This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

SusTunTech

Inteligencia artificial y datos masivos para mejorar sostenibilidad ecológica y económica en operaciones pesqueras de túnidos

Speaker: Jose A. Fernandes-Salvador (jfernandes@azti.es)

13th April 2023

marine instruments

AZTI MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

SINTEF

Newcastle University

echebastar

ZEPHYR beyond engines

Universidad del País Vasco Euskal Herriko Unibertsitatea

MARIDIS MARITIME DIAGNOSIS & SERVICE

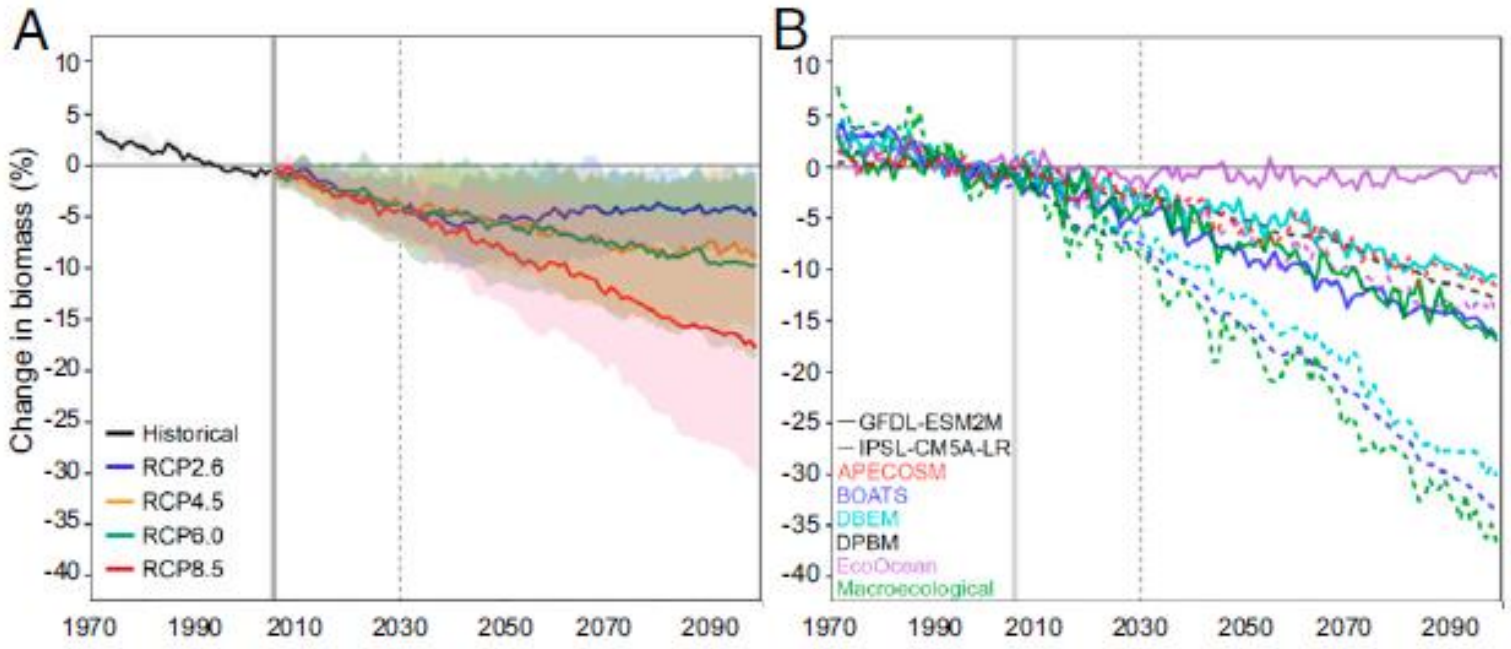
Producción pesquera

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

PNAS

Global ensemble projections reveal amplification of ocean biomass decl with climate change

Heike K. Lotze[a,1], Derek P. Tittensor[a,b], Andrea Bryndum-Buchholz[a], Tyler D. Ec
Eric D. Galbraith[d,e], Manuel Barange[f], Nicolas Barrier[g], Daniele Bianchi[h], Julia L
Matthias Büchner[i], Catherine M. Bulman[m], David A. Carozza[n], Villy Christenser
Elizabeth A. Fulton[j,m], Simon Jennings[r,s,t], Miranda C. Jones[c], Steve Mackinson[u], Olivier Maury[v,w], Susa Niiranen[w],
Ricardo Oliveros-Ramos[x], Tilla Roy[i,y], José A. Fernandes[z,aa], Jacob Schewe[i], Yunne-Jai Shin[g,bb], Tiago A. M. Silva[r],
Jeroen Steenbeek[p], Charles A. Stock[q], Philippe Verley[cc], Jan Volkholz[i], Nicola D. Walker[r], and Boris Worm[a]



nature climate change

ARTICLES

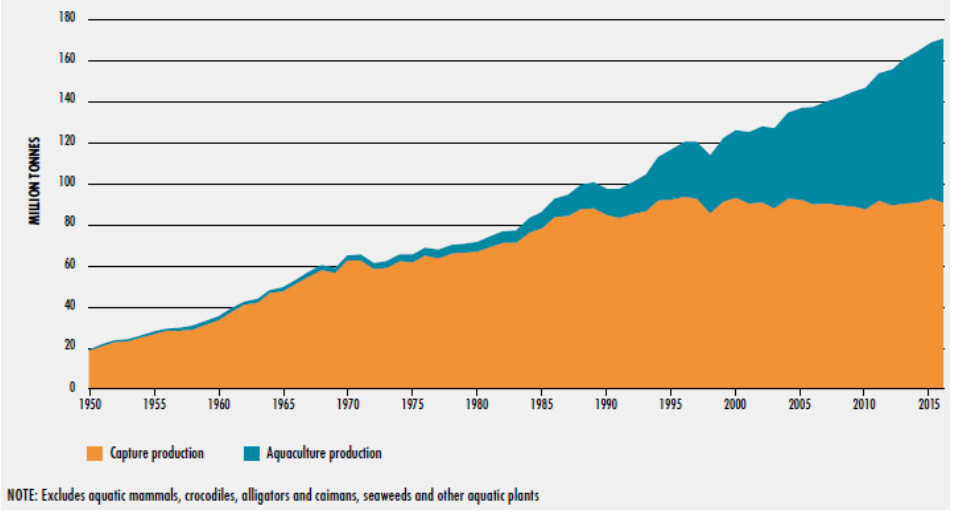
https://doi.org/10.1038/s41558-021-01173-9

Check for updates

OPEN

Next-generation ensemble projections reveal higher climate risks for marine ecosystems

FIGURE 1
WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION

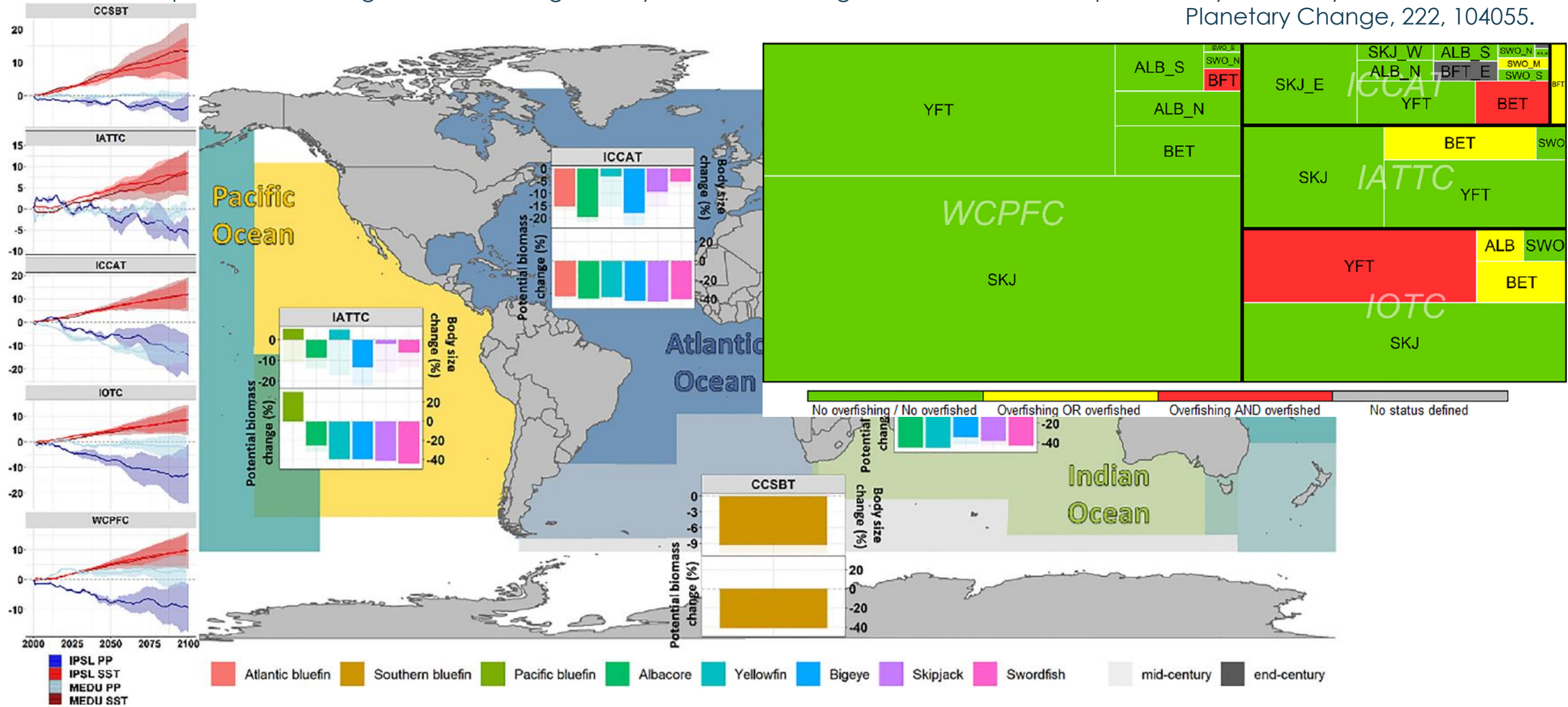


NOTE: Excludes aquatic mammals, crocodiles, alligators and caimans, seaweeds and other aquatic plants

Cambio climático

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

Erauskin-Extramiana, M., Chust, G., Arrizabalaga, H., Cheung, W. W., Santiago, J., Merino, G., & Fernandes-Salvador, J. A. (2023). Implications for the global tuna fishing industry of climate change-driven alterations in productivity and body sizes. Global and Planetary Change, 222, 104055.



Consumo combustible

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

nature climate change

Article | Published: 02 April 2018

Fuel use and greenhouse gas emissions of world fisheries

Robert W. R. Parker, Julia L. Blanchard, Caleb Gardner, Bridget S. Green, Klaas Hartmann, Peter H. Tyedmers & Reg A. Watson

Nature Climate Change **8**, 333–337 (2018) | Download Citation

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Abstract

from agriculture and livestock production. We estimate that fisheries consumed 40 billion litres of fuel in 2011 and generated a total of 179 million tonnes of CO_2-equivalent GHGs (4% of global food production). Emissions from the global fishing industry grew by 28% between 1990 and 2011, with little coinciding increase in production average emissions per tonne landed grew by 21%). Growth in emissions was driven primarily by increased harvests from fuel-intensive crustacean fisheries. The environmental benefit of low-carbon fisheries could be further realized if a greater proportion of landings were directed to human consumption rather than industrial uses.

FISH and FISHERIES

Volume 18, Issue 3
May 2017
Pages 489-505

Original Article

Global fishing capacity and fishing effort from 1950 to 2012

Justin D Bell, Reg A Watson, Yimin Ye

First published: 19 September 2016 | https://doi.org/10.1111/faf.12187 | Cited by: 23

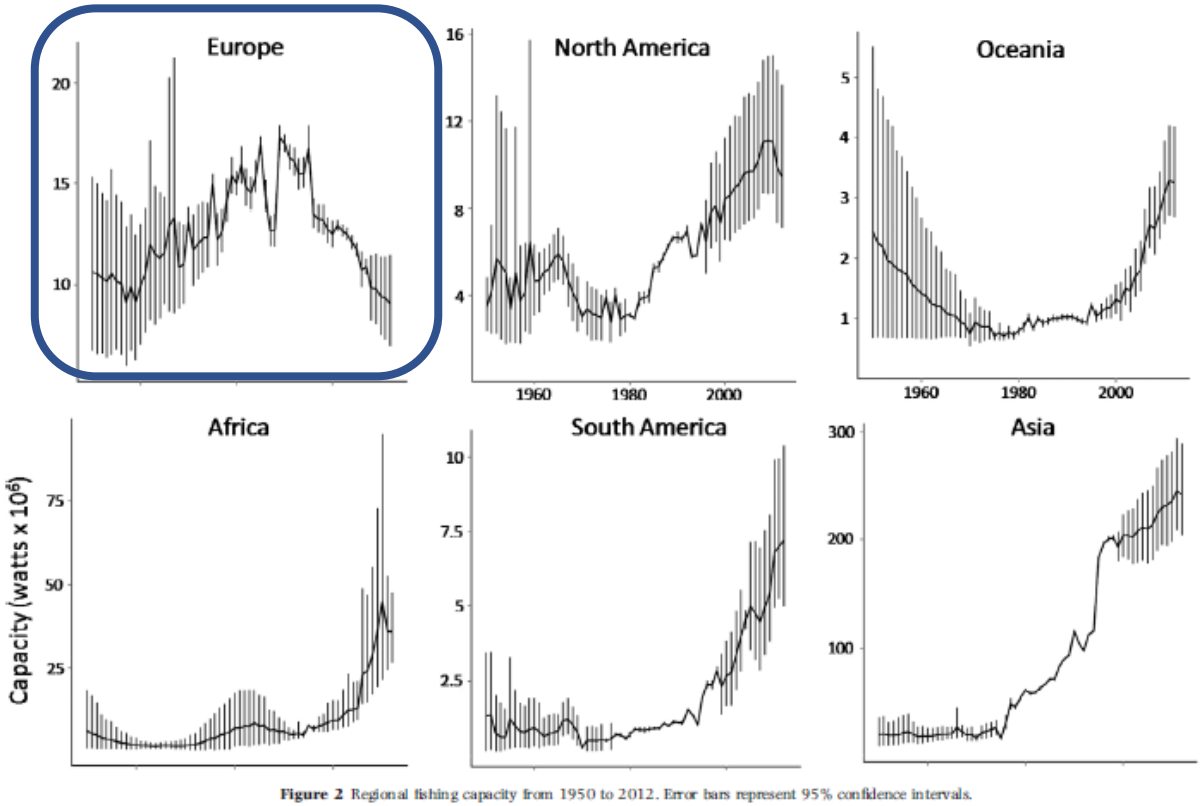

Figure 2 Regional fishing capacity from 1950 to 2012. Error bars represent 95% confidence intervals.

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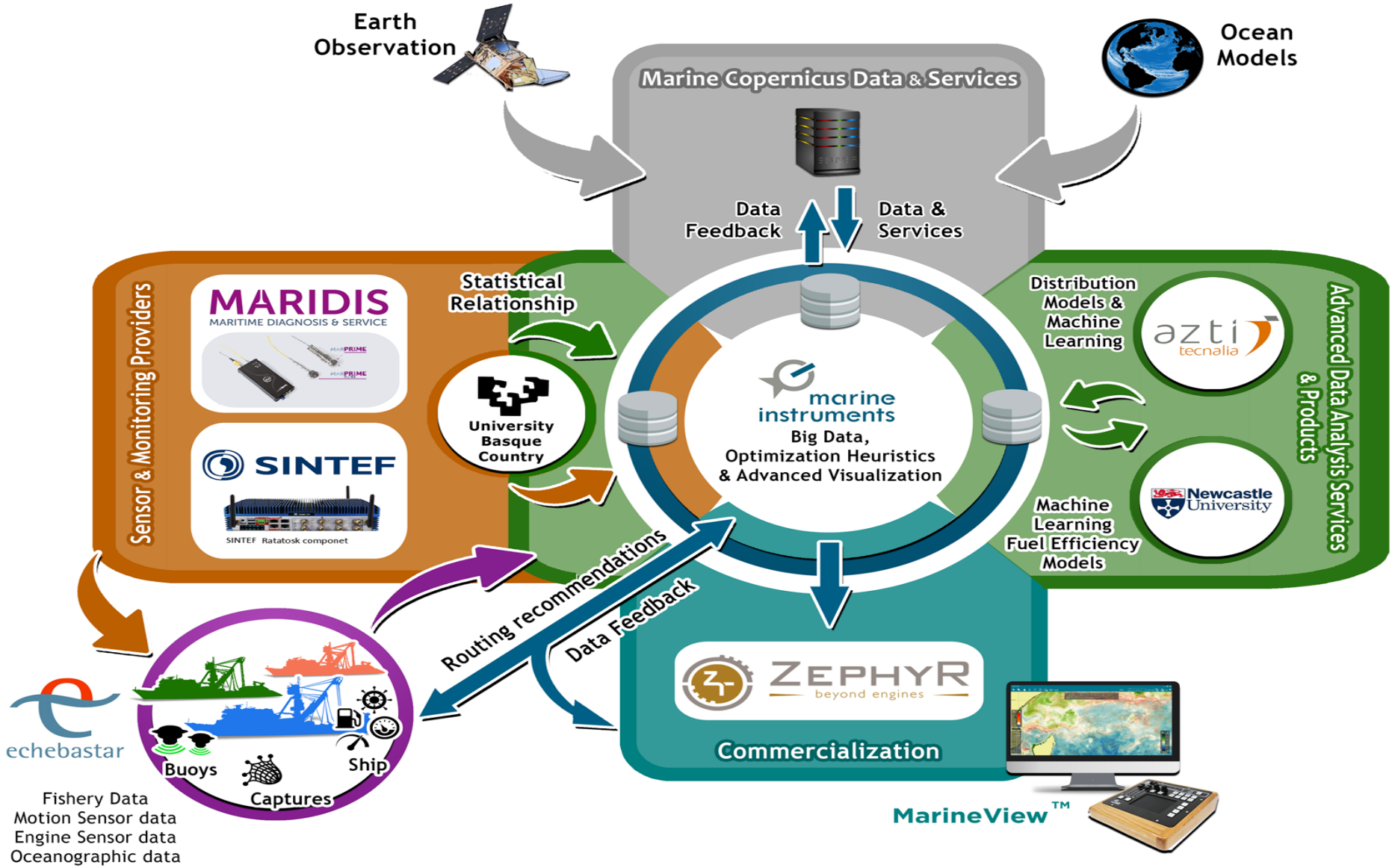
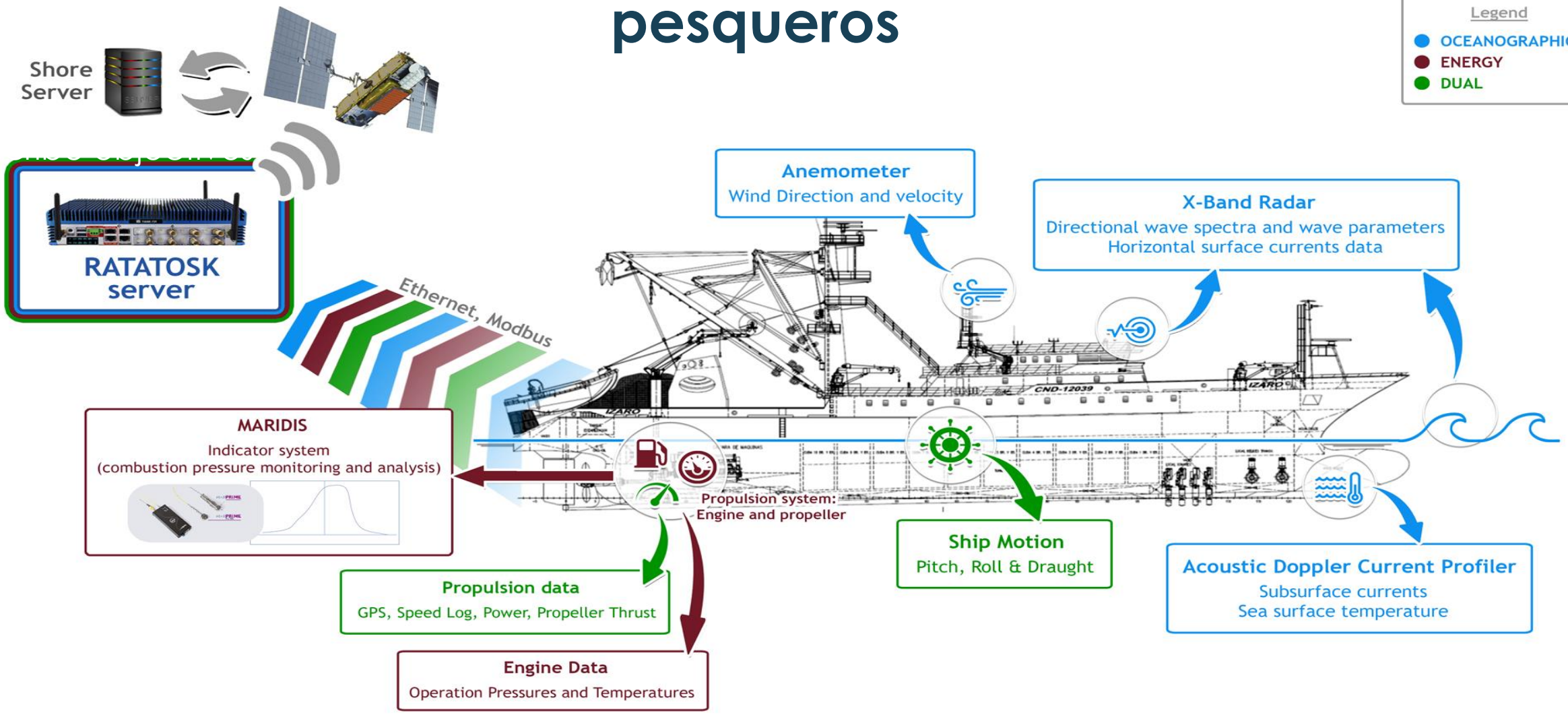
Consorcio

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.



Digitalización barcos pesqueros

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.



Uriondo, Z., Reite, K., Quincoces, I., Pazouki, K., Fernandes-Salvador, J.A. Towards digitalisation of fishing vessels to achieve higher environmental and economic sustainability. Environmental Science and Technology. Under review.

Ejemplo especie tunido

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

Reducir pesca incidental

¿Pueden estos algoritmos contribuir a reducir pesca incidental de tiburón?

Goikoetxea, N., Goienetxea, I., Caballero, A., Goñi, N., Granado, I., Quincoces, I., Ibaibarriaga, L., Ruiz, J., Murua, H., Fernandes-Salvador, J.A. Machine learning for sustainable tuna purse seine fishery in contributing towards reduced CO2 emission and bycatch . Ecological informatics. Under review.

Optimización de rutas

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

Granado, I., Hernando, L., Galparsoro, I., Gabiña, G., Groba, C., Prellezo, R., & Fernandes, J. A. (2021). Towards a framework for fishing route optimization decision support systems: Review of the state-of-the-art and challenges. Journal of Cleaner Production, 320, 128661.

Small-scale coastal fleet

Large-scale pelagic fleet

ENVIRONMENTAL LAYER

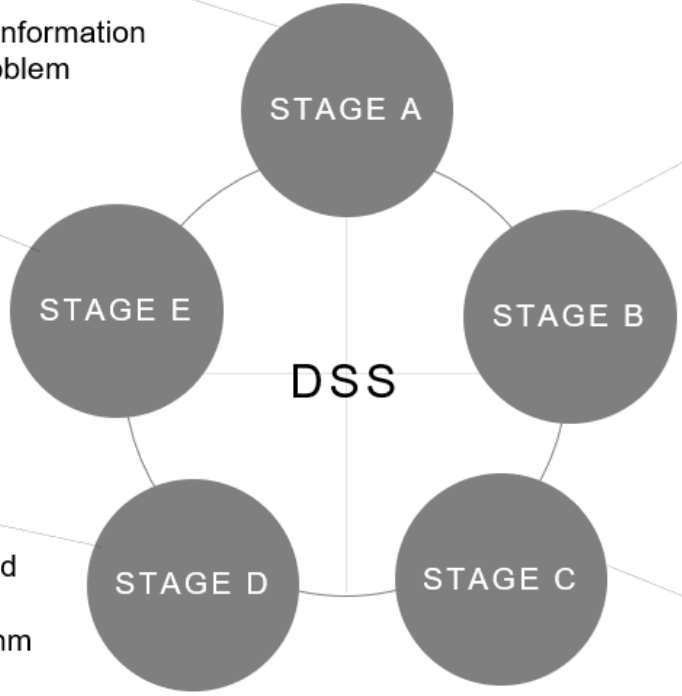
Provides the metocean information needed to model the problem

DECISION LAYER

It is the graphical component that interacts with the final user by selecting the final route.

ROUTING LAYER

This layer is the core of the DSS and according to the objectives, constraints and optimization algorithm the optimal route is computed



SHIP MODELLING LAYER

Predicts the ship performance under different weather conditions

FISHERIES LAYER

Provides the fisheries data, such as the target specie distribution, management regulations etc.

Large-scale demersal fleet

Distant-water fleet

Rutas dinámicas

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

Granado, I., Hernando, L., Uriondo, Z., Fernandes-Salvador, J.A. A Fishing Route Optimization Decision Support System: The case of the tuna purse seiner. European Journal of Operational Research. Under review.

Comparativa 16 salidas

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869342.

Granado, I., Hernando, L., Uriondo, Z., Fernandes-Salvador, J.A. A Fishing Route Optimization Decision Support System: The case of the tuna purse seiner. European Journal of Operational Research. Under review.

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Gracias!

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