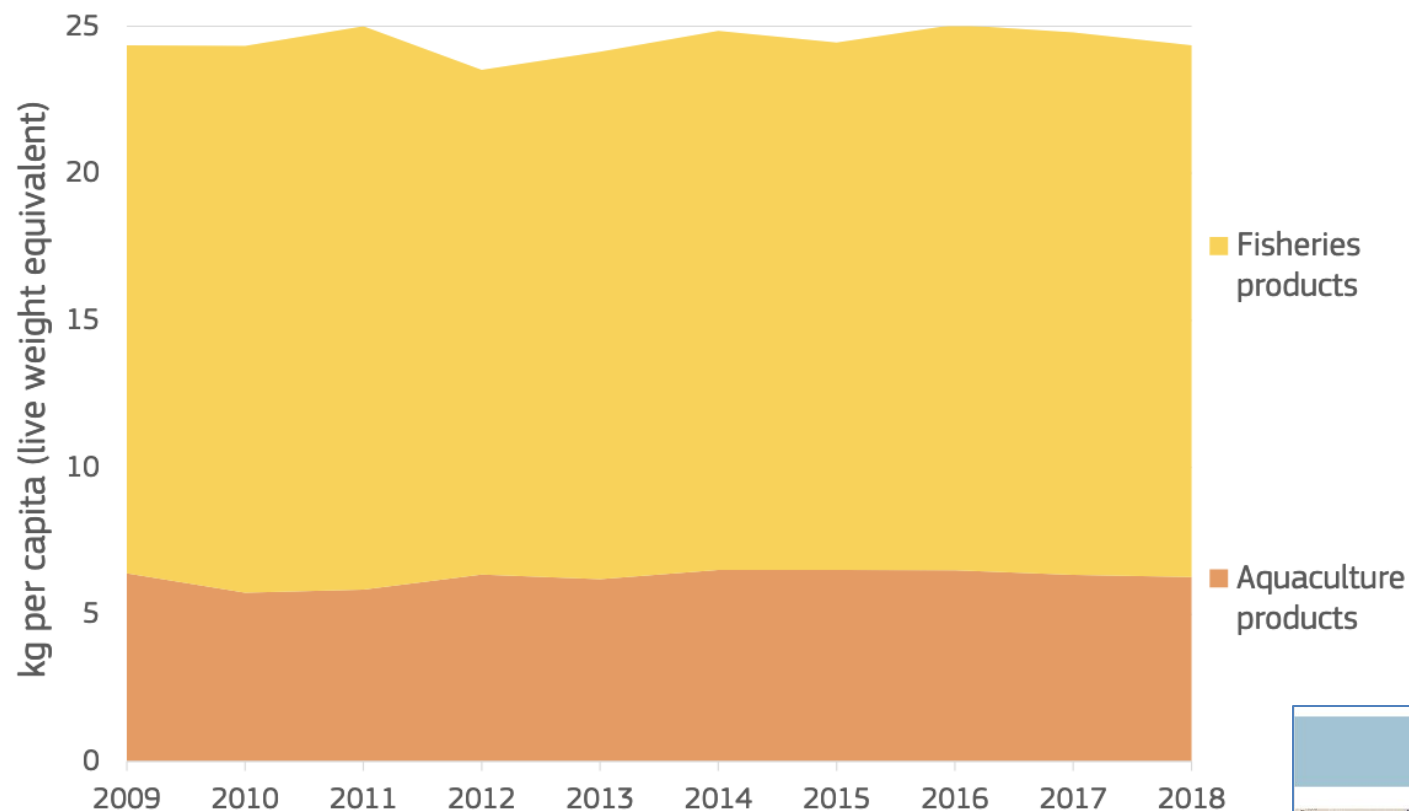
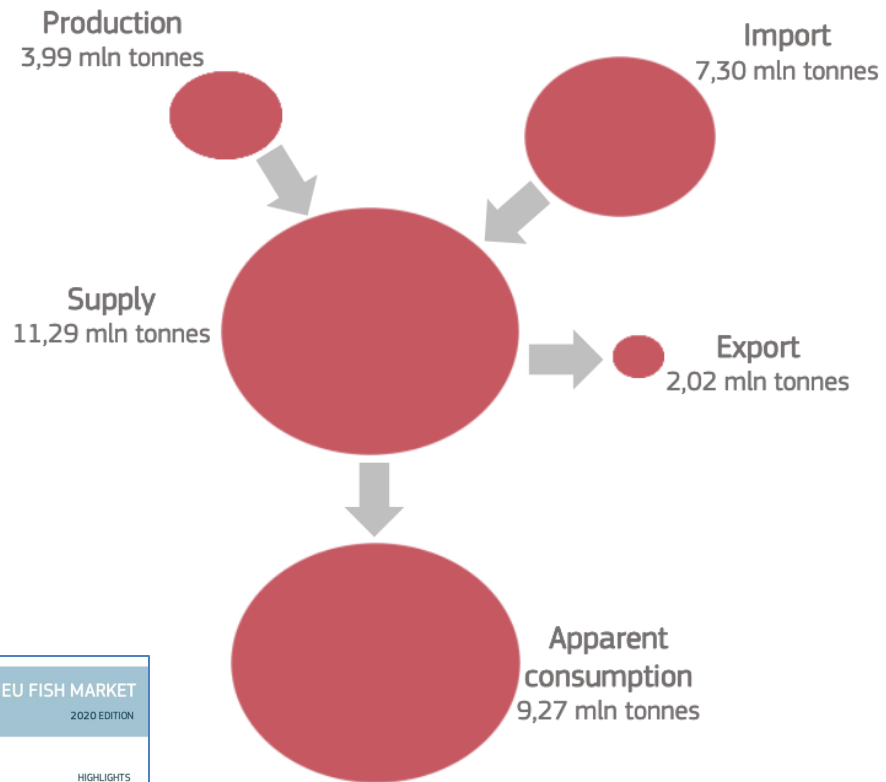


CHART 10 PER CAPITA APPARENT CONSUMPTION OF FISHERY AND AQUACULTURE PRODUCTS

Source: EUMOFA, based on EUROSTAT (online data codes: [fish_aq2a](#), [fish_ca_main](#) and [DS-016890](#)), FAO, national administrations and FEAP data. Details on the sources and on the methodological approach used for assessing the production method of imports and exports can be found in the Methodological background.



FISHERIES PRODUCTS



AQUACULTURE PRODUCTS

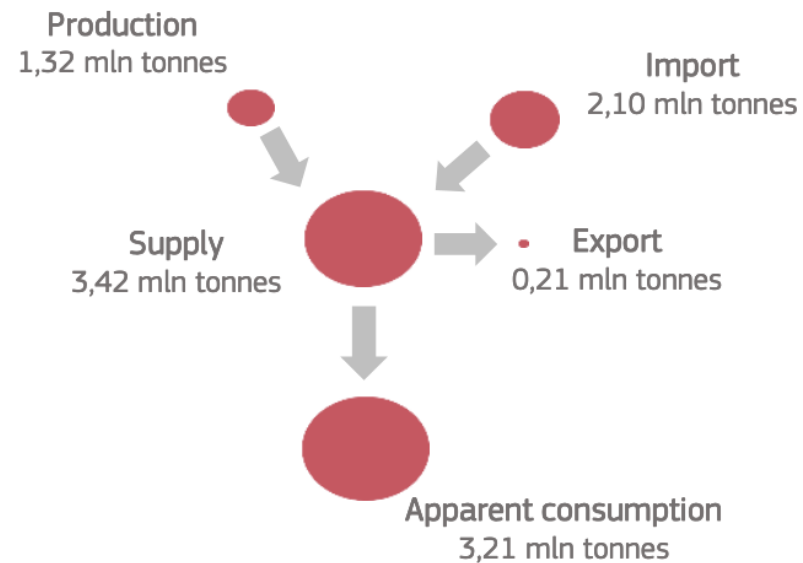
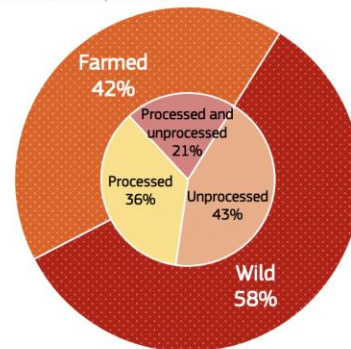


CHART 30
TYPES OF PRODUCTS UNDER EU QUALITY SCHEMES IN THE SEAFOOD SECTOR (AUGUST 2020)
Source: eAmbrosia, DG AGRI



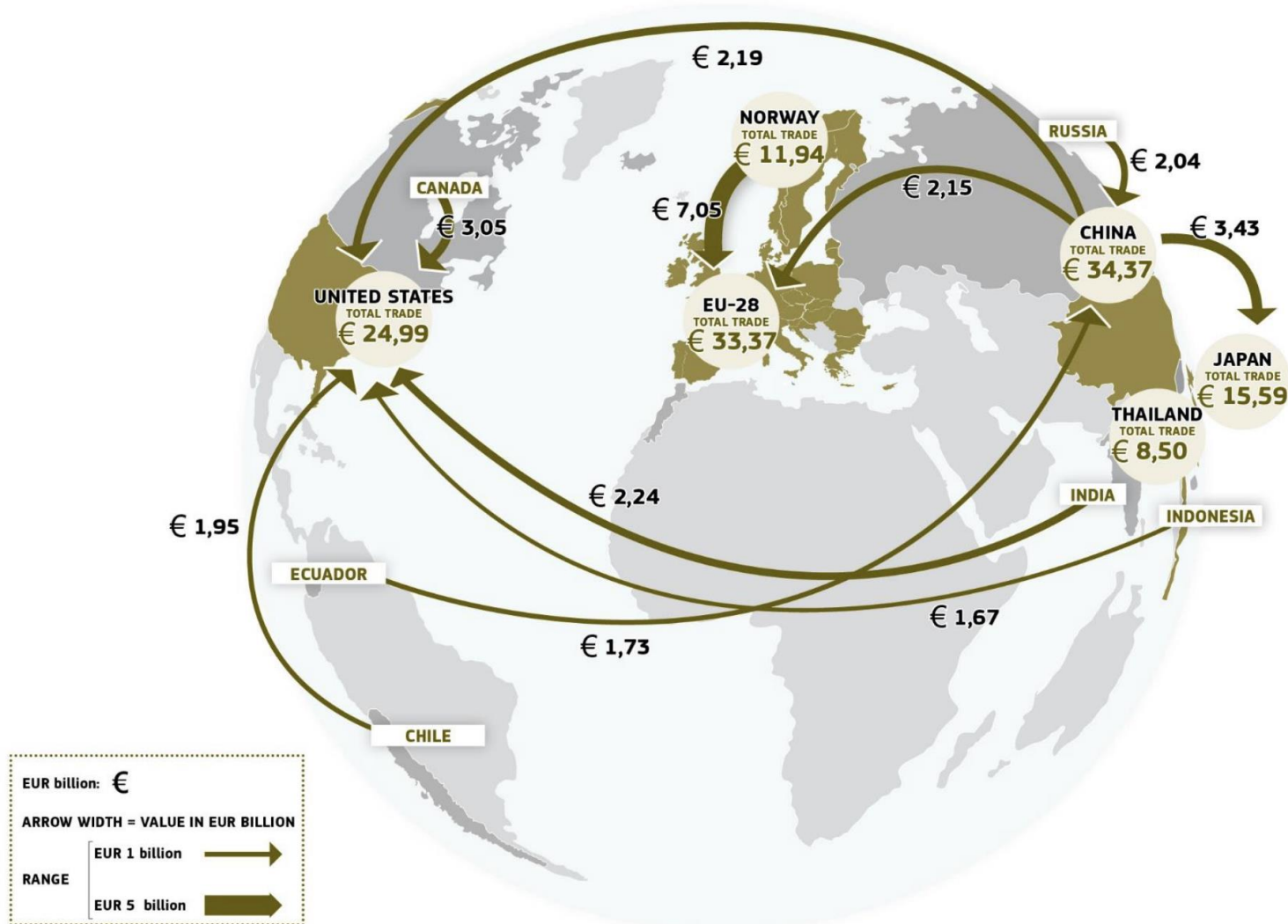
	Unprocessed	Processed	Processed and unprocessed	Total
Wild	8	17	6	31
Farmed	15	2	5	22
Total	23	19	11	53

*The PGI "London Cure Smoked Salmon" (2017, the United Kingdom) is based on both wild caught and farmed products.

CHART 2

MAIN TRADE FLOWS OF FISHERY AND AQUACULTURE PRODUCTS IN THE WORLD (2019, NOMINAL VALUES)

Source: EUMOFA, based on elaboration of data from EUROSTAT (for EU trade flows, online data code [DS-016890](#)), StatBank Norway, and Global Trade Atlas - IHS Markit (for trade flows of other non-EU countries)



China's growing distant water fleet



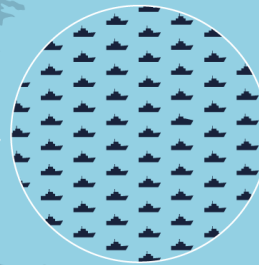
1985



A few
VESSELS

dispatched to
fish off the coast
of Africa

2019



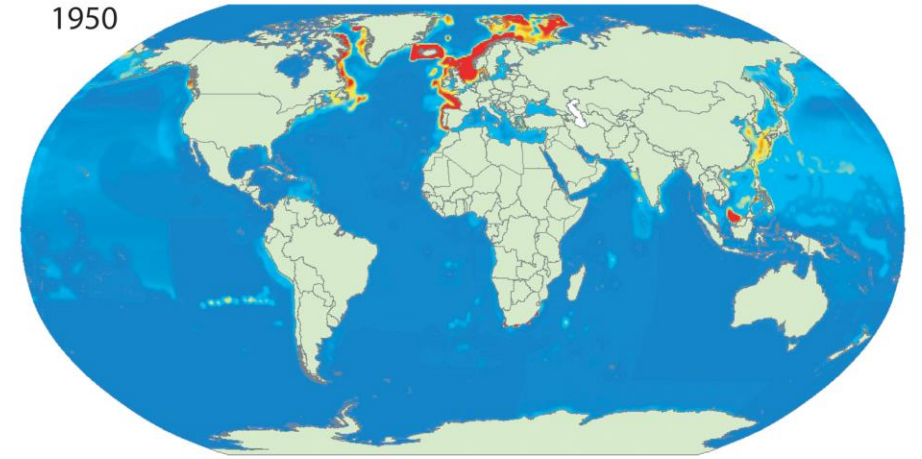
China's overseas
fleet has grown to

NEARLY
3,000
VESSELS

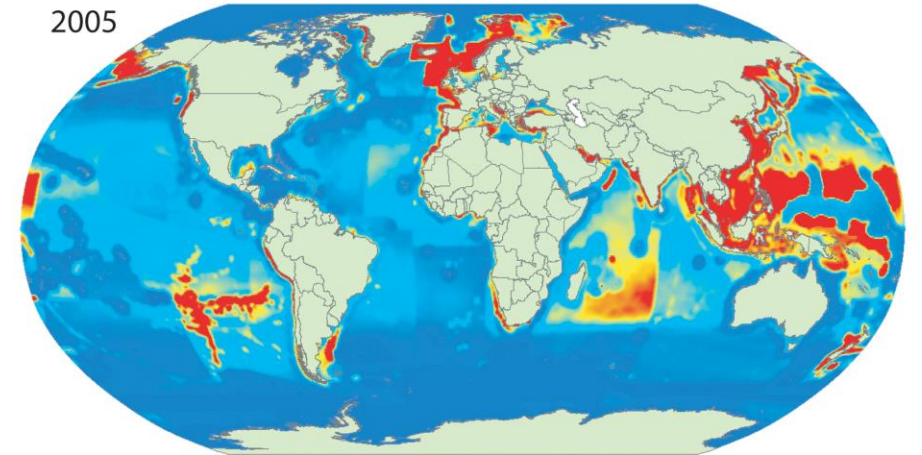


Source: Greenpeace

1950



2005

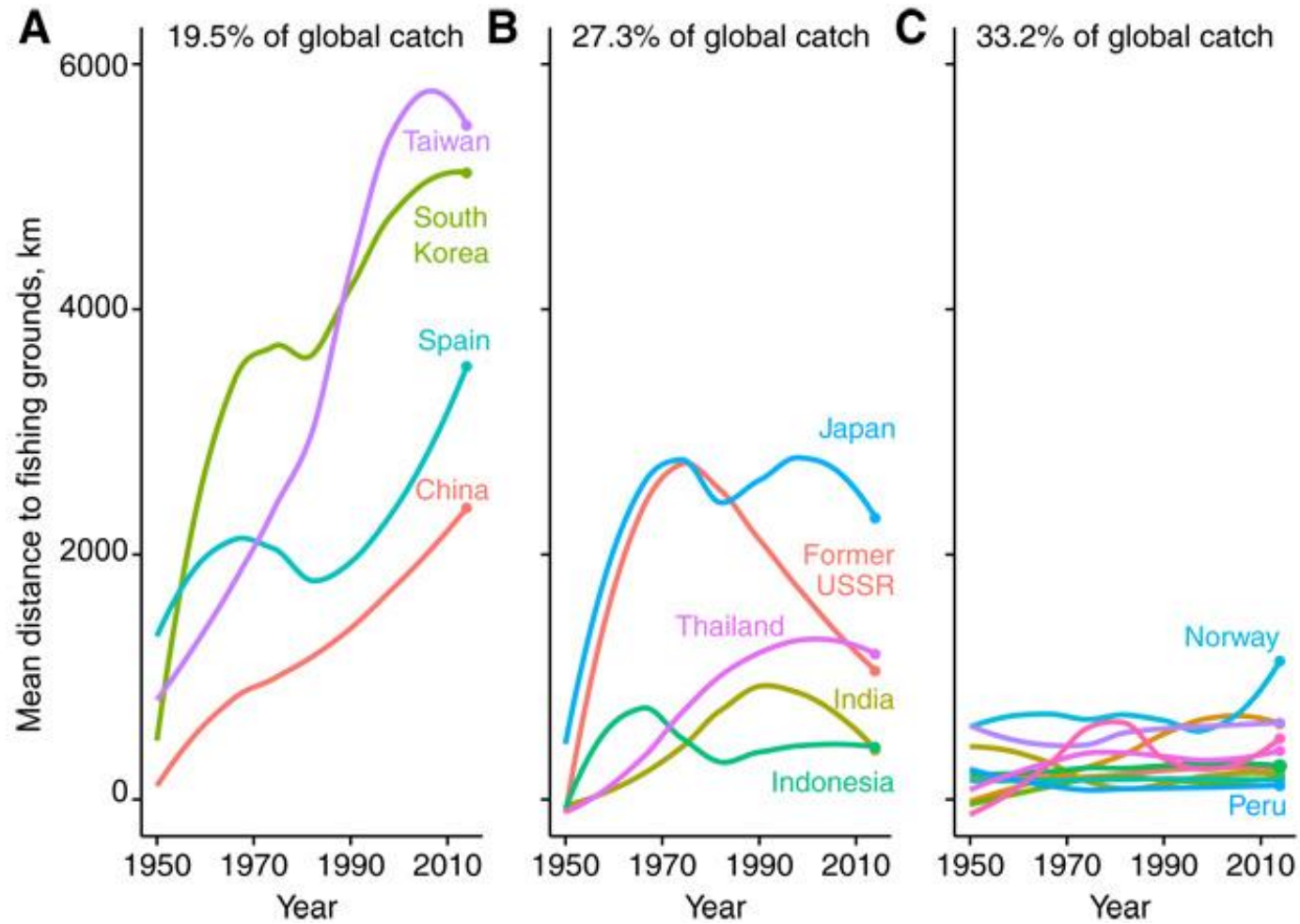


Swartz et. al 2010. *The Spatial Expansion and Ecological Footprint of Fisheries (1950 to Present)*. PLoS ONE
doi.org/10.1371/journal.pone.0015143



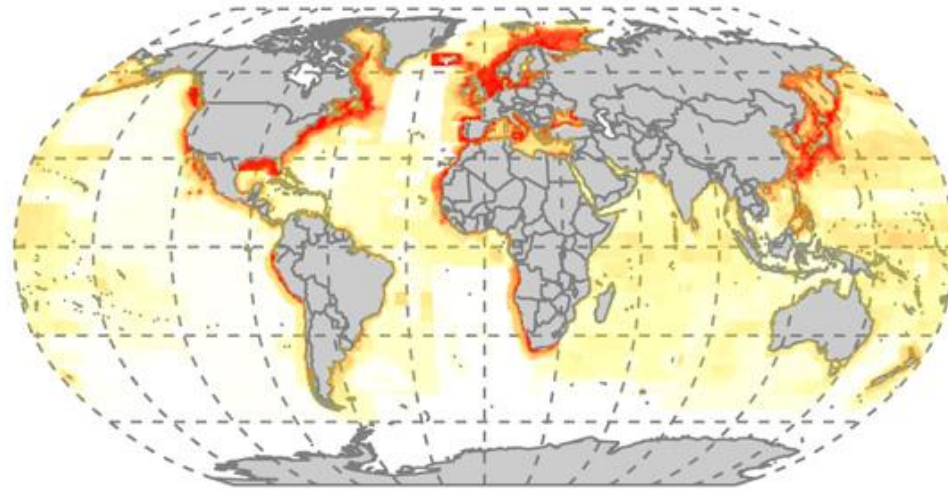
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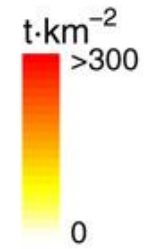
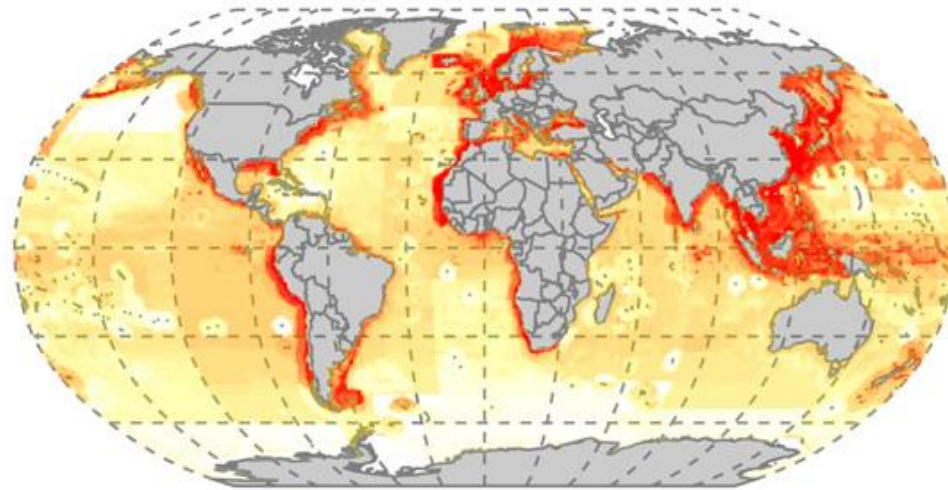


Tickler et al. 2018 Far from home: Distance patterns of global fishing fleets. *Sci Adv* <https://doi.org/10.1126/sciadv.aar3279>

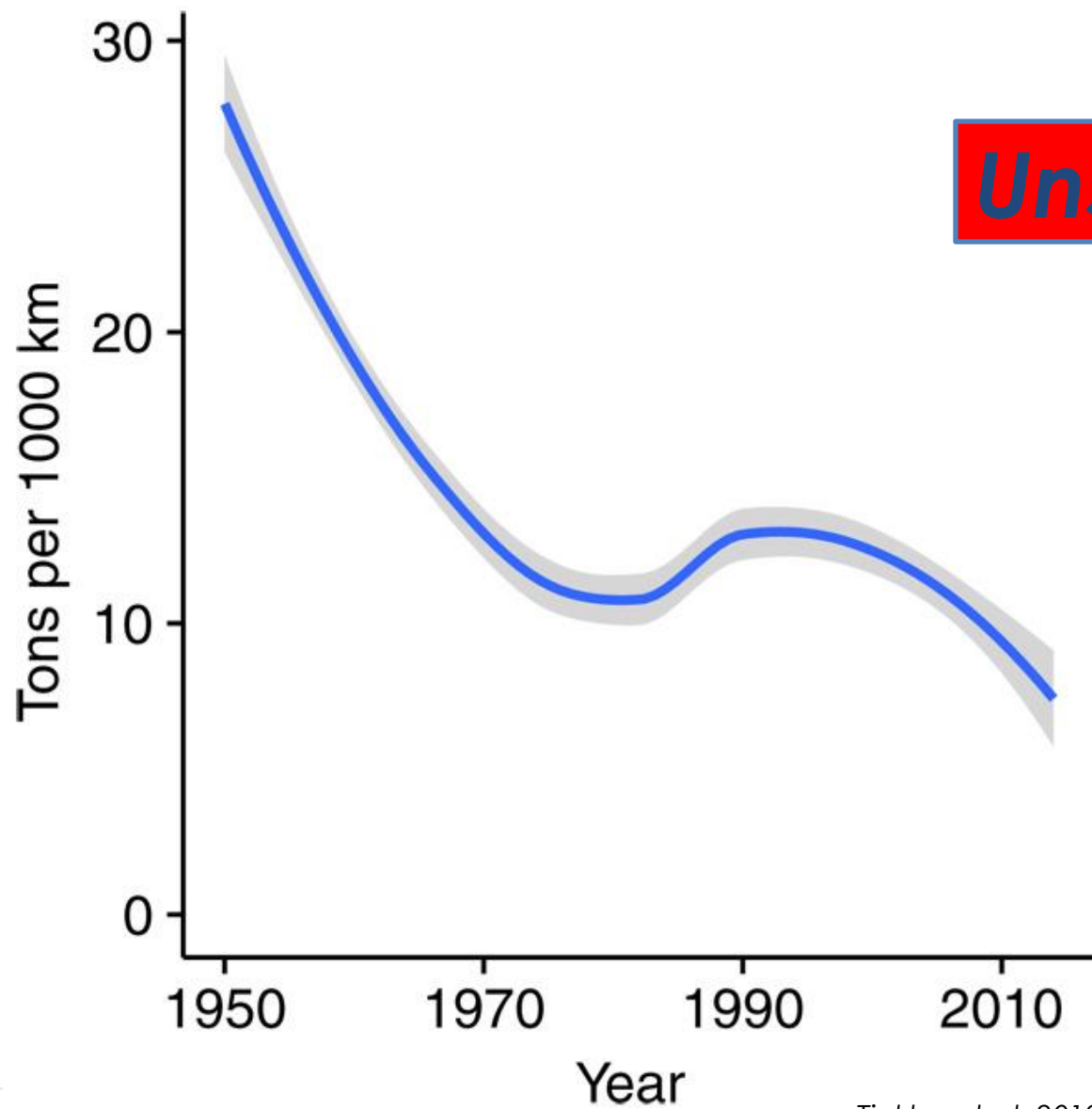
A 1950s



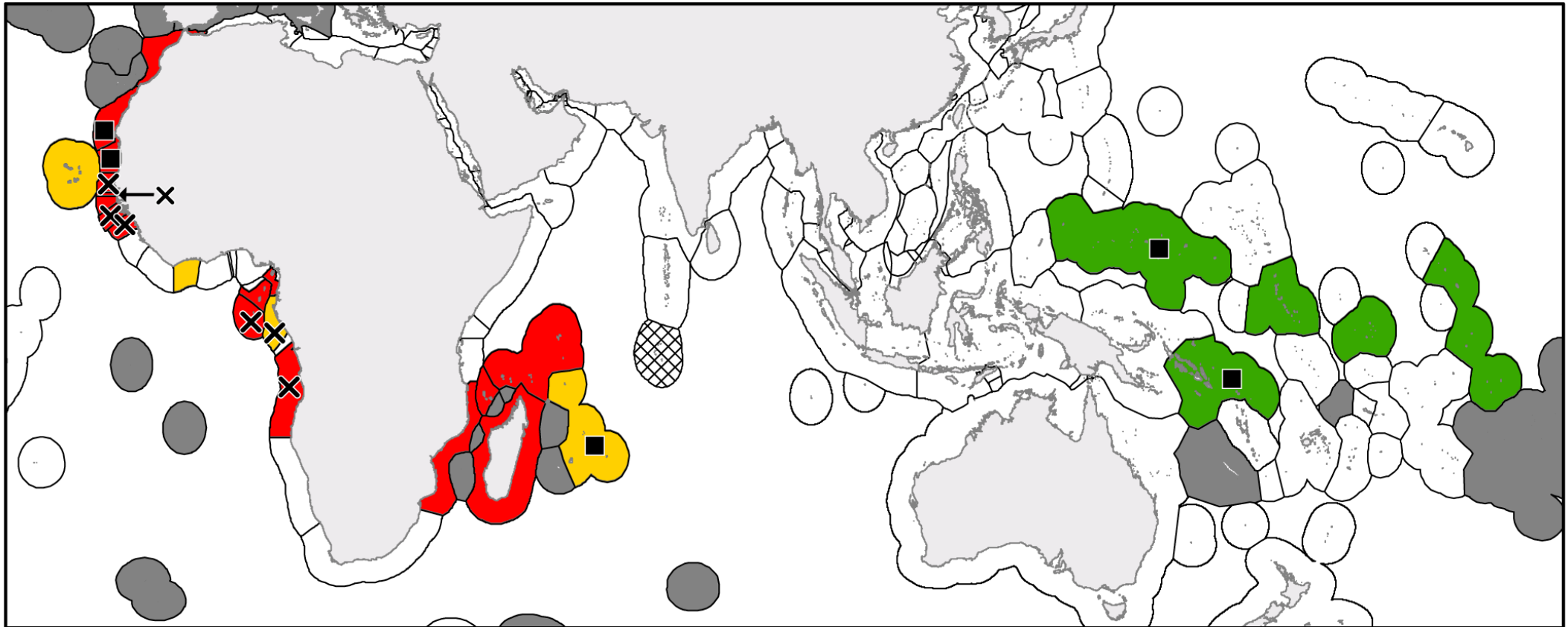
B 2000s



Tickler et al. 2018 Far from home: Distance patterns of global fishing fleets. *Sci Adv*
<https://doi.org/10.1126/sciadv.aar3279>



Unsustainable!!!!



Exclusive Economic Zones (EEZ)
 European EEZ
 1980s
 1990s
 2000s
 Entry into force

Le Manach et al. (2013) European Union's Public Fishing Access Agreements in Developing Countries. PLoS ONE <https://doi.org/10.1371/journal.pone.0079899>

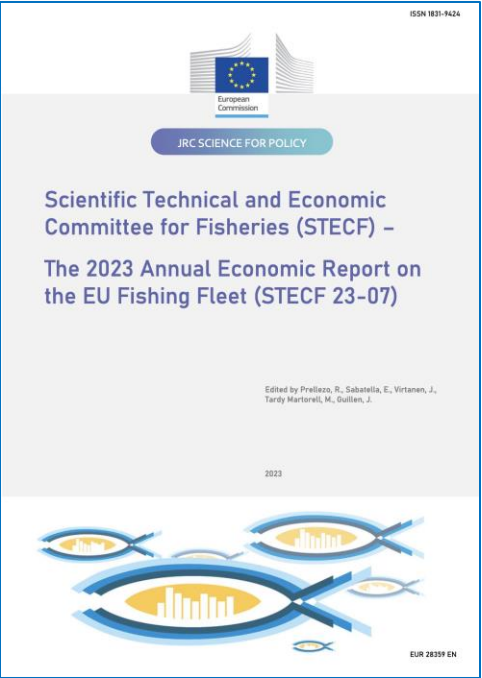
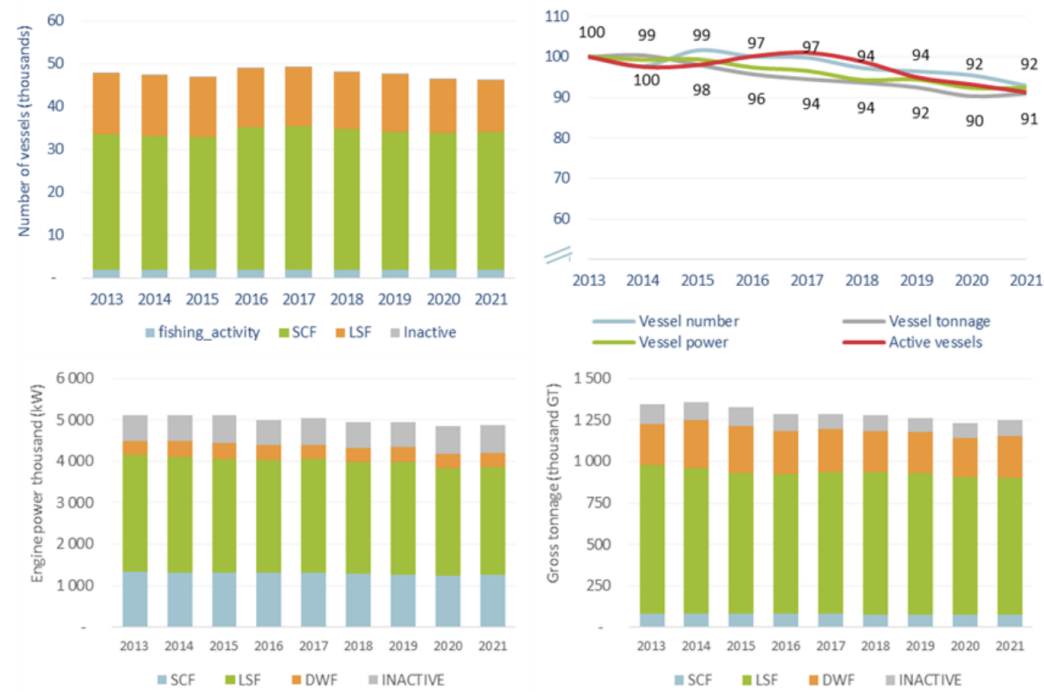
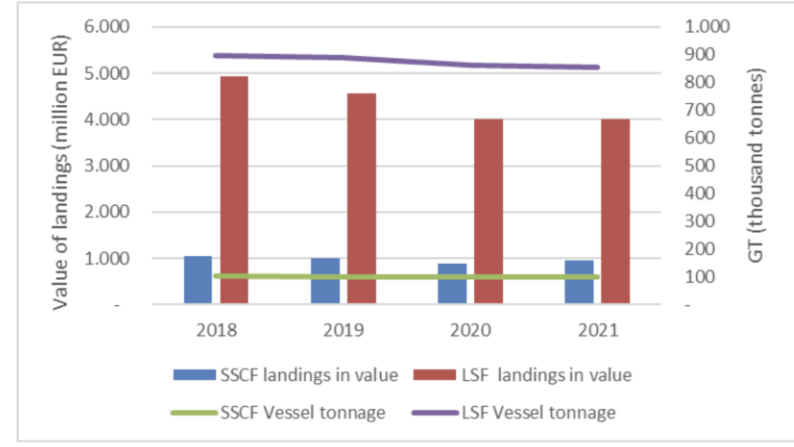


Figure 2.1 Trends and variations on capacity in number of vessels, gross tonnage and engine power.

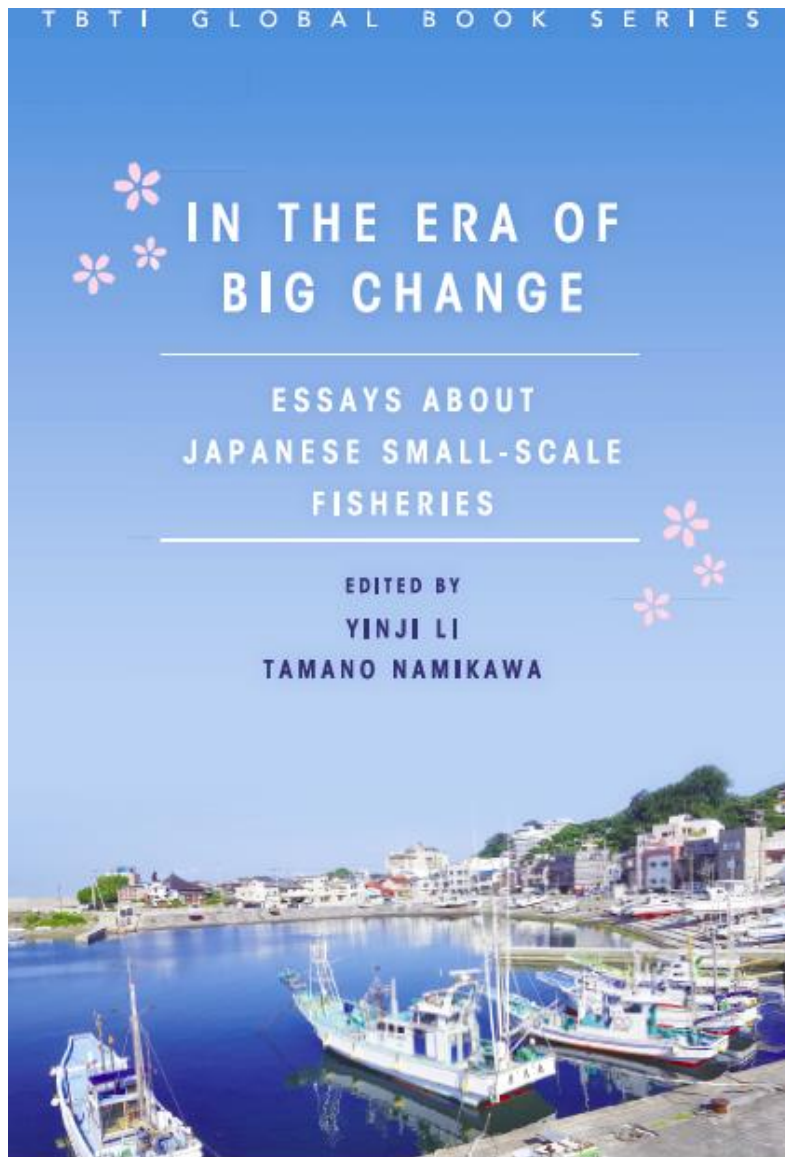


Data source: MS data submissions under the 2023 Fleet Economic data call (MARE/A3/ACS(2023)). Trends exclude Greece for time-series consistency

Figure 2.19 Trends on the landings in value and vessel tonnage for the SSCF and LSF



Data source: MS data submissions under the 2023 Fleet Economic data call (MARE/A3/AC(2022)). All monetary values have been adjusted for inflation; constant prices (2020).



Even in the era of big change, there are many small changes that happen along the way: toward the Blue Justice of the Japanese Small-Scale Fisheries

Li & Namikawa, 2020 *In the era of big change: Essays about Japanese Small-Scale Fisheries*. TBTI Global, Japan. <https://tbtiglobal.net/in-the-era-of-big-change/>

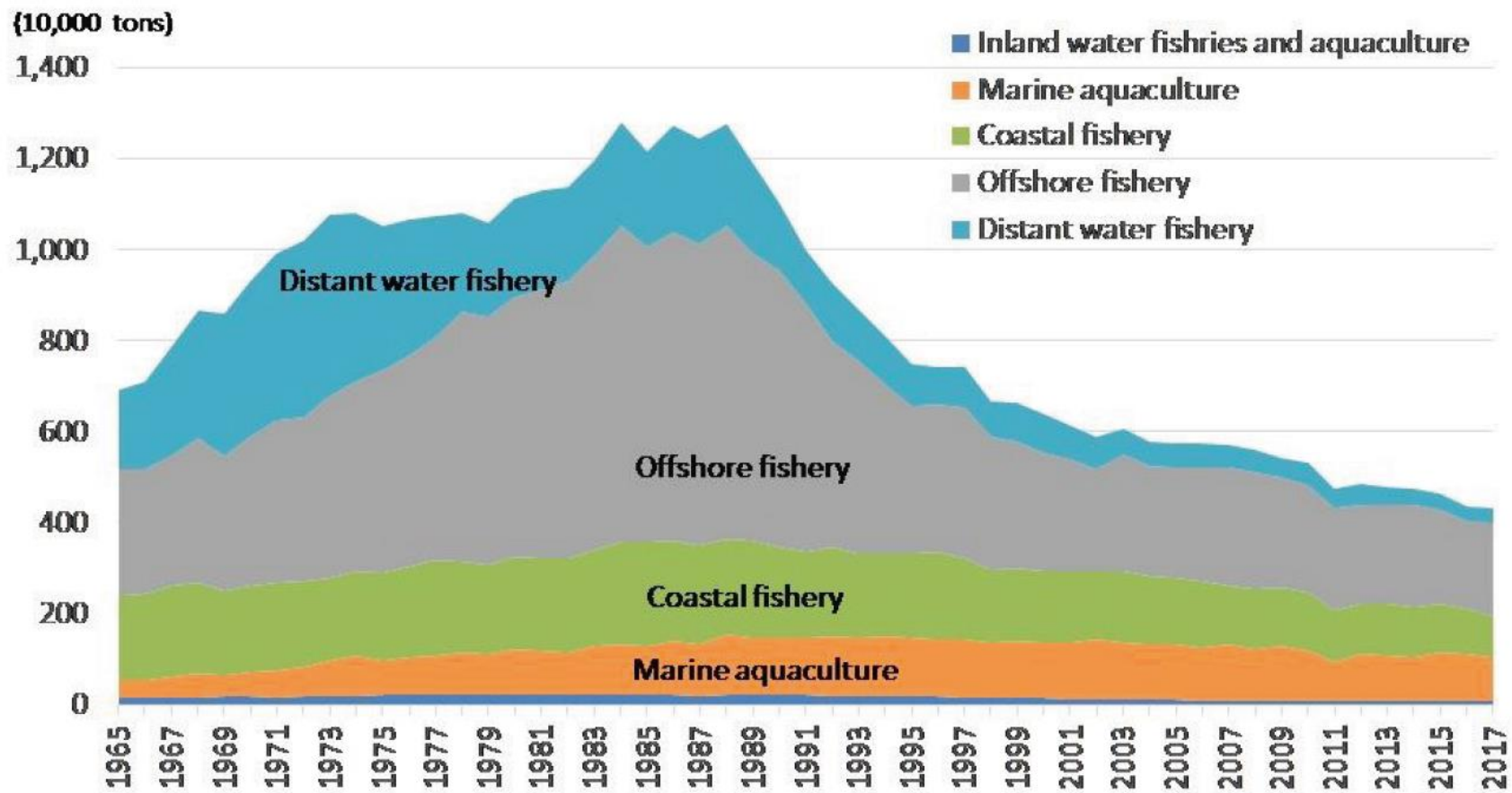
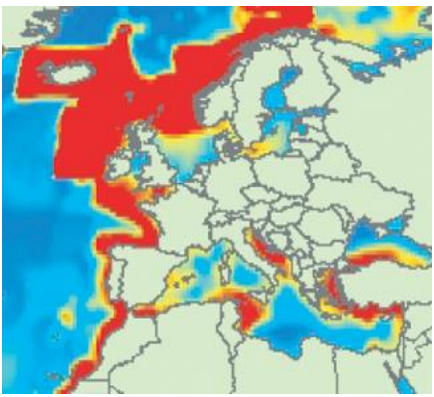


Figure 1: Trends in the production volume of Japan's fisheries and aquaculture.

Source: Fisheries and Aquaculture Production Statistics

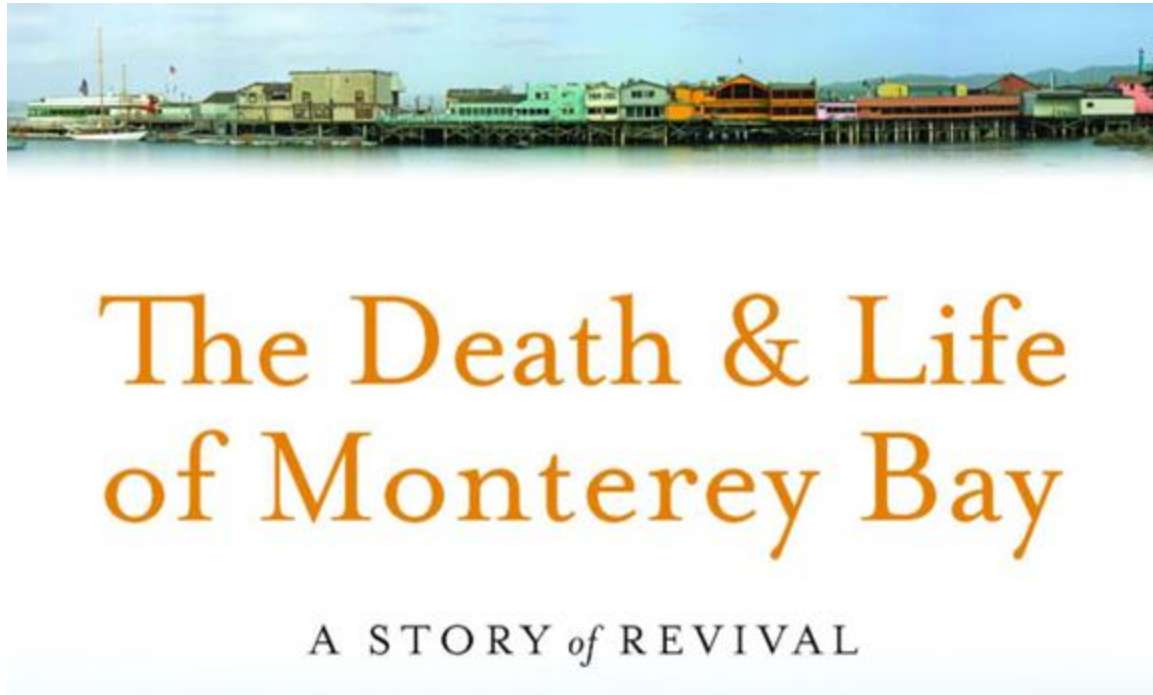
Li & Namikawa, 2020 In the era of big change: Essays about Japanese Small-Scale Fisheries. TBTI Global, Japan. <https://tbtiglobal.net/in-the-era-of-big-change/>



*How increase the sustainability of fisheries activities in Adriatic Sea? > by **fostering innovative process along the whole fishery supply chain***

Eco-innovative Adriatic fishery

THE IDEA (from where we started, ca. 2019)



How much would you be willing to pay for a sustainable seafood product?

CHART 29
5-YEAR TREND OF
CONSUMPTION OF
ORGANIC FISHERY AND
AQUACULTURE PRODUCTS
IN TOP-5 COUNTRIES,
2019 VOLUMES AND %
VARIATION 2019/2018

Source: Euromonitor International

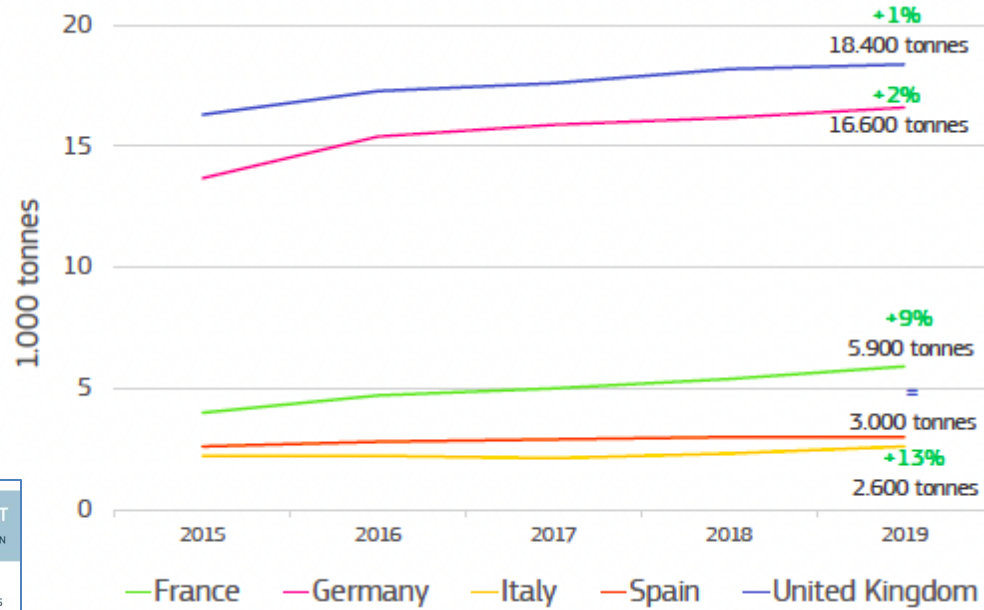
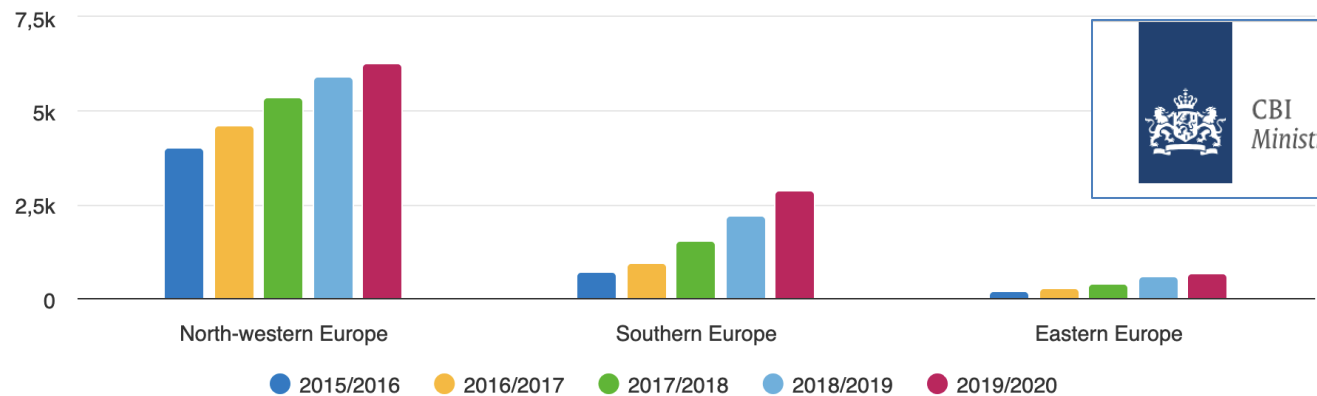


Figure 3: 5-year trend in the number of MSC-certified products available per European region

Total number of MSC-labelled products





<https://www.italy-croatia.eu/web/prizefish>



<https://www.italy-croatia.eu/web/techera>



<https://www.italy-croatia.eu/it/web/3efishing>



TOTAL BUDGET
€ 3.120.000



€ **Total budget** 1.873.755





Innovation and Blue Growth to improve:

Adriatic fishery

To promote innovative technologies and best responsible practices to foster environmental and economic sustainability of the fishery sector

Transformation processes of seafood

To support SMEs in the realisation and integration of innovative processes boosting the added value of Adriatic seafood

Marketing


To rise the competitiveness of Adriatic fishery in European and international markets and strengthen the chain of value

Main goal
*promotion and trading of
eco-certified products,
adding value to Adriatic
fishery products*





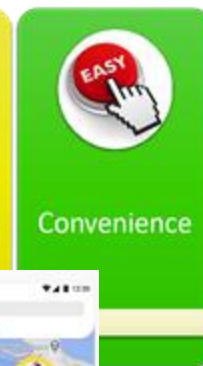
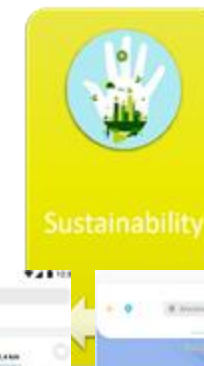
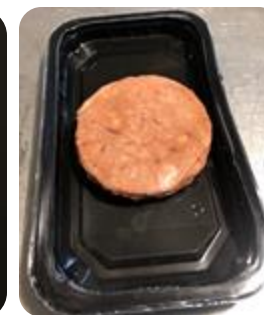
What we achieved:

 a brand-new eco-certification framework tailored for the Adriatic fishery, named **Adriatic Responsible Fishery Management (ARFM)**, tested to **evaluate 10 Adriatic fisheries**;

 **3 innovative fishing gears** (small pelagic fishing pump, modified rampon for demersal, customized dredge for clams);

 **3 added-value seafood products and their related processing technologies** (sardine fillets with long shelf life, clams ready to cook, fish&shrimp burgers);

 **4 innovative business models** paired with **B2C marketing strategy** (PRIZEFISH e-commerce app)



Blue innovation & growth to improve framework conditions of:

Programme Area territories

Increasing Adriatic SMEs competitiveness with technology transfer

EMPOWERMENT OF THE ADRIATIC FISHING-SECTOR SMEs



181 SMEs



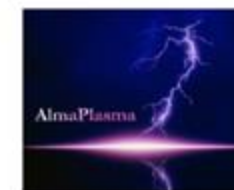
Produttori di prodotti ittici

Ricerca pre-industriale



DIPARTIMENTO DI SCIENZE E TECNOLOGIE AGRO-ALIMENTARI

Produttori di impianti di trasformazione



Blue innovation & growth to improve framework conditions of:
Programme Area territories and society along the whole chain

 INCREASE OF
 EMPLOYMENT RATE
 AND
 INTERGENERATION
 AL TURNOVER IN
 ADRIATIC FISHERY

**622 students/
 operators**



Interreg






Co-funded by
the European Union

Italy – Croatia

3EFISHING

Develop and transfer the **triple-E research-based innovation** (i.e. Electric-engine technologies, Environmental quality and Economic sustainability) from **University and Research Centres** to **fishers, farmers, SMEs and Producer Organizations** for the **Green and Blue transition** of the **Adriatic Small-Scale Fishery and Aquaculture (SSF-AQ) fleet** and to **achieve the sector sustainability**, including the **electric-refitting of two <12 mt pilot vessels, full LCA and financial investment plan** for SSF-AQ agents



-  **WP1 - Electric-powered propulsion setting for small-scale fisheries and aquaculture vessels**
-  **WP2 - Performance testing and technological transfer for the E-powered SSF and AQ fleet transition**
-  **WP3 - Assessing Economic and Environmental value and financial/investment planning of SSF-AQ E- transition**



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ECOSCIENZA Numero 2 • Anno 2024

INNOVARE LA PICCOLA PESCA E L'ACQUACOLTURA IN ADRIATICO

AL VIA IL PROGETTO 3EFISHING PER IL GREEN DEAL EUROPEO. LA PARTNERSHIP ITALO-CROATA È GUIDATA DALL'UNIVERSITÀ DI BOLOGNA E PREVEDE LA REALIZZAZIONE E L'OTTIMIZZAZIONE FUNZIONALE DI IMBARCAZIONI CON MOTORE IBRIDO ELETTRICO-DIESEL, COSÌ DA RENDERLO PIÙ SOSTENIBILE A LIVELLO AMBIENTALE, ECONOMICO E SOCIALE.

La pesca e l'acquacoltura svolgono un ruolo centrale nella *blue economy* della regione adriatica, in particolare per l'Italia e la Croazia. I comparti, secondi solo a quelli del turismo e dei trasporti, soffrono però di un basso livello di collaborazione fra il settore pubblico e quello privato e di scarse *performance* nel trasferimento tecnologico dei risultati ottenuti mediante la ricerca applicata verso gli utilizzatori finali dei mezzi e delle attrezzature per la pesca. Nonostante l'impegno di università e centri di ricerca per migliorare e implementare innovazione, il



FOTO: FAUSTO TINTI - UNIVERSITÀ DI BOLOGNA, BOLOGNA

QUINZIESIMO ANNO
PIANETA 30



Meno CO2 in Adriatico
Sui pescherecci
con motori ibridi

20-05-2024

Pagina 17

Foglio 1 / 2

QV economiaelavoro



www.ecosampa.it

Partito «3Efishing», il nuovo progetto che porterà la propulsione ibrida nelle imbarcazioni italiane e croate

di Giorgio Costa

FAUSTO TINTI (UNIVERSITÀ DI BOLOGNA)

«Intendiamo dimostrare la fattibilità di questa transizione in condizioni operative reali, così da rendere più semplice il passaggio a tecnologie eco-friendly»

Motori elettrici per la pesca nell'Adriatico

BLUE ECONOMY

2024

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A. Liverani



D. Francia



A. Bonaldo



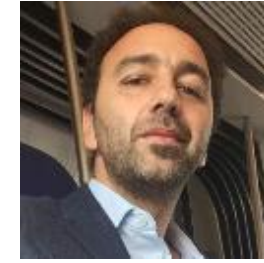
L. Mulazzani



L. Camanzi



G. Malorgio



P. Rocculi



S. Tappi



I. Sgandurra



R. Bagnano



M. Norbiato



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