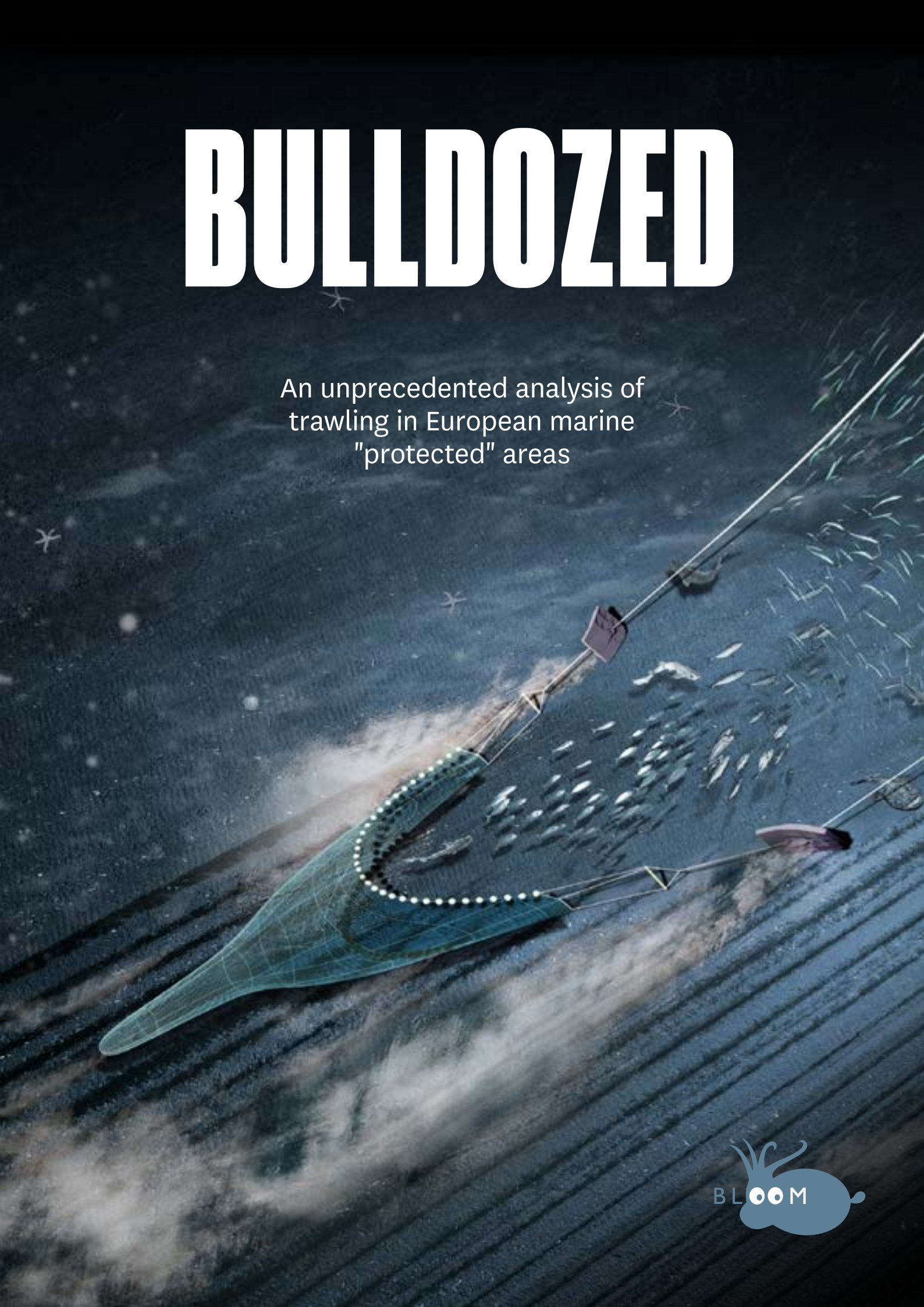
BULLDOZED

An unprecedented analysis of trawling in European marine "protected" areas



BLOOM

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EXECUTIVE SUMMARY

The European Union aims to protect 30% of its waters by 2030. In France, President Emmanuel Macron claims that he has already exceeded this target. Yet, beneath all the rhetoric, the reality is bleak. BLOOM reveals in this groundbreaking scientific study that so-called marine "protected" areas have no influence whatsoever on the trawling effort in Europe, despite it being considered one of the most destructive fishing techniques. Worse still, trawling intensity is higher inside Marine Protected Areas (MPAs) than outside, and mega-trawlers over 80 meters long all operate in European MPAs. Three countries alone – Spain, France and Italy – account for 69% of the trawling effort in European MPAs.

> **Our study reveals that by 2023, trawling was taking place in over 60% of Europe's MPAs.**

Experts from the IPCC and IPBES, the intergovernmental panels on climate change and biodiversity, have both stressed the importance of developing a coherent network of Marine Protected Areas to protect the climate, biodiversity and small-scale fishing, which have been collateral victims of industrial fishing for decades.[1] **In 2020, the European Union (EU) thus adopted its Biodiversity Strategy, in which it set itself the target of achieving 30% of Marine Protected Areas by 2030, all of which would exclude industrial fishing while a third of them would benefit from "strict protection" status, i.e. no fishing whatsoever.**[2] But behind this idyllic picture, the reality is quite different: **the most destructive fishing methods, such as bottom trawling, are widespread in Europe's supposedly protected marine areas.**[3] **In this scientific study, BLOOM has analyzed the fishing effort of trawlers over 15 meters in length in so-called European marine "protected" areas in 2023.**

Our study reveals that **in 2023, trawling was rife in over 60% of Europe's MPAs.** In total the European Union spent almost 6.2 million hours trawling in its waters in 2023, including an approximate 1.7 million hours. **Trawling intensity, i.e. the number of trawling hours per square kilometer, was 1.4 times higher inside MPAs than outside. Over a quarter of the European trawling fishing effort takes place inside MPAs, which corresponds exactly to the surface area of the European EEZ covered by MPAs (over 780,000 km²). In short, the presence of MPAs on a European scale has little to no influence on the trawling effort. This fishing effort is not evenly distributed: three countries alone – Spain, France and Italy – account for 69% of the trawling fishing effort in MPAs.** For each country, we have created a map summarizing trawling in national MPAs, as well as the top 30 most trawled MPAs (see appendices).

1 Intergovernmental Panel On Climate Change (Ipcc), The Ocean and Cryosphere in a Changing Climate ; IPBES, "Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services".

2 EU Biodiversity Strategy for 2030

3 Steadman *et al.*, "New Perspectives on an Old Fishing Practice" ; Dureuil *et al.*, "Elevated Trawling inside Protected Areas Undermines Conservation Outcomes in a Global Fishing Hot Spot" ; Perry *et al.*, "Extensive Use of Habitat-Damaging Fishing Gears Inside Habitat-Protecting Marine Protected Areas".

Trawling in MPAs is also practiced by pelagic mega-trawlers, gigantic vessels that can measure up to 145 meters in length, catching 400 tons of fish per day, or as much as 1,000 artisanal fishing vessels catch in one day.[4] **Of the vessels over 80 meters considered in this analysis, all fished at least once in a European MPA in 2023. For example, the Scombrus, an 80-meter-long French mega-trawler, devoted more than a third of its fishing effort to MPAs. The Joseph Roty II, a 90-meter-long mega-trawler, spent 906 hours fishing in MPAs, i.e. a quarter of its fishing effort. Mega-trawlers are particularly fond of French MPAs, such as the Bay of Biscay MPA, where these vessels spent over 1000 hours fishing.** Thus, areas designated for the protection of biodiversity do not protect marine ecosystems and artisanal fishing from the largest industrial fishing vessels, the impacts of which are catastrophic for ecosystems, the climate and artisanal fishers.[5]

This report once again highlights the enormous gap between the protection figures declared by EU governments and reality. Under these conditions, MPAs cannot fulfill their vital role of protecting and restoring marine life, safeguarding small-scale fisheries and conserving ocean carbon sinks. In the run-up to the UN World Ocean Summit in 2025, **the EU has the opportunity to clarify what does and does not constitute a Marine Protected Area by adopting the standards set by the International Union for Conservation of Nature (IUCN),** namely that all MPAs must, by definition, exclude industrial fishing. Protected areas that do not meet these standards should not be counted in countries' official protection figures.

4 See our press release: France once again contradicts its European Commitments by acquiring the world's largest pelagic trawler

5 Eigaard *et al.*, "Estimating Seabed Pressure from Demersal Trawls, Seines, and Dredges Based on Gear Design and Dimensions"

INTRODUCTION

Marine protected areas (MPAs) are one of the main tools we have at our disposal to counter the systematic destruction of marine life, small-scale fishing and the ocean's function[6] as a carbon sink. In fact, MPAs serve a triple ecological, social and climatic purpose.[7] By sometimes prohibiting every type of extractive activity, including artisanal activities, but prohibiting industrial activities in every case, they enable habitats and fish populations to recover.[8] Furthermore, protecting and restoring marine life supports the ocean's function as a carbon sink, sequestering around a third of our greenhouse gas emissions.[9] Finally, artisanal fishers also benefit from MPAs: since all MPAs exclude industrial fishing, those that do not prohibit all extractive activities (two-thirds of them, according to international targets) are de facto zones dedicated to artisanal fishing. Strictly protected areas – which prohibit all forms of extractive activity – support artisanal fishing through the reconstitution of fish populations within the reserves and the export of larvae and adults to adjacent areas.[10] For example, experts from the IPCC and IPBES intergovernmental panels on climate change and biodiversity have both stressed the importance of developing a coherent network of Marine Protected Areas to protect the climate, biodiversity and artisanal fishing, which have been collateral victims of industrial fishing for decades.[11]

In 2020, the European Union (EU) adopted its Biodiversity Strategy, in which it set itself the target of achieving 30% of MPAs by 2030, a third of which would benefit from "strict protection" status, i.e. no fishing. In this respect, the International Union for Conservation of Nature (IUCN) has succeeded in establishing a clear international framework for MPAs.[12] By definition, the primary objective of an MPA is the conservation of biodiversity. **All forms of industrial activity are therefore excluded, in particular industrial fishing,** defined as "*fishing carried out by vessels more than 12 meters long and six meters wide*", and fishing "*using trawl gear towed or towed along the seabed or water column, and fishing using purse seines and large longlines*".[13]

But behind this idyllic picture, the reality is quite different: **so-called "protected" marine areas are in fact methodically exploited by industrial fishing, all over the world.** In Europe, 86% of the surface area of MPAs in the Natura 2000 network – the primary objective of which is supposed to be habitat conservation – is subject to bottom trawling, a fishing method which is widely considered to be one of the most destructive in the world . In fact, bottom trawling is 1.4 times more intense here than outside European Marine Protected Areas . In 2020, the European Commission warned that **less than 1% of European waters were strictly and effectively protected.** Similarly, the European Court of Auditors pointed out that "EU marine protected areas provide limited protection in practice".[16]

6 Sala and Giakoumi, "No-Take Marine Reserves Are the Most Effective Protected Areas in the Ocean"; Zupan *et al.*, "Marine Partially Protected Areas"; Molloy, McLean, and Côté, "Effects of Marine Reserve Age on Fish Populations"; Lester *et al.*, "Biological Effects within No-Take Marine Reserves"; Giakoumi *et al.*, "Ecological Effects of Full and Partial Protection in the Crowded Mediterranean Sea".

7 Sala *et al.*, "Protecting the Global Ocean for Biodiversity, Food and Climate".

8 Sala and Giakoumi, "No-Take Marine Reserves Are the Most Effective Protected Areas in the Ocean".

9 Intergovernmental Panel On Climate Change (Ipcc), The Ocean and Cryosphere in a Changing Climate.

10 Lenihan *et al.*, "Evidence That Spillover from Marine Protected Areas Benefits the Spiny Lobster (Panulirus Interruptus) Fishery in Southern California".

11 Intergovernmental Panel On Climate Change (Ipcc), The Ocean and Cryosphere in a Changing Climate ; IPBES, "Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services".

12 UICN (2016) UICN Resolutions, Recommendations and other decisions. World Conservation Congress, Honolulu, Hawai'i, USA

13 European Commission (2022) Commission staff working document. Criteria and guidance for protected areas designations.

14 Perry *et al.*, "Extensive Use of Habitat-Damaging Fishing Gears Inside Habitat-Protecting Marine Protected Areas".

15 Dureuil *et al.*, "Elevated Trawling inside Protected Areas Undermines Conservation Outcomes in a Global Fishing Hot Spot".

16 European Court of Auditors report: Marine environment: EU protection is wide but not deep

In response to these repeated warnings, BLOOM is publishing an unprecedented ranking of the trawling effort in European MPAs in 2023. We have cross-referenced the fishing data made available by the *Global Fishing Watch* platform for this year,[17] i.e. over six million observations, with the United Nations Environment Programme's mapping data on MPAs worldwide, including 6,783 European protected areas that are entirely or partially maritime.[18] **This report focuses on trawling by vessels over 15 meters in length, whether "bottom" or "pelagic"** (i.e. in the water column), that practice one of the most destructive fishing methods for marine ecosystems, small-scale fishing and the climate.[19] BLOOM recently published a scientific assessment of the social, ecological and economic performance of French fishing – "Time for a U-Turn", produced by scientists from the Institut Agro, AgroParisTech and ENS, in collaboration with the Shift Project and Atelier des jours à venir – which revealed **the highly negative impact of trawling, which combines multiple social, ecological and economic drawbacks.** In the face of these findings, scientists are increasingly calling for the 'de-trawling' of the European fishing fleet, particularly by halting the substantial subsidization of industrial vessels using this destructive fishing method and initiating a radical change of course towards the most responsible methods.[20]

in Europe, Marine Protected Areas (MPAs) offer no real protection against trawling.

Yet, despite these repeated warnings, trawling remains authorized in Europe, including within its MPAs.[21]

The conclusions of this study are clear: in Europe, Marine Protected Areas (MPAs) offer no real protection against trawling. **In 2023, trawling was rife in over 60% of Europe's MPAs.** In total, in 2023, Europe recorded almost 6.2 million hours spent trawling in its waters, including 1.6 million within its MPAs. **This means that 26.7% of the trawling effort in Europe takes place within MPAs, which corresponds exactly to the surface area of the European EEZ covered by MPAs (788,739 km²). In other words, the existence of MPAs in Europe has no influence on the trawling fishing effort. On the other hand, this fishing effort is not evenly distributed: three countries (Spain, France and Italy) alone account for 69% of the trawling effort in MPAs.**

17 Global Fishing Watch [2024].

18 UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA),11/2023, Cambridge, UK: UNEP-WCMC and IUCN).

19 Steadman *et al.*, "New Perspectives on an Old Fishing Practice".

20 See our report "Time for a U-Turn"

21 *Le Monde*: "Chalutage dans les aires marines protégées : l'attitude du gouvernement français crée une polémique"

In this study, we also show that trawling in MPAs is also practiced by pelagic mega-trawlers, gigantic factory ships that can measure up to 145 meters in length, catching 400 tons of fish a day, or as much as 1,000 artisanal fishing vessels would catch in a single day. **Of the vessels over 80 meters considered in this analysis, all fished at least once in a European MPA in 2023.** These mega-trawlers are particularly fond of French MPAs, such as the Bay of Biscay MPA, where over 1,000 hours was spent fishing by these vessels. **Some vessels, such as the Scombrus, devoted more than a third of their fishing effort to MPAs.** Thus, MPAs do not protect marine ecosystems and artisanal fishing from the largest industrial fishing vessels, the impacts of which are catastrophic for ecosystems, the climate and artisanal fishers.[22]

This report once again highlights the enormous gap between the protection figures declared by governments and reality. The concept of a "Marine Protected Area" is rendered meaningless and is applied indiscriminately to vast areas protecting only a few species, and to strict protection zones prohibiting all extractive methods.[23] MPAs in Europe have been created with the aim of rapidly achieving international protection targets and proclaiming a political victory, without any concern for their effectiveness, representativeness or fairness.[24] **Under these conditions, MPAs cannot fulfill their primary role of protecting and restoring marine life, safeguarding small-scale fishing and conserving ocean carbon sinks.** In the run-up to the UN World Ocean Summit in 2025, **Europe has the opportunity to clarify what does and does not constitute a Marine Protected Area by adopting the standards set by the IUCN,** i.e. that all MPAs must, by definition, exclude industrial fishing. Protected areas that do not meet these standards should not be counted in countries' official protection figures.

22 Eigaard *et al.*, "Estimating Seabed Pressure from Demersal Trawls, Seines, and Dredges Based on Gear Design and Dimensions".

23 Sala *et al.*, "Assessing Real Progress towards Effective Ocean Protection".

24 Devillers *et al.*, "Residual Marine Protected Areas Five Years On".

METHODOLOGY BOX

In this study, we use two metrics: **fishing effort** and **fishing intensity.** Fishing effort represents the total number of hours fished over the year 2023, while intensity represents the number of hours fished per square kilometer. Fishing effort in an MPA provides information on the gross quantity of fishing in an area but can be biased by the size of the MPA – the larger it is, the greater the fishing effort. Intensity, on the other hand, provides information on fishing effort relative to surface area, but can also be biased by the size of the MPA: a very small MPA with relatively little fishing can exhibit very high fishing intensity. These two metrics are therefore mutually complementary.

Our study uses the daily fishing effort estimated by Global Fishing Watch (GFW) for the entire Exclusive Economic Zones (EEZs) of EU countries in 2023 at a resolution of 0.01 degrees.[25] We cross-referenced this fishing effort with the World Database on Protected Areas (WDPA).[26] Our study only includes EEZs in continental Europe, but not the outermost regions other than the Canary Islands, Madeira and the Azores. Furthermore, we calculated a country's fishing effort regardless of a vessel's flag, which does not mean that the fishing effort originates from the country in which it occurs, as boats may come from other countries. For example, in Spain, 80% of boats detected sail under the country's flag – and 20% under a foreign flag. We have also calculated the fishing effort outside MPAs, by removing the part of an EEZ covered by an MPA and calculating the fishing effort in this 'unprotected' EEZ.

For the analysis of fishing methods, we retained only the first method declared by GFW if several methods were declared on the same vessel. In order to select only trawlers, we selected only those vessels either identified as "trawlers" by Global Fishing Watch, or for which the fishing method declared on the European Fishing Fleet Register was a trawling method. In this way, the missing information in each of the two data sources complements each other.

An MPA is considered trawled if there were at least five hours of trawling in 2023 in the MPA, according to Global Fishing Watch. If an MPA is fished, then its entire surface area is counted as part of the total surface area of MPAs fished – this does not mean, however, that the entire surface area of the MPA is fished. Several MPAs may overlap under different management levels. For example, a large MPA may contain several smaller MPAs under different management levels, which can lead to double counting and an overestimation of fishing effort. Consequently, for all comparative analyses between countries, we have merged the MPAs of a country into a single large MPA. For all other analyses, all MPAs with a unique identifier in the WDPA MPA database are retained.

25 Global Fishing Watch [2024].

26 UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA),11/2023, Cambridge, UK: UNEP-WCMC and IUCN).

THE RANKING: KEY FIGURES

Trawling is used in most of Europe's MPAs

More than 60% of the surface area of MPAs is trawled

The results of our study reveal that 63% of the surface area of MPAs in Europe was subject to bottom or pelagic trawling in 2023. Of the 6,783 MPAs examined, 737 were affected by trawling, i.e. 10.8% of all Marine Protected Areas. This figure may seem small, but it can be explained by the large number of small coastal MPAs that are generally not affected by trawling by boats over 15 meters, which are the only ones taken into account by Global Fishing Watch (Figure 1, Appendix 1). **Indeed, the average surface area of unfished MPAs is 72 km² (standard deviation = 2,010 km²)[27] while the average surface area of fished MPAs is 1,035 km² (standard deviation = 4,719 km², Appendix 2).**

As our results show, MPAs unaffected by trawling are often very small and very coastal, in areas where trawling is already banned (3 nautical mile strip) or difficult to access by vessels over 15 meters. **Thus, the absence of trawling in these MPAs is not necessarily linked to effective protection.**

For example, all the MPAs around Madeira and the Azores are trawl-free, thanks to a ban on trawling around these islands in 2005.[28] **The absence of trawling is therefore not linked to the presence of MPAs, but to a total ban on this fishing method in the waters around these islands.** The Spanish MPAs "Banco de Galicia" and "Oiseaux marins sud golfe du Lion", in which there was no trawling in 2023, do not prohibit trawling, but are located in areas that are very little affected by fishing due to their isolation. **It is therefore difficult to rank the least trawled MPAs, given that the absence of trawling may be linked to a combination of factors (location, isolation, size of the MPA) and not necessarily to their level of protection.** However, we have been able to establish a ranking of the most trawled MPAs in Europe, in order to highlight MPAs that stand out as being particularly trawled.

27 The standard deviation shows the extent to which values are dispersed in relation to the mean. The smaller the standard deviation, the more values are clustered around the mean. The larger the standard deviation, the more values are dispersed around the mean.

28 Ices : Azores ecosystem overview

Figure 1 **Presence or absence of industrial fishing in European MPAs in 2023. The Azores do not appear on this map in order to make it easier to read. An MPA is considered fished if at least five hours of fishing were recorded in this MPA in 2023. The countries considered in this study are shown in light grey (EU Member States and coastal countries), while the others are shown in dark grey (non-coastal or non-EU Member States).**



The Bay of Biscay MPA is the most trawled in Europe

In 2023, the average number of hours spent trawling in European MPAs was 4,310 hours (standard deviation = 14,743 hours, Table 1). This number ranged from 5.12 hours to 201,908 hours (Figure 2, Appendix 3). **For each country, the top 30 most trawled MPAs are available in the appendix.**

Table 1 **Top ten most trawled MPAs in Europe**

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Bay of Biscay	71,622	2018	France	201,908
2	Pelagos Sanctuary For The Conservation Of Marine Mammals	87,516	2001	France/Italy/ Monaco	142,935
3	Santuario per i Mammiferi Marini	23,634	1999	Italy	118,866
4	Espacio marino del Delta de l'Ebre-Illes Columbretes	9,030	2014	Spain	106,829
5	Golfo de Cadiz	2,321	2014	Spain	90,003
6	Ramsar-Gebiet S-H Wattenmeer und angrenzende Küstengebiete	4,364	2004	Germany	61,316
7	NTP S-H Wattenmeer und angrenzende Küstengebiete	4,326	2010	Germany	61,274
8	Schleswig-Holsteinisches Wattenmeer	4,253	1985	Germany	60,678
9	S-H Wadden sea National Park	4,344	2005	Germany	60,664
10	Skagens Gren og Skagerak	2,689	2011	Denmark	57,933

The MPA with the highest number of fishing hours in Europe is the Bay of Biscay MPA, an enormous French MPA with a surface area of 71,000 km², created in 2018 (Appendix 4,5). It takes a clear lead, with 1.4 times more fishing hours than the second most trawled MPA. **This MPA is a perfect illustration of the protection strategy employed by the majority of European states, which consists of creating vast MPAs to inflate maritime protection figures, with no impact on fishing effort and no ecological utility.**

Indeed, the Bay of Biscay MPA is part of the Natura 2000 network ("Birds" directive, in this case created for the protection of seabirds). Its surface area is therefore included in France's protection figures. **Scientific literature has widely demonstrated that biodiversity conservation must adopt an ecosystemic vision – i.e. protect species, their habitats and the interactions between species – regardless of whether its aim is the conservation of a habitat, a species or an ecosystem.**[29] As trawling is a highly destructive fishing method, it has no place in MPAs, whatever the species or habitats that justify the creation of such an MPA.[30] In this case, trawling (bottom and pelagic) in this MPA runs the risk of damaging the habitats on which the bird's prey (for which the MPA was created) depend, of overfishing this prey and thus depleting the birds' food, or of capturing these species accidentally through "by-catch".[31] **Trawling is therefore incompatible with an MPA designed to protect seabirds.**

The Bay of Biscay MPA is a typical example of a "paper park", i.e. one that exists legally but which is actually ineffective. In a letter dated from 28 March 2023, the Atlantic Maritime Police Headquarters (French: *Préfecture Maritime de l'Atlantique*) informed us that the MPA had neither objective documents (DOCOB) nor a "Fishing Risk Analysis" (French: *Analyse Risque Pêche, ARP*), due to a lack of "staff and financial resources allocated to the Atlantic branch of the French Office for Biodiversity in 2022". This situation is common in French MPAs, as several sites have only half a full-time equivalent worker to draft the DOCOB, with no other human resources to ensure its implementation.[32] **Without an objective document, the MPA has no defined protection objectives and is not effectively managed.**

As for ARP, it is the result of an exceptional scheme carefully crafted by France and industrial fishing lobbies, which means that fishers operating within Natura 2000 areas are neither required to undergo a systematic assessment of their impact, nor to obtain a specific fishing permit.[33] **Any pretense of protecting biodiversity within French marine areas classified as Natura 2000 vanishes in this "Fishing Risk Analysis" process: these studies are rarely carried out, and when they are, they rarely give rise to appropriate restrictive measures, leaving industrial fishing to operate in these waters without restriction.**[34]

While the Bay of Biscay MPA has accumulated a high number of trawling hours due to its large size, other MPAs are characterized by **high trawling intensity, or a highly concentrated trawling effort over a very small area.**

29 Solandt *et al.*, "Managing Marine Protected Areas in Europe".

30 Steadman *et al.*, "New Perspectives on an Old Fishing Practice".

31 Sciberras *et al.*, "Response of Benthic Fauna to Experimental Bottom Fishing"; O'Leary et Roberts, "Ecological Connectivity across Ocean Depths"; Collie *et al.*, "Indirect Effects of Bottom Fishing on the Productivity of Marine Fish"; Lewison *et al.*, "Global Patterns of Marine Mammal, Seabird, and Sea Turtle Bycatch Reveal Taxa-Specific and Cumulative Megafauna Hotspots".

32 Interview with a project manager at Réserves Naturelles de France, 2 August 2022

33 See our report "A network of hollow shells"

34 Interview with an official from the French Office for Biodiversity, 6 July 2022

Figure 2 **Trawling effort (logarithmic scale) in European MPAs in 2023. The Azores do not appear on this map in order to make it easier to read. Fishing effort corresponds to the total number of hours fished in an MPA in 2023.**



The Danish Hirsholmene MPA is the most intensively trawled MPA in Europe

Trawling intensity in European MPAs ranged from 0.007 to 111 trawling hours per km² for the Danish MPA "Hirsholmene" (Table 2, Appendix 6), with an average of 111 trawling hours/km² (standard deviation = 11, Figure 3).

Average trawling intensity in MPAs was 5.14 trawling hours/km². By comparison, the average fishing intensity in European EEZs (excluding MPAs) was 3.61 trawling hours/km² (standard deviation = 4.1). **Trawling intensity in MPAs was therefore 1.4 times more intense within MPAs than outside them,** a result identical to that of a previous study of European MPAs in 2017 with a similar methodology.[35] **This result implies that trawling intensity in MPAs in Europe has not changed since 2017.**

Table 2 **Top ten most intensively trawled MPAs in Europe**

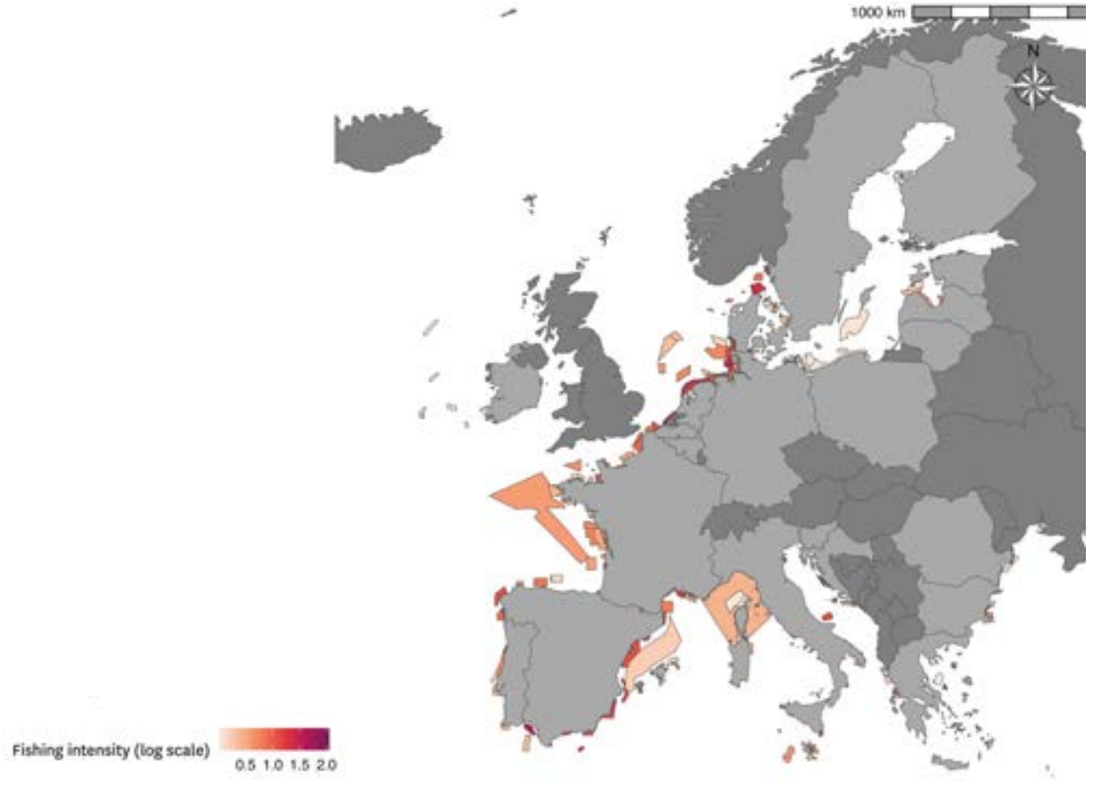
Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours	Fishing intensity (hours/km²)
1	Hirsholmene	34.27	1983	Denmark	3,827	111.7
2	Naravni rezervat Strunjan	0.38	2004	Slovenia	37	97.56
3	Strunjan	0.57	2013	Slovenia	39	68.05
4	Krajinski park Strunjan	0.58	2004	Slovenia	39	67.75
5	Acantilados y Fondos Marinos Tesorillo-Salobreña	9.96	2015	Spain	593	59.49
6	Vlaamse Banken	52.46	1986	Belgium	2,501	47.68
7	Uvala Stivančica	0.42	2014	Croatia	19	44.7
8	Waters around Hirsholmene	91.15	2005	Denmark	3,871	42.47
9	Vlakte van de Raan	198.49	2009	Netherlands	8,025	40.43
10	SBZ 2 / ZPS 2	143.86	2005	Belgium	5,625	39.1

35 Dureuil *et al.*, "Elevated Trawling inside Protected Areas Undermines Conservation Outcomes in a Global Fishing Hot Spot".

Bottom otter trawling is the most common type of fishing in MPAs

By cross-referencing this fishing data with the European fishing fleet register, it appears that **the trawling method most commonly used in European MPAs, accounting for 67% of total trawling hours, is the bottom otter trawl** – a bottom trawling technique incorporating a pair of panels attached to either side of the net to keep it open when pulled across the seabed.[36] It should be noted that, for 536 of the 2,582 vessels identified as "trawlers", information on the specific method used was not available on the European fishing fleet register.

Figure 3 **Fishing intensity (fishing effort per square kilometer) in European MPAs in 2023. The Azores are not shown on this map in order to make it easier to read. Fishing intensity corresponds to the number of fishing hours in 2023 in an MPA divided by its surface area.**



36 Pingguo He *et al.*, Classification and Illustrated Definition of Fishing Gears (FAO, 2021)

LIMITATIONS

Our ranking is based solely on the fishing effort estimated by the NGO Global Fishing Watch. This fishing effort is based on AIS – it does not include boats under 15 meters. Furthermore, this ranking is not a measure of the impact of fishing in MPAs, but of the total number of hours fished in MPAs.

Indeed, Global Fishing Watch only considers the time a boat has spent fishing, without taking into account its size and therefore its impact, since large boats have a much greater impact than small ones.[37] Thus, the number of hours spent fishing in an MPA is not systematically correlated with the impact of fishing in an MPA.

Finally, we are only interested here in fishing effort within a country, under any flag: this does not mean, however, that fishing within a country's EEZ is carried out by vessels from that country alone.

We use the WDPA database, which depends on countries voluntarily declaring their marine protection data in an exhaustive and rigorous manner. It therefore has its share of errors: some MPAs are declared several times, for example under different names or following changes in status, and data on MPAs is not always up to date. Finally, some MPA information may be incomplete (the creation date, for example).

37 Eigaard *et al.*, "Estimating Seabed Pressure from Demersal Trawls, Seines, and Dredges Based on Gear Design and Dimensions".

Contrasting situations across European countries

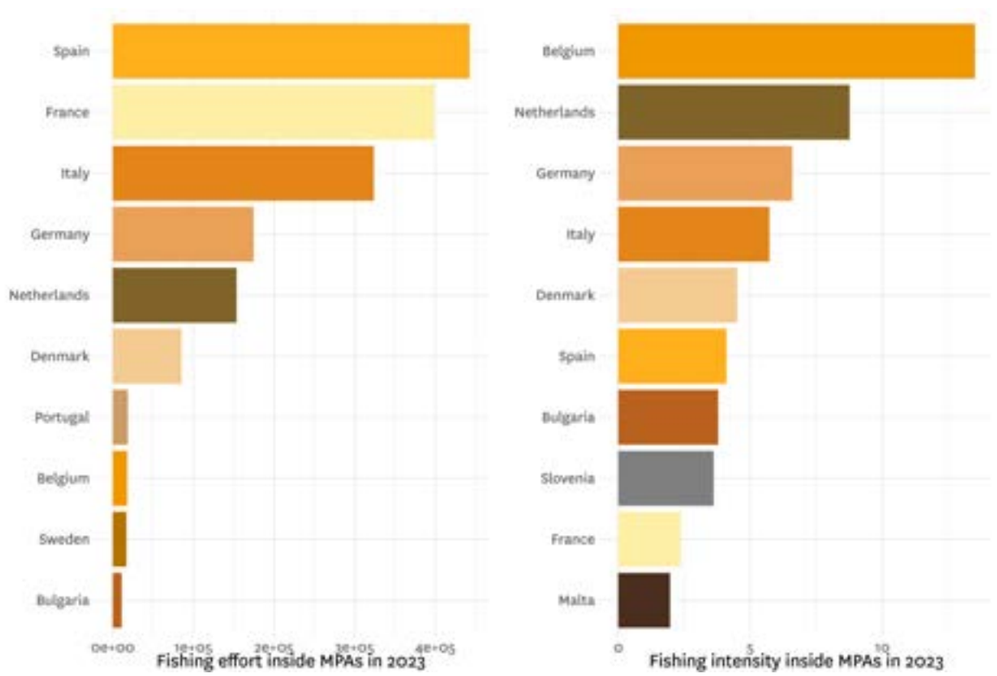
More than a quarter of Europe's trawling effort takes place in MPAs

In total, in 2023, **Europe logged** 6,179,616 hours of trawling in its waters, including **1,650,547 hours within its MPAs.** This means that **26.7% of the trawling effort in Europe takes place within MPAs. The total coverage of MPAs in Europe is 788,739 km², or 26%** of the area covered by the EEZs of European countries. **This means that, without focusing specifically on MPAs, the proportion of the trawling fishing effort in Europe corresponds to the amount covered by MPAs.**

In short, the presence of MPAs on a European scale has no influence on the trawling effort.

However, this fishing effort is not evenly distributed across Europe. Three countries (Spain, France and Italy) alone account for 69% of trawl fishing effort in MPAs. So, in some countries, trawling effort is low – either because there are no MPAs in these countries, or because there is very little trawling, or because MPAs are effective in excluding trawling.

Figure 4 **Ranking of the 10 countries with the most heavily fished MPAs and the highest fishing intensity in 2023.**



Spain, France and Italy account for the highest number of trawling hours

When comparing trawling effort by vessels over 15 meters in MPAs across countries, **Spain recorded the highest number of trawling hours in MPAs in 2023** (442,708 hours). **It is followed by France** (393,317 hours) and Italy (323,938 hours, Figure 4). The total ranking of countries with the highest number of fishing hours in MPAs is available in Appendix 7. **A summary of the main results by country is available in Table 3, as well as a detailed summary by country in the "Country profile" section.**

Ireland, Lithuania and Belgium are the three countries with the largest average size of vessels fishing in MPAs.

These countries are also among those with the largest surface area covered by MPAs (Appendix 8). They are also the three countries with the largest fishing fleets operating in MPAs in 2023: Spain leads the way with 764 vessels fishing in MPAs in 2023, followed by Italy with 578 fishing vessels and France with 535 fishing vessels (Appendix 9).

On the other hand, Ireland, Lithuania and Belgium are the three countries with the largest average size of vessels fishing in MPAs. In Ireland, vessels fishing in MPAs have an average size of 39.9 meters, followed by Lithuania with 29.2 meters and Belgium with 28.8 meters. In the three countries with the highest number of fishing hours in MPAs, vessels fishing in MPAs average 23, 26 and 21 meters in length for Spain, France and Italy respectively (Appendix 10).

In terms of trawling intensity in MPAs, Belgium (13.5 hours/km²) is **ahead of the Netherlands** (8.76 hours/km²) **and Germany** (6.59 hours/km², Figure 4, appendix 8).

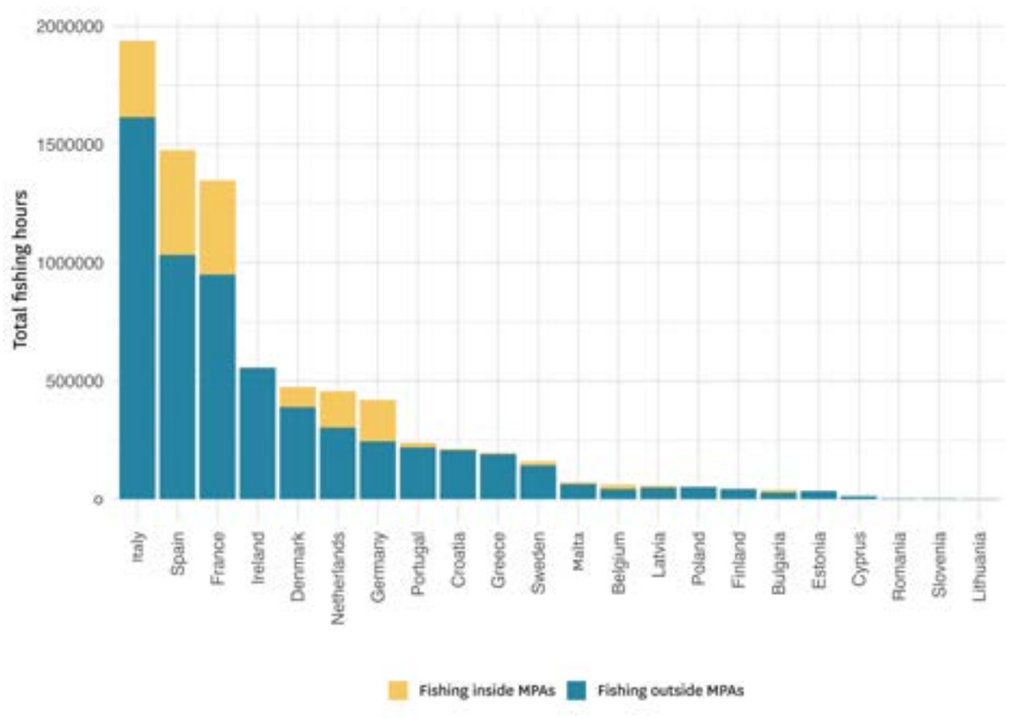
Table 3 **Summary of results by country, ranked by number of hours trawled in MPAs. Protection percentages apply to European waters only.**

Country	Number of MPAs	Area covered by MPAs (km²)	Percentage of EEZ protected (%)	Number of boats detected in the EEZ	Number of boats detected in MPAs	Number of trawling hours in the EEZ (h)	Number of trawling hours in MPAs (h)	Percentage of trawling in MPAs (%)	Average fishing intensity in the EEZ (h/km²)	Average fishing intensity in MPAs (h/km²)	Average size of boats in the EEZ (m)	Average boat size in MPAs (m)
Spain	425	108,080	19.24	861	764	1,032,792	442,708	30	2.24	4.1	24	23
France	459	168,023	48.67	616	578	949,103	398,719	30	5.17	2.37	26	26
Italy	393	56,608	10.55	1040	535	1,614,549	323,938	17	3.36	5.72	21	21
Germany	218	26,499	46.68	324	275	244,708	174,670	42	7.88	6.59	27	25
Netherlands	83	17,534	27.26	356	294	302,504	153,654	34	6.41	8.76	32	28
Denmark	286	18,874	17.97	391	219	389,199	85,128	18	4.51	4.51	29	24
Portugal	104	258,618	81.97	143	93	219,225	18,701	8	0.71	0.07	27	25
Belgium	17	1,320	37.77	129	93	42,930	17,833	29	19.68	13.51	29	28
Sweden	2179	24,967	16.07	214	127	142,690	16,973	11	1.09	0.68	26	24
Bulgaria	50	2,934	8.45	31	31	28,105	11,111	28	0.88	3.79	20	20
Latvia	36	4,575	16.14	76	39	48,370	8,638	15	2.03	1.89	30	26
Malta	64	4,145	7.83	114	64	63,615	8,127	11	1.3	1.96	26	27
Croatia	264	5,076	9.16	343	35	207,614	5,087	2	4.12	1	22	19
Greece	211	13,033	2.7	188	63	190,692	4,741	2	0.41	0.36	26	26
Ireland	212	9,383	2.2	348	73	555,598	1,034	0	1.33	0.11	37	39
Poland	46	7,297	24.34	88	40	51,311	891	2	2.26	0.12	29	25
Finland	1,375	9,215	11.3	42	15	42,805	687	2	0.59	0.07	33	25
Estonia	293	7,012	19.24	67	25	34,486	627	2	1.16	0.09	31	26
Romania	17	6,237	21.07	18	2	2,490	492	17	0.11	0.08	19	25
Lithuania	21	1,555	22.77	23	4	1,546	137	8	0.29	0.09	47	30
Cyprus	11	128	0.13	24	3	12,455	54	0	0.13	0.42	24	22
Slovenia	18	12	5.46	4	2	2,828	42	1	13.95	3.61	19	18

In Germany, 42% of the trawling fishing effort takes place within MPAs

Finally, we looked at the percentage of total trawling hours in MPAs compared to total fishing hours in the country. **Germany comes out on top with 42% of the number of trawling hours in 2023 within its MPAs, followed by the Netherlands with 34% and France and Spain with 30%** (Figure 5). In order to put an end to the destruction of the seabed and of the richness of oceanic biological assemblages, and to drastically reduce CO_2 emissions, it is essential to launch a plan to "de-trawl" European fishing fleets by 2030.[38] **For these countries, the exclusion of trawling in MPAs represents a major challenge, requiring a genuine policy of social and ecological transition to reconcile social and environmental justice.** On the other hand, some countries already seem to have little exposure to trawling in MPAs.

Figure 5 **Proportion of trawl fishing effort in continental waters inside MPAs by country compared with fishing effort outside.**



38 See our report "Time for a U-Turn: For a social-ecological transition of fisheries"

Poland, Estonia, Finland and Croatia are the countries with the least amount of trawling in MPAs

Some countries account for very little trawling effort in their MPAs because they have very few protected areas. This is the case, for example, with Cyprus and Ireland, which record 0% of their fishing effort in MPAs... but only protect 0.23% and 2.20% of their waters respectively. Therefore, in order to identify which countries are really protecting their waters, we selected those for which the percentage of EEZ protection was at least 10%. However, this percentage is highly dependent on the size of each country's fleet of trawlers over 15 meters, as the smaller the fishing fleet is, the less fishing effort will be devoted to MPAs.

Poland, Estonia, Finland and Croatia are the countries with the lowest trawling effort in MPAs compared to fishing effort in the EEZ: for each of these countries, around 2% of the trawling effort was in MPAs. The fleets of trawlers over 15 meters in these countries are relatively small: fewer than 100 trawlers were detected in the EEZ of these countries in 2023, except in Croatia, where 343 trawlers were detected (Table 3). **Portugal, with 80% of its EEZ under protection, accounts for only 8% of its trawling effort in MPAs – thanks particularly to a total ban on this fishing method in the Azores and Madeira archipelagos in 2005, which effectively protects all MPAs in this zone from trawling.**

The reasons for which MPAs in these countries are very rarely trawled may vary. They may, of course, be the result of effective protection. On the other hand, the absence of trawling in MPAs can also be linked, for example, to the location of the MPAs (if they are predominantly coastal, as in Croatia or Finland), to their placement (if these MPAs have been strategically placed in areas where fishing effort was already absent), and to the fishing fleet in that country (they may be fished by trawlers of less than 15 meters not detected by AIS, or by fishing methods other than trawling). **It is therefore difficult to link the absence of trawling to effective protection.**

The UK would be in 11th position if it were still a Member of the EU

Given that the United Kingdom (UK) is no longer part of the European Union, we have not considered it in this study. **On the other hand, following new legislation arising from the Brexit that confers new powers over fishing in the UK, bottom trawling was banned in the 'Dogger bank' MPA off the country's east coast, as well as in three other MPAs, in June 2022.**[39] We have therefore chosen to devote a brief section of the report to the UK, in order to assess the situation there following this ban. In addition, from March 2024, bottom trawling will be banned in a further 13 MPAs – a total of 4,000 km² of English coastline.[40] The NGO Oceana recently published an in-depth analysis of bottom trawling fishing effort in MPAs in the UK. **The study reveals that MPAs in the UK accumulated 33,000 hours of bottom trawl fishing in 2023. Ten boats were responsible for a quarter of this destructive fishing effort.**[41]

In total, in 2023, the UK, with 41% of its EEZ under MPAs, logged 73,579 hours of trawling in its MPAs, placing it in 11th place among European countries, just behind Bulgaria. The most heavily fished MPA in the UK is the Southern North Sea MPA, with 34,794 hours of trawling in 2023. A total of 519 trawlers were detected in UK MPAs, with an average size of 35 meters, **placing the UK second only to Ireland in terms of the size of vessels fishing in MPAs.**

The Inner Dowsing, Race Bank and North Ridge MPAs were not trawled in 2023. The closure of the Dogger Bank MPA seems to

39 *The Guardian:* UK's largest sandbank given protection from bottom trawling

40 Gov.uk: Vital marine ecosystems in an additional 4,000 square km of our seas to receive protection

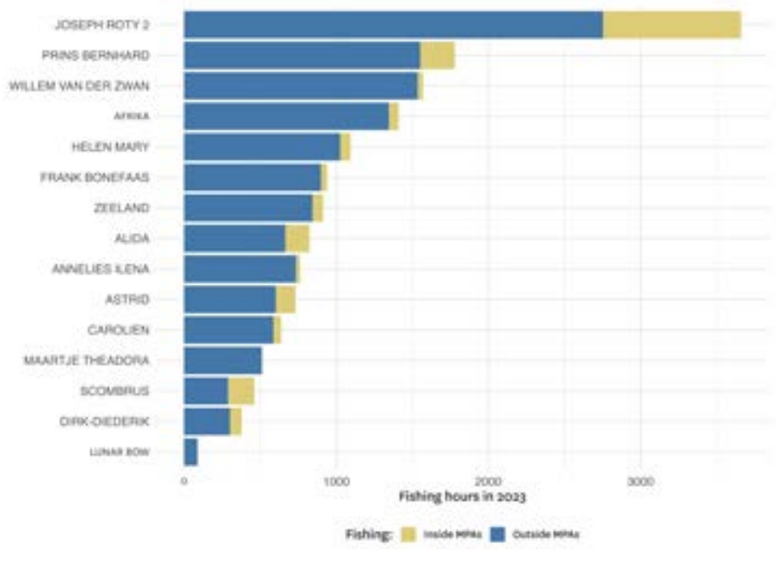
41 Oceana: Just 10 fishing vessels responsible for a quarter of harmful suspected bottom trawling in UK offshore protected areas

have been mainly respected: **bottom trawling activity has fallen drastically compared with previous years.**[42] **However, according to Global Fishing Watch data, the MPA is home to 468 hours of potentially illegal trawling in 2023.** A single vessel, which was declared a "bottom trawler" in the European fishing fleet register, is responsible for this fishing effort: the Atlas WY170 (MMSI: 235001670). Although this vessel is declared a "bottom trawler", it is difficult to verify which fishing method was actually used in the Dogger Bank MPA. It is therefore impossible to state with certainty that this vessel illegally bottom-trawled in the MPA. Nevertheless, this observation underlines the importance of monitoring MPAs following bans.

Mega-trawlers also fish in MPAs

In order to assess whether, in the absence of preventing trawling, European MPAs can at least prevent mega-trawlers over 80 meters in length from fishing within their borders, **we have compiled the fishing effort of trawlers over 80 meters active in 2023** (more than five hours of fishing, Table 4). **These factory-ships all spent part of their time within MPAs** (Figure 6,7).

Figure 6 **Fishing hours for mega-trawlers over 80 meters inside and outside European MPAs in 2023.**



42 Marine Conservation Society: Dogger Bank MPA update: Six months on from ban

Table 4 **Activity of mega-trawlers over 80 meters in 2023, classified by percentage of time spent in MPAs.**

MMSI	Pavilion	Ship name	Size (meters)	Fishing hours outside MPAs	Fishing hours inside MPAs	Percentage in MPAs
226347000	France	SCOMBRUS	81.37	288.43	172.38	37.41
227583000	France	JOSEPH ROTY 2	90.56	2752.92	906.48	24.77
261001225	Netherlands	DIRK-DIEDERIK	110.8	302.13	76.19	20.14
244309000	Netherlands	ALIDA	88.24	665.51	157.58	19.14
219030452	Denmark	ASTRID	91.8	602.28	130.18	17.77
227302000	Netherlands	PRINS BERNHARD	88.24	1551.83	226.98	12.76
246274000	Netherlands	CAROLIEN	126.22	586.73	50.74	7.96
244583000	Netherlands	ZEELAND	114.87	843.88	69.1	7.57
211238930	Germany	HELEN MARY	116.7	1025.76	67.33	6.16
245811000	Netherlands	AFRIKA	126.22	1345.62	63.05	4.48
232024007	United Kingdom	FRANK BONEFAAS	119.65	899.33	40.63	4.32
261084090	Poland	ANNELIES ILENA	144.6	735.16	27.16	3.56
232025939	United Kingdom	LUNAR BOW	80	87.37	2.15	2.4
246429000	Netherlands	WILLEM VAN DER ZWAN	131.82	1534.68	35.28	2.25
218066000	Netherlands	MAARTJE THEADORA	140.8	510.57	2.64	0.51

French MPAs: A breeding ground for mega-trawlers

These factory ships seem to mainly fish in French MPAs, which are a real hotspot for mega-trawlers, notably in the Bay of Biscay MPA, where 1,172 hours of trawling by vessels over 80 meters were recorded in 2023 (Figure 7). The Banc des Flandres MPA, on the other hand, will see 220 hours of fishing by mega-trawlers in 2023.

The Joseph Roty 2: The French mega-trawler that scourges Marine Protected Areas

According to Global Fishing Watch data, **the Joseph Roty 2,** a 90-meter vessel sailing under French flags, is the mega-trawler with the highest number of fishing hours (outside and inside MPAs) in 2023, with 3,658 hours of fishing. **It is also the vessel with the highest number of hours fished in MPAs, with 906 hours, i.e. 24.8% of its total fishing time.**

It has fished two French MPAs, namely the the Bay of Biscay MPA, and one Irish MPA. Since late January 2024, the Joseph Roty 2 has been in the process of being replaced by the Annelis Ilena, the world's largest pelagic trawler at 145 meters long, with five times the engine power of its predecessor. It will be targeting blue whiting, a small "pelagic" fish (i.e. living in midwater) used in industrial surimi.

The Scombrus: The French mega-trawler fond of Marine Protected Areas

According to Global Fishing Watch data, **the 81-meter-long Scombrus, sailing under the French flag, is the mega-trawler that spends most of its time fishing in MPAs:** with 172 fishing hours spent in five French MPAs and one Irish MPA out of its 460 fishing hours in 2023, **i.e. 37% of its total fishing time.**

Figure 7 **Distribution of fishing effort by mega-trawlers over 80 meters in European MPAs in 2023. Zooming in on the map allows us to target the MPAs affected by mega-trawlers. Each point represents a fishing event according to Global Fishing Watch data and the light blue polygons are the MPAs.**



A TOUR OF EUROPEAN COUNTRIES

Understanding the country profiles

In order to understand the situation of trawling in MPAs in each European country, we have produced a summary sheet for the 22 countries considered in this study, ordered here in descending order of the total number of hours of trawling in MPAs.

Each sheet features a map of the country in the top left, with MPAs in light blue and fishing events detected by Global Fishing Watch in black.

For each country, we calculated **the total number of MPAs** according to the WDPA database, the **total surface area covered by these MPAs,** and **the percentage of the country's EEZ covered by MPAs.**

Indeed, a country with a high MPA coverage will most likely have a higher trawling effort in MPAs. **Above all, this reality demonstrates the inefficiency of MPAs across Europe, since the vast majority of them serve only to meet protection objectives, with no real ambition for protection or efficiency.**

Finally, for each country, we **calculated the number of trawlers detected in the EEZ in 2023** and the **percentage of trawlers flying the country's flag.** For example, in France, 60% of trawlers detected flew the French flag, so 40% of trawlers fishing in France in 2023 came from another country.

We also calculated **the percentage of trawlers detected in relation to those registered in the European fishing fleet register** in order to estimate the number of boats detected by Global Fishing Watch. For example, in France, 616 trawlers were detected in the EEZ in 2023 – i.e. 34% of the fleet recorded in the European fishing fleet register. Undetected boats may be boats under 15 meters (which are not obliged to transmit an AIS signal), French boats fishing exclusively abroad or in overseas territories, or boats inactive in 2023. For some countries, data on the European fishing fleet register are partly missing or not up to date, which can lead to some inconsistencies.

Finally, we calculated **the percentage of trawlers over 15 meters in this country,** based on the European fishing fleet register. This metric gives an idea of the impact of trawling in this country – with larger boats having more impact than smaller boats – but also of the invisible element of trawling in this country. Indeed, as Global Fishing Watch only considers boats over 15 meters, **a more or less significant portion of trawlers is not considered in this study, depending on the country.** For example, in France, 46% of trawlers are over 15 meters, which means that around 54% of trawlers are not considered in this study because they are under 15 meters.

Country fact sheets

Marine Protected Areas ● trawling



Spain

Number of MPAs: 425
Surface area of MPAs: 142 635 km²

In this country, **861** trawlers have been detected, including **78.63%** under the country's flag, or as much as **73.39%** of the fleet all sizes combined.
In this country, **91.79%** of trawlers are over 15 meters long.

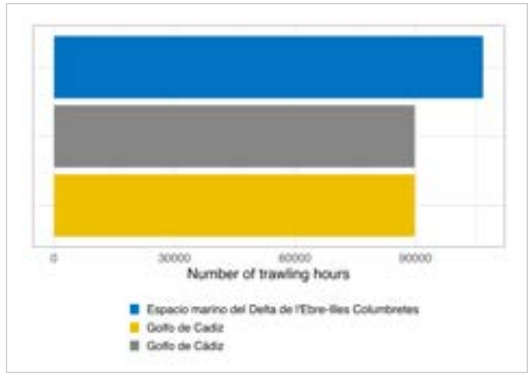
19.2%
of EEZ protected

30%
inside MPAs

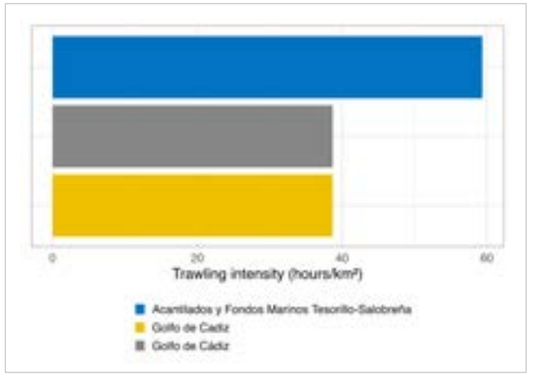
442 708
trawling hours in MPAs

4.1 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



France

Number of MPAs: 459
Surface area of MPAs: 205 168 km²

In this country, **616** trawlers have been detected, including **59.9%** under the country's flag, or as much as **34.15%** of the fleet all sizes combined.
In this country, **46.26%** of trawlers are over 15 meters long.

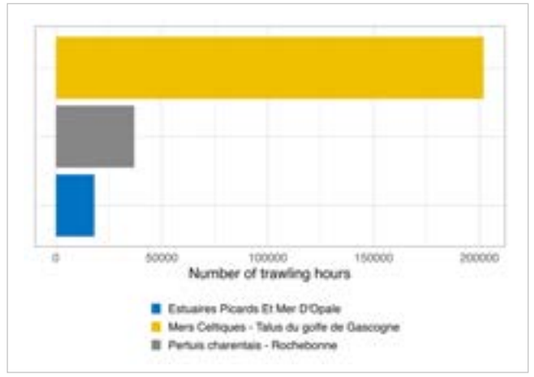
48.7%
of EEZ protected

29.58%
inside MPAs

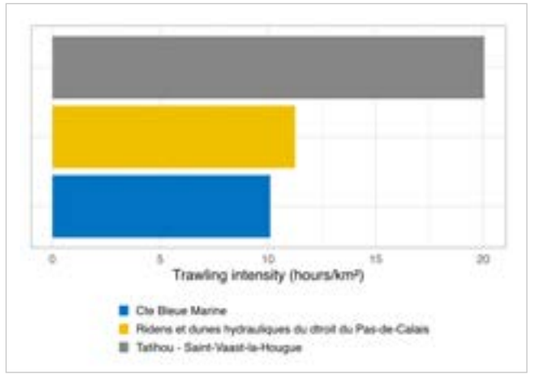
398 719
trawling hours in MPAs

2.37 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Italy

Number of MPAs: 393
Surface area of MPAs: 46 859 km²

In this country, **1040** trawlers have been detected, including **93.27%** under the country's flag, or as much as **58.28%** of the fleet all sizes combined.
In this country, **62.9%** of trawlers are over 15 meters long.

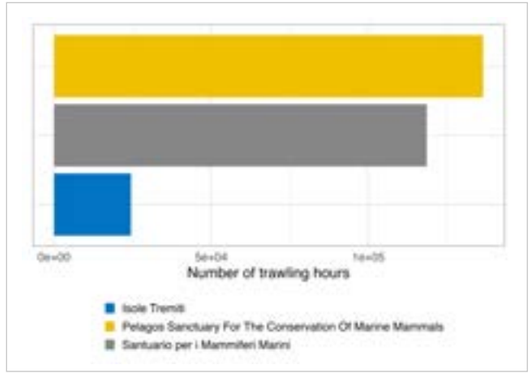
10.5%
of EEZ protected

16.71%
inside MPAs

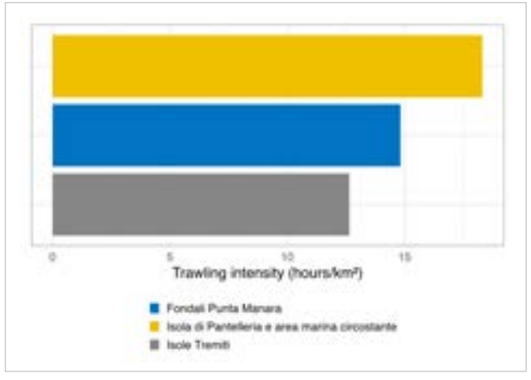
323 938
trawling hours in MPAs

5.72 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Germany

Number of MPAs: 218
Surface area of MPAs: 99 554 km²

In this country, **324** trawlers have been detected, including **31.48%**under the country's flag, or as much as **41.18%** of the fleet all sizes combined.
In this country, **90.44%** of trawlers are over 15 meters long.

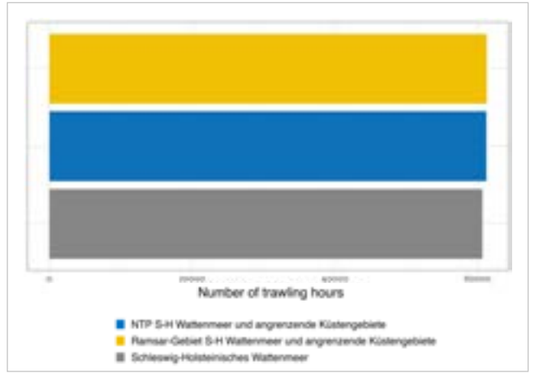
46.7%
of EEZ protected

41.65%
inside MPAs

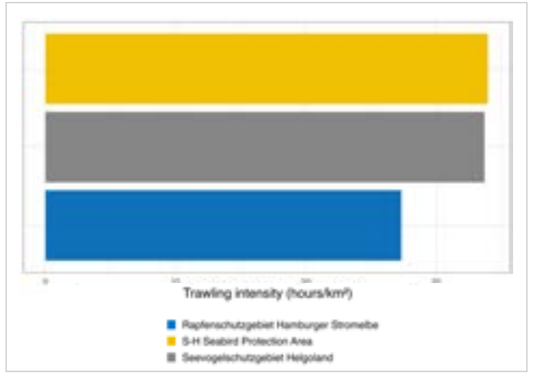
174 670
trawling hours in MPAs

6.59 h/km²
Average trawling intensity

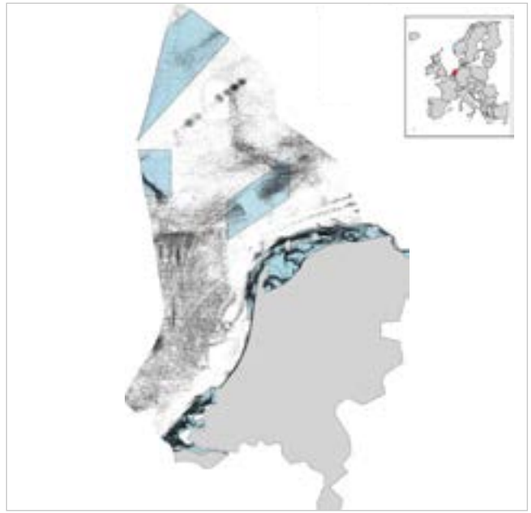
Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



The Netherlands

Number of MPAs: 83
Surface area of MPAs: 63 237 km²

In this country, **356** trawlers have been detected, including **50%** under the country's flag, or as much as **67.66%** of the fleet all sizes combined.
In this country, **96.65%** of trawlers are over 15 meters long.

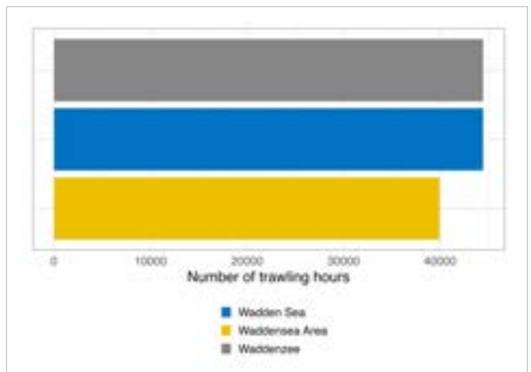
27.3%
of EEZ protected

33.68%
inside MPAs

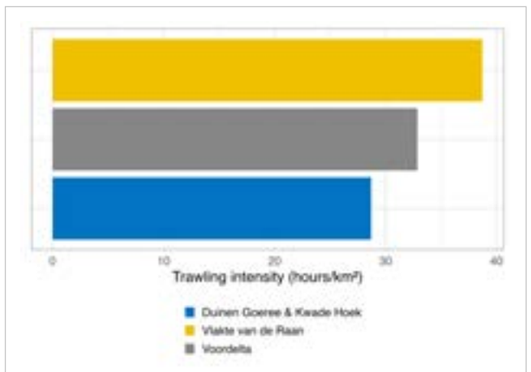
153 654
trawling hours in MPAs

8.76 h/km²
Average trawling intensity

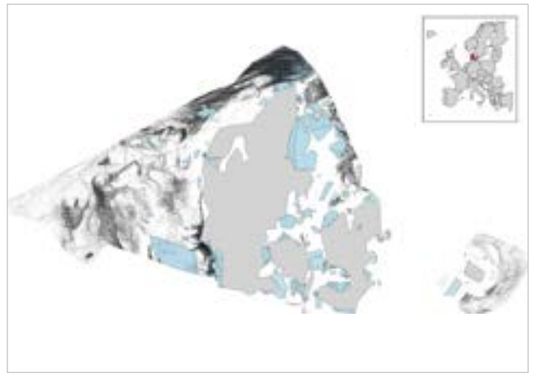
Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Denmark

Number of MPAs: 286
Surface area of MPAs: 57 315 km²

In this country, **391** trawlers have been detected, including **24.04%** under the country's flag, or as much as **61.68%** of the fleet all sizes combined.
In this country, **93.41%** of trawlers are over 15 meters long.

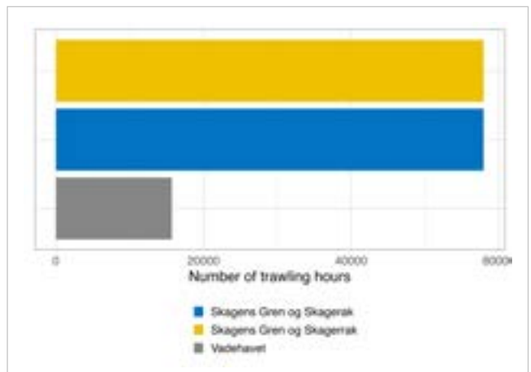
18 %
of EEZ protected

17.95%
inside MPAs

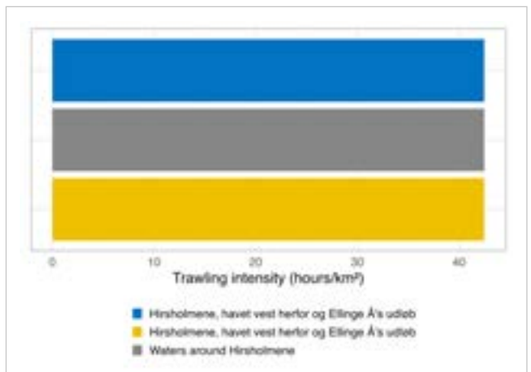
85 128
trawling hours in MPAs

4.51 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Portugal

Number of MPAs: 104
Surface area of MPAs: 268 303 km²

In this country, **143** trawlers have been detected, including **46.15%** under the country's flag, or as much as **57.27%** of the fleet all sizes combined.
In this country, **83.64%** of trawlers are over 15 meters long.

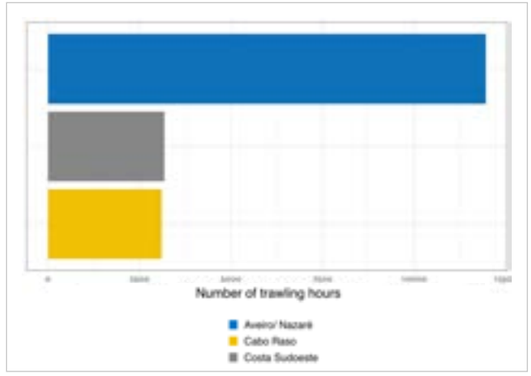
82%
of EEZ protected

7,86%
inside MPAs

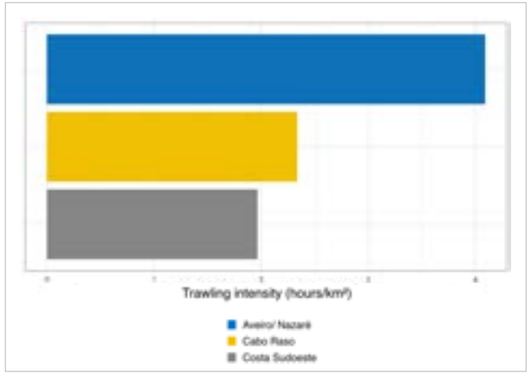
18 701
trawling hours in MPAs

0.07 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Belgium

Number of MPAs: 17
Surface area of MPAs: 2 779 km²

In this country, **129** trawlers have been detected, including **23.26%** under the country's flag, or as much as **38.27%** of the fleet all sizes combined.
In this country, **96.3%** of trawlers are over 15 meters long.

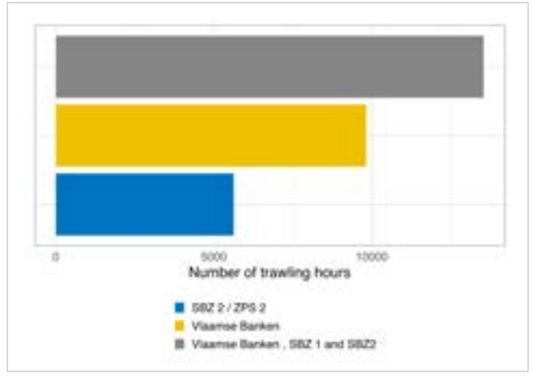
37.8%
of EEZ protected

29.35%
inside MPAs

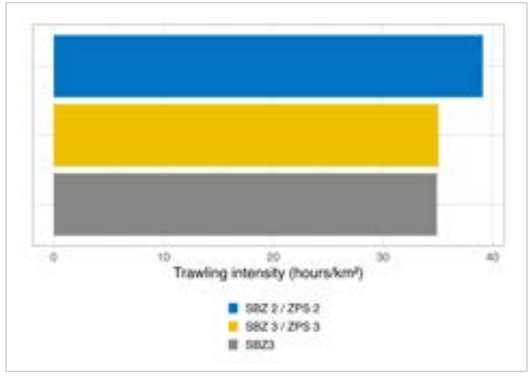
17 833
trawling hours in MPAs

13.51 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Sweden

Number of MPAs: 2 179
Surface area of MPAs: 85 914 km²

In this country, **214** trawlers have been detected, including **21.03%** under the country's flag, or as much as **31.37%** of the fleet all sizes combined.
In this country, **67.65%** of trawlers are over 15 meters long.

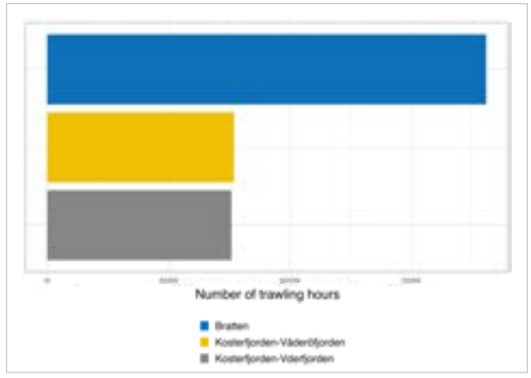
16.1%
of EEZ protected

10.63%
inside MPAs

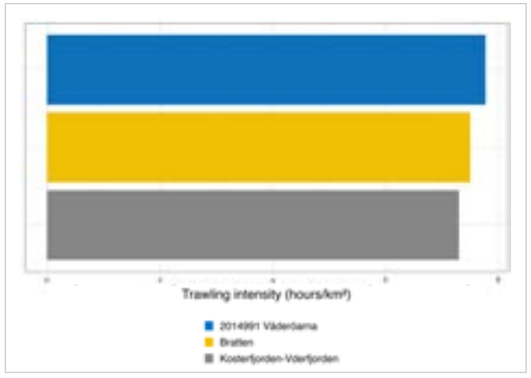
16 973
trawling hours in MPAs

0.68 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Bulgaria

Number of MPAs: 50
Surface area of MPAs: 3 085 km²

In this country, **31** trawlers have been detected, including **100%** under the country's flag, or as much as **44.83%** of the fleet all sizes combined.
In this country, **74.14%** of trawlers are over 15 meters long.

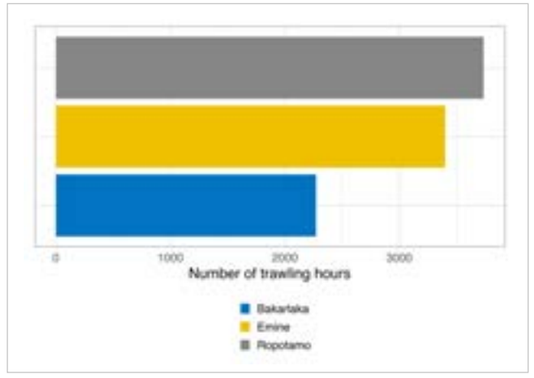
8.4%
of EEZ protected

28.33%
inside MPAs

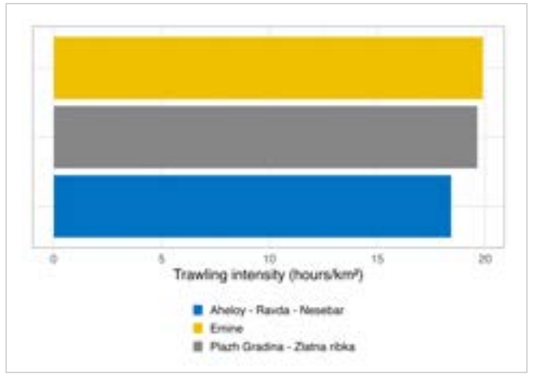
11 111
trawling hours in MPAs

3.79 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Latvia

Number of MPAs: 36
Surface area of MPAs: 16 478 km²

In this country, **76** trawlers have been detected, including **44.74%** under the country's flag, or as much as **64.44%** of the fleet all sizes combined.
In this country, **100%** of trawlers are over 15 meters long.

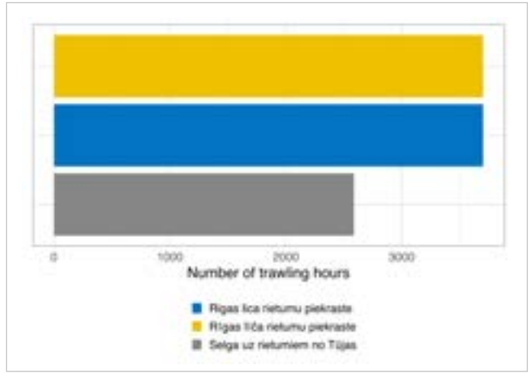
16.1%
of EEZ protected

15.15%
inside MPAs

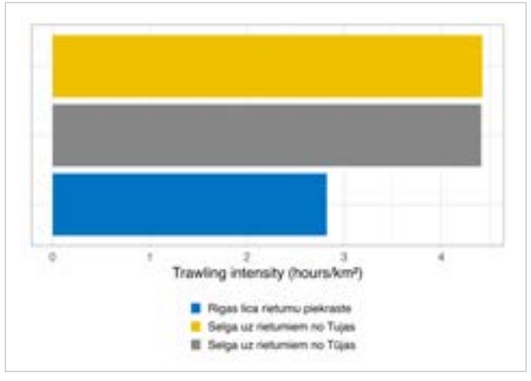
8 638
trawling hours in MPAs

1.89 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Malta

Number of MPAs: 64
Surface area of MPAs: 9 389 km²

In this country, **114** trawlers have been detected, including **8.77%** under the country's flag.

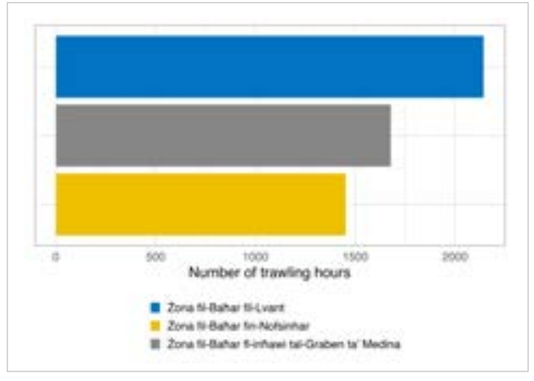
7.8%
of EEZ protected

11.33%
inside MPAs

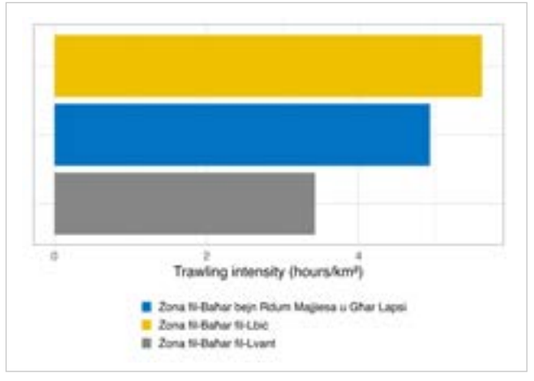
8 127
trawling hours in MPAs

1.96 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Croatia

Number of MPAs: 264
Surface area of MPAs: 6 213 km²

In this country, **343** trawlers have been detected, including **13.7%** under the country's flag, or as much as **0%** of the fleet all sizes combined.
In this country, **100%** of trawlers are over 15 meters long.

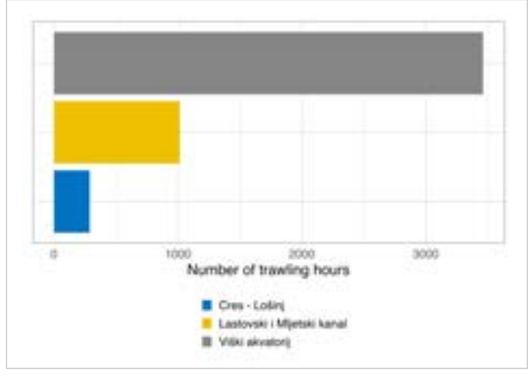
9.2%
of EEZ protected

2.39%
inside MPAs

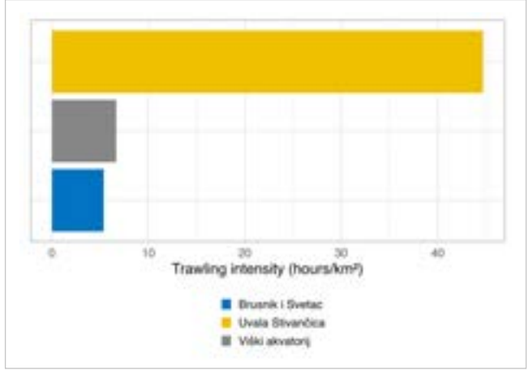
5 087
trawling hours in MPAs

1 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Greece

Number of MPAs: 211
Surface area of MPAs: 19 979 km²

In this country, **188** trawlers have been detected, including **60.64%** under the country's flag, or as much as **62.5%** of the fleet all sizes combined.
In this country, **100%** of trawlers are over 15 meters long.

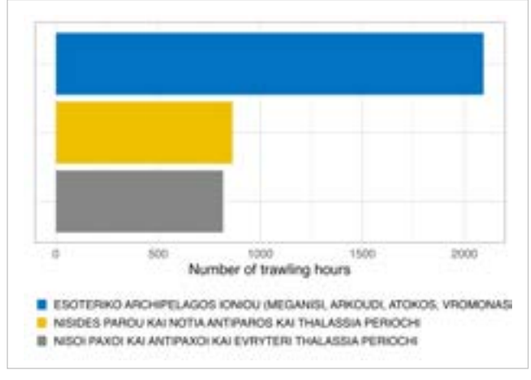
2.7%
of EEZ protected

2.43%
inside MPAs

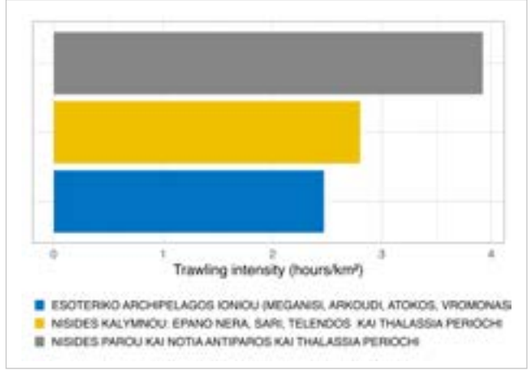
4 741
trawling hours in MPAs

0.36 h/km²
Average trawling intensity

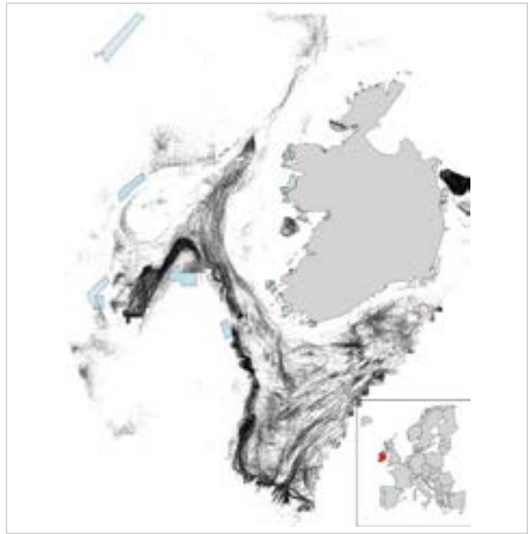
Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Ireland

Number of MPAs: 212
Surface area of MPAs: 12 939 km²

In this country, **348** trawlers have been detected, including **31.61%** under the country's flag, or as much as **7.14%** of the fleet all sizes combined.
In this country, **100%** of trawlers are over 15 meters long.

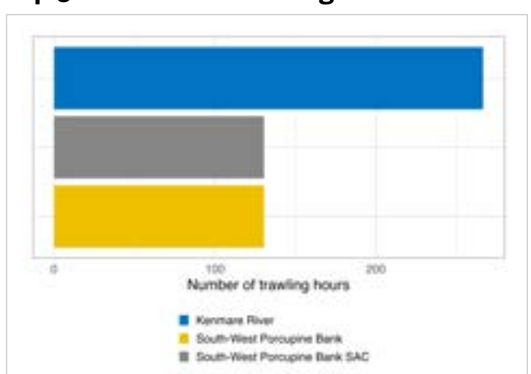
2.2% of EEZ protected

0.19% inside MPAs

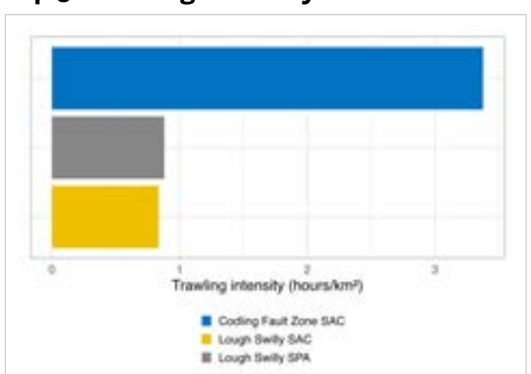
1 034 trawling hours in MPAs

0.11 h/km² Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Poland

Number of MPAs: 46
Surface area of MPAs: 20 403 km²

In this country, **88** trawlers have been detected, including **28.41%** under the country's flag, or as much as **63.83%** of the fleet all sizes combined.
In this country, **91.49%** of trawlers are over 15 meters long.

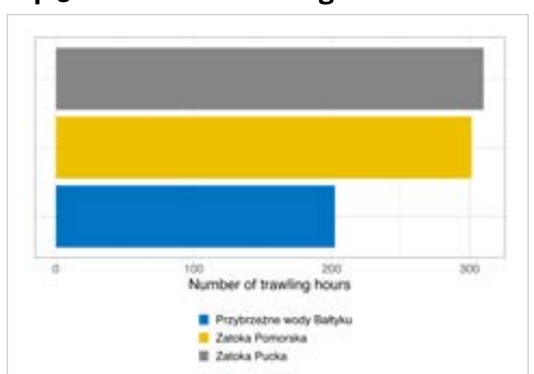
24.3% of EEZ protected

1.71% inside MPAs

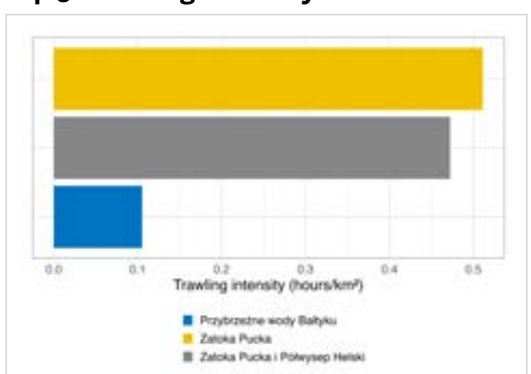
891 trawling hours in MPAs

0.12 h/km² Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Finland

Number of MPAs: 1 375
Surface area of MPAs: 25 152 km²

In this country, **42** trawlers have been detected, including **47.62%** under the country's flag, or as much as **21.21%** of the fleet all sizes combined.
In this country, **63.64%** of trawlers are over 15 meters long.

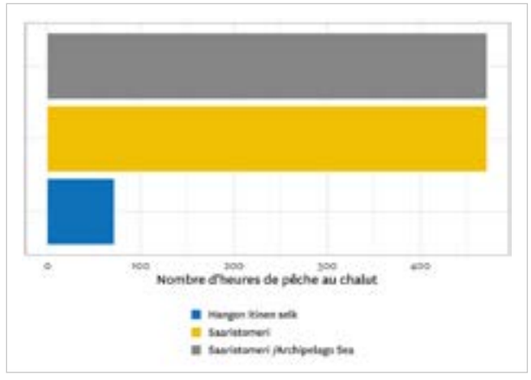
11.3%
of EEZ protected

1.58%
inside MPAs

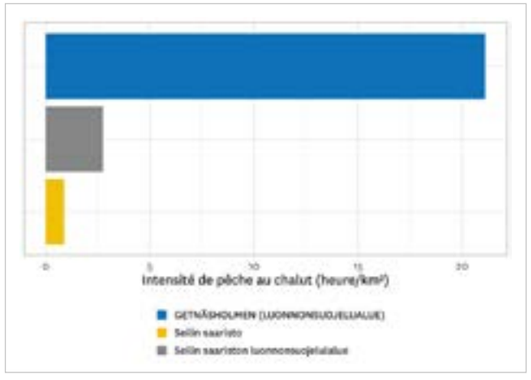
687
trawling hours in MPAs

0.07 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Estonia

Number of MPAs: 293
Surface area of MPAs: 24 550 km²

In this country, **67** trawlers have been detected, including **29.85%** under the country's flag, or as much as **45.45%** of the fleet all sizes combined.
In this country, **100%** of trawlers are over 15 meters long.

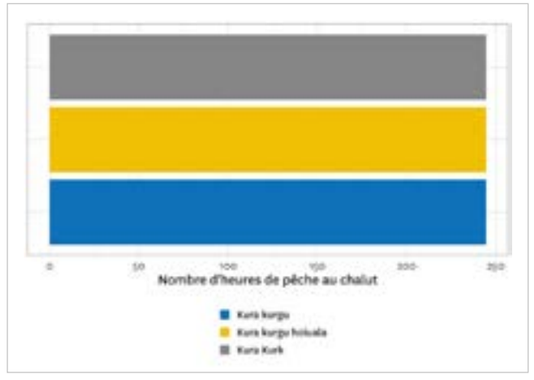
19.2%
of EEZ protected

1.79%
inside MPAs

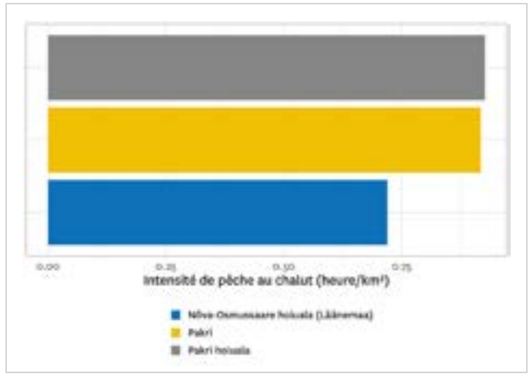
627
trawling hours in MPAs

0.09 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Romania

Number of MPAs: 17
Surface area of MPAs: 11 417 km²

In this country, **18** trawlers have been detected, including **11.11%** under the country's flag, or as much as **10%** of the fleet all sizes combined.
In this country, **20%** of trawlers are over 15 meters long.

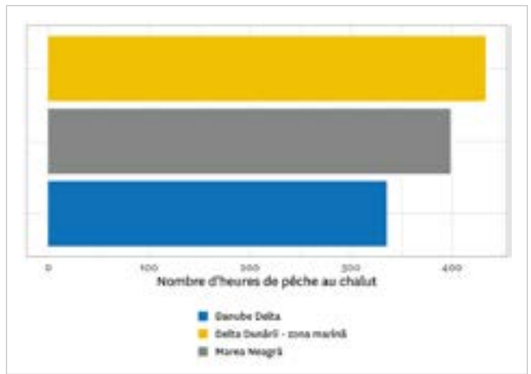
21.1%
of EEZ protected

16.51%
inside MPAs

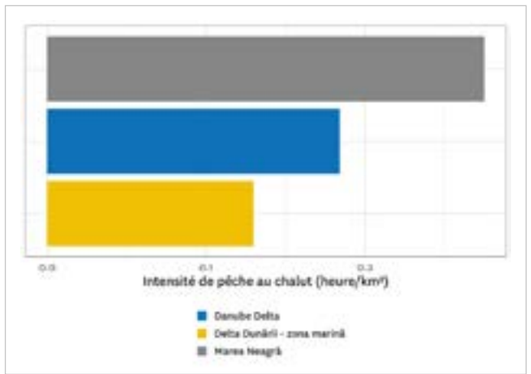
492
trawling hours in MPAs

0.08 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Lithuania

Number of MPAs: 21
Surface area of MPAs: 4 107 km²

In this country, **23** trawlers have been detected, including **21.74%** under the country's flag, or as much as **0%** of the fleet all sizes combined.
In this country, **100%** of trawlers are over 15 meters long.

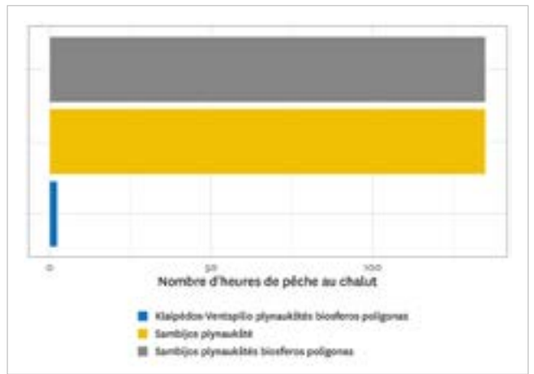
22.8%
of EEZ protected

8.15%
inside MPAs

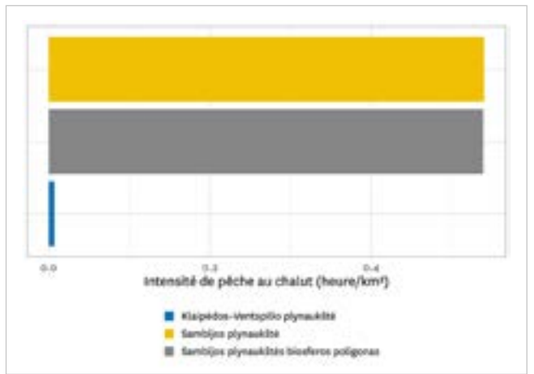
137
trawling hours in MPAs

0.09 h/km²
Average trawling intensity

Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Cyprus

Number of MPAs: 11
Surface area of MPAs: 165 km²

In this country, **24** trawlers have been detected, including **20.83%** under the country's flag, or as much as **0%** of the fleet all sizes combined.
In this country, **100%** of trawlers are over 15 meters long.

0.1%
of EEZ protected

0.43%
inside MPAs

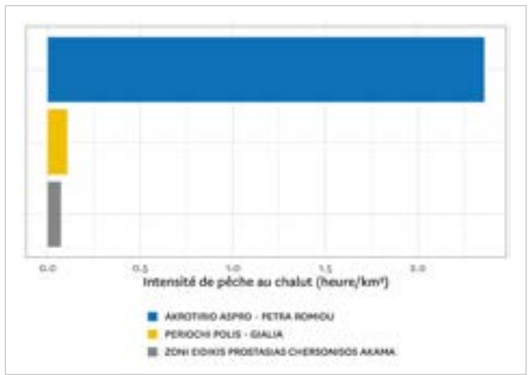
54
trawling hours in MPAs

0.42 h/km²
Average trawling intensity

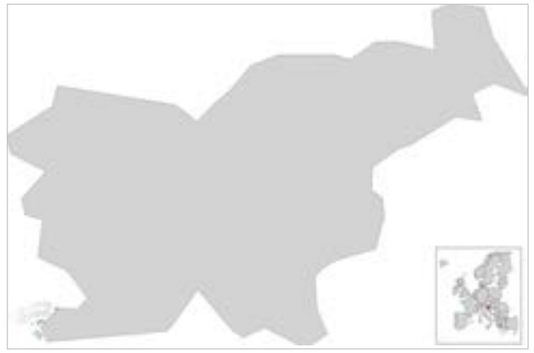
Top 3: number of trawling hours



Top 3: trawling intensity



Marine Protected Areas ● trawling



Slovenia

Number of MPAs: 18
Surface area of MPAs: 15 km²

In this country, **4** trawlers have been detected, including **75%** under the country's flag, or as much as **25%** of the fleet all sizes combined.
In this country, **33.33%** of trawlers are over 15 meters long.

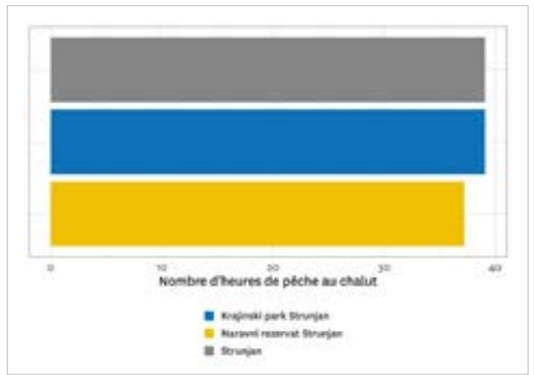
5.5%
of EEZ protected

1.47%
inside MPAs

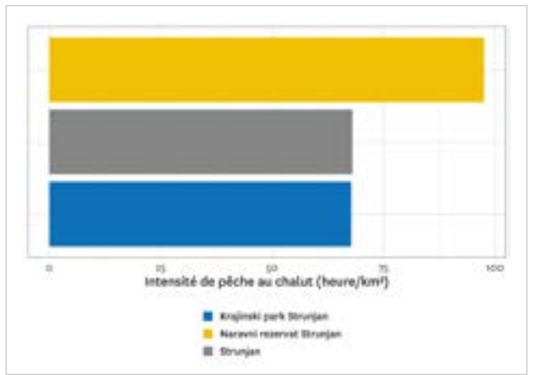
42
trawling hours in MPAs

3.61 h/km²
Average trawling intensity

Top 3: number of trawling hours



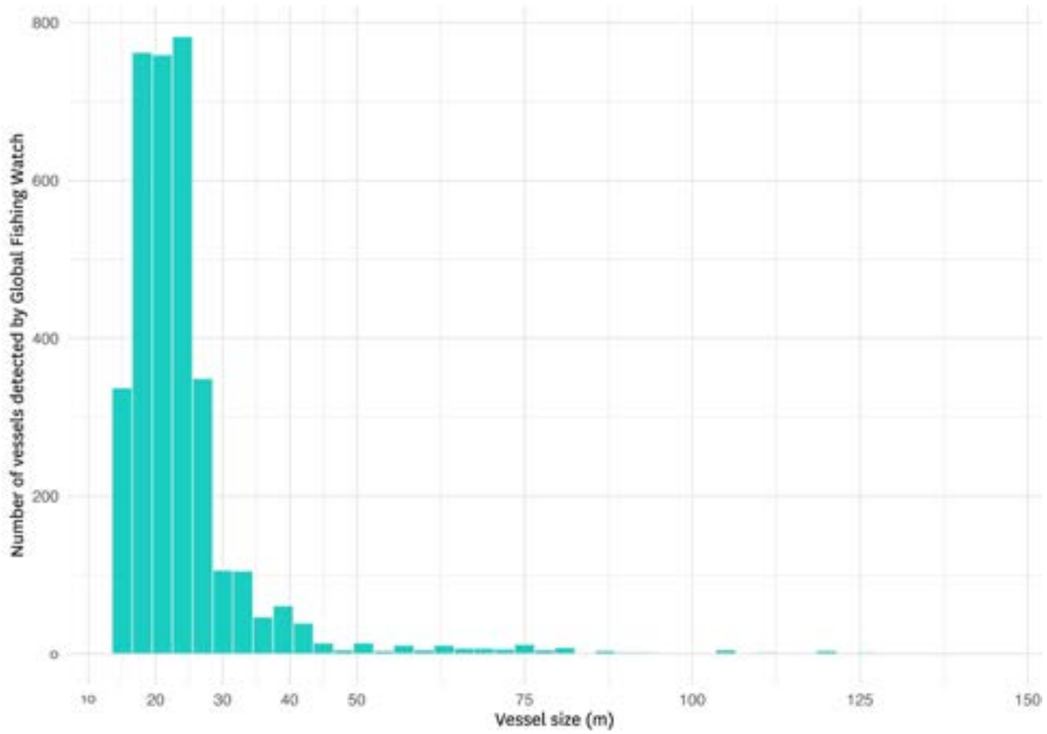
Top 3: trawling intensity



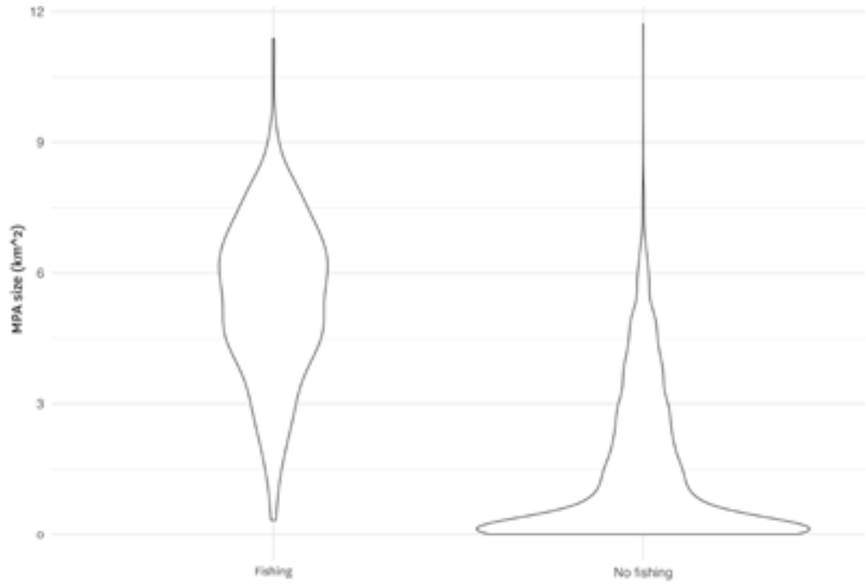
APPENDICES

Additional figures and graphics

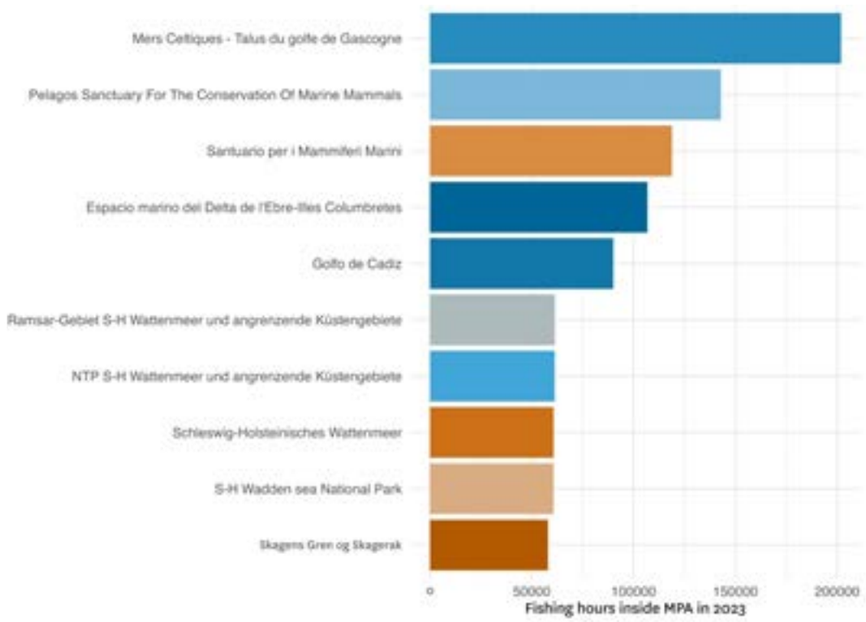
Appendix 1 **Size distribution in meters of vessels detected by Global Fishing Watch in 2023.**



Appendix 2 **Area distribution (in km² - logarithmic scale) of fished and unfished MPAs in 2023.**



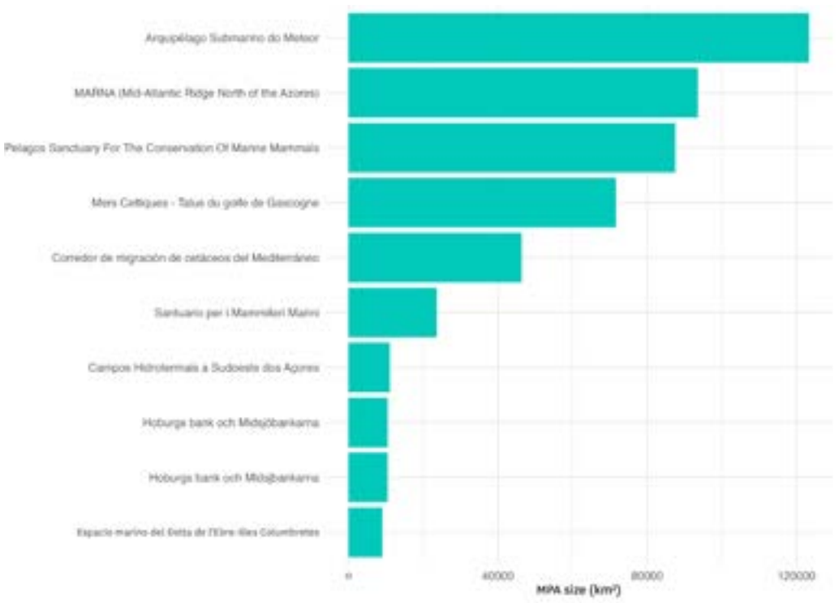
Appendix 3 **Top 10 most-fished MPAs in Europe in 2023 in terms of trawl hours fished.**



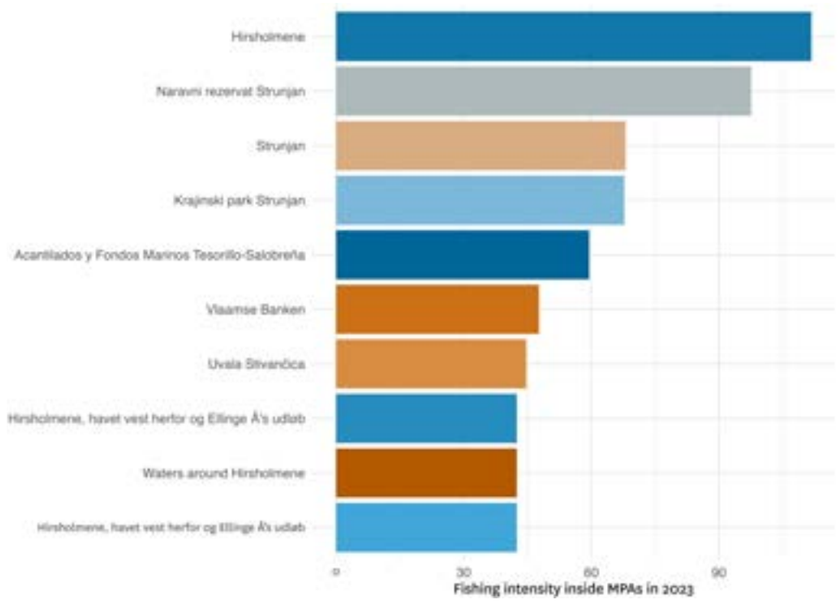
Appendix 4 **The Bay of Biscay MPA, the most trawled MPA in 2023.**



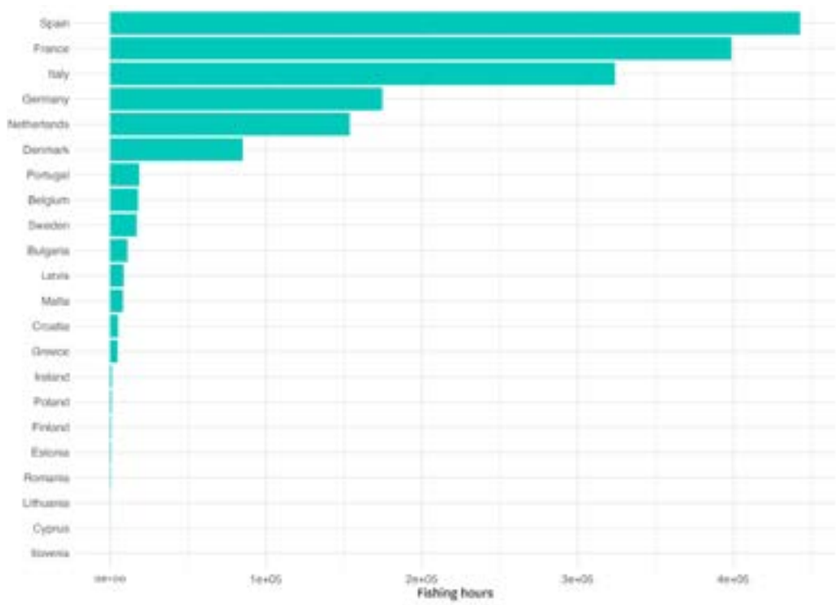
Appendix 5 **Top 10 largest MPAs in Europe**



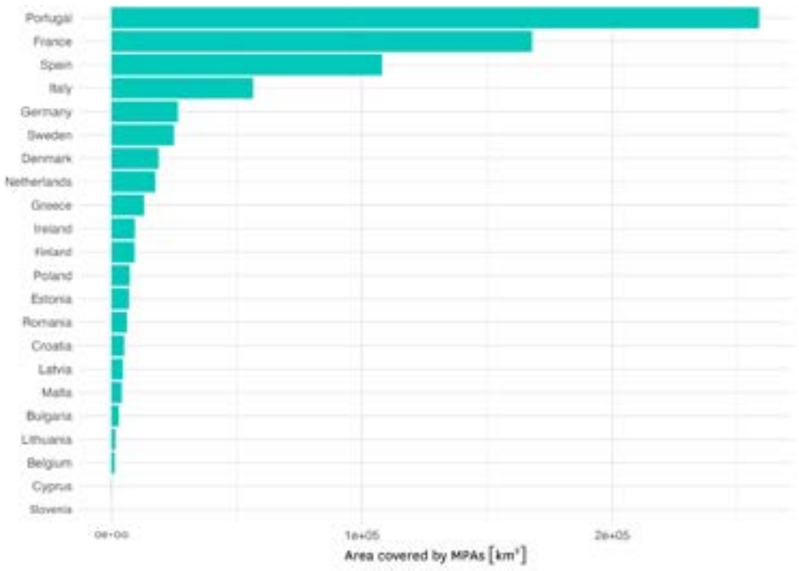
Appendix 6 **Top 10 MPAs most intensively trawled in Europe in 2023.**



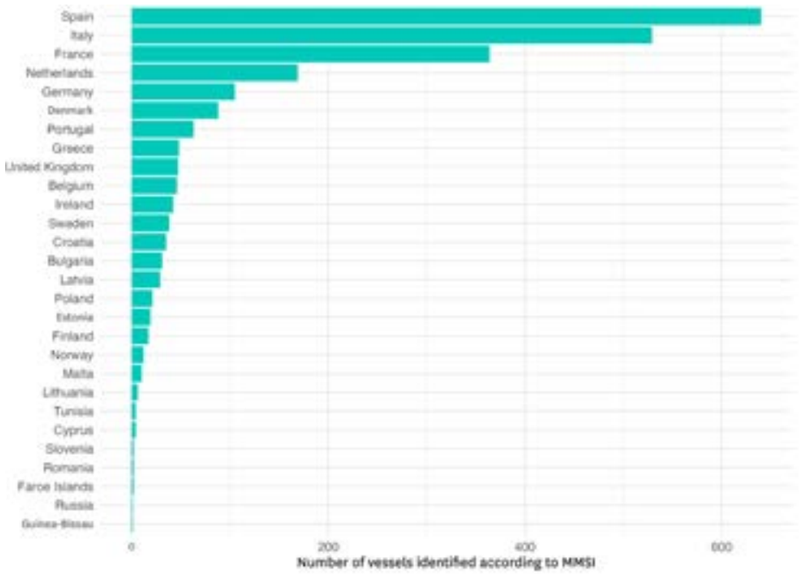
Appendix 7 **Ranking of countries with the highest number of fishing hours in their MPAs.**



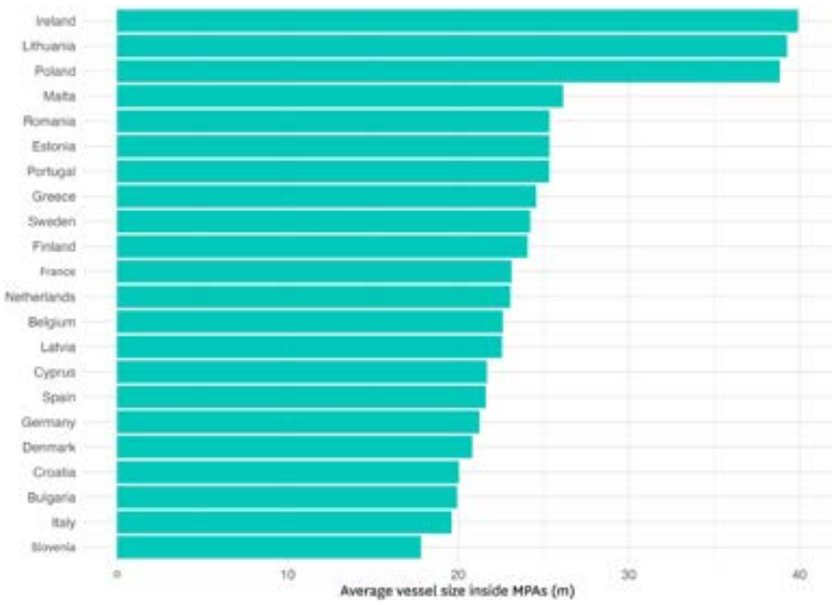
Appendix 8 **Ranking of countries with the largest surface area covered by Marine Protected Areas.**



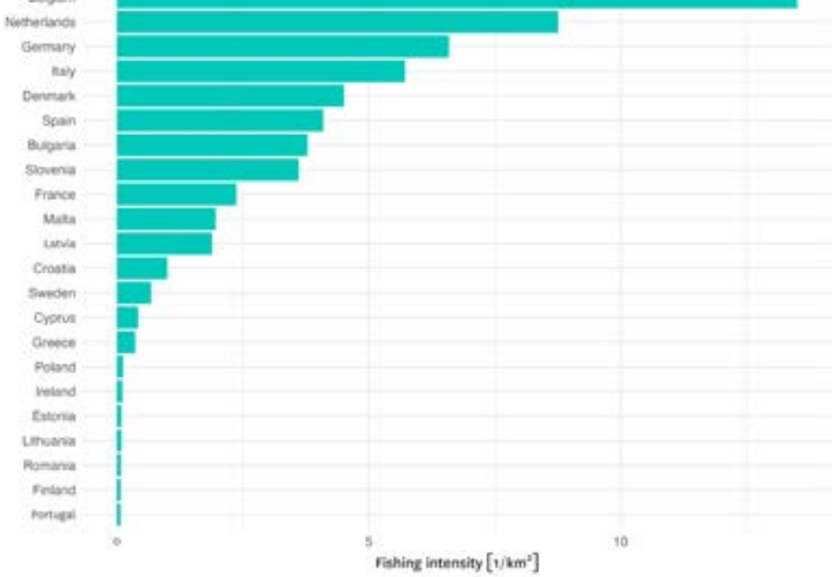
Appendix 9 **Ranking of countries with the highest number of boats detected according to Maritime Mobile Service Identity (MMSI) by Global Fishing Watch in European MPAs in 2023.**



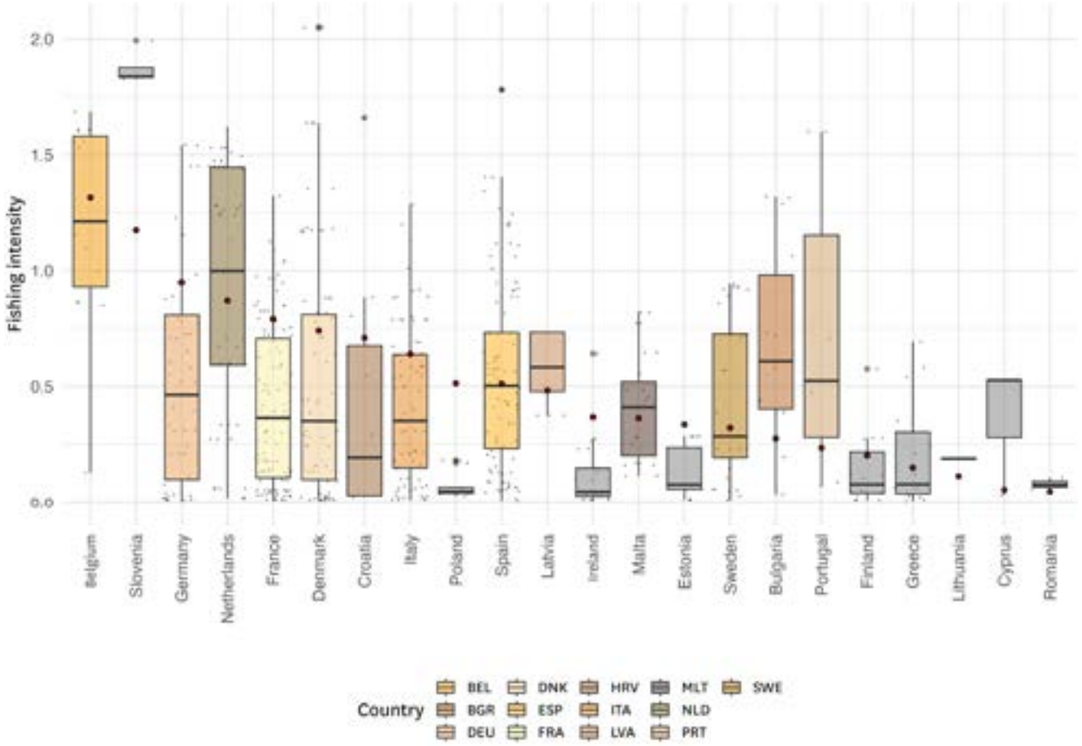
Appendix 10 **Average size of vessels over 15 meters fishing in European MPAs in 2023, by country.**



Appendix 11 **Ranking of fishing intensity (number of fishing hours/km²) in MPAs across European countries in 2023.**



Appendix 12 **Distribution of fishing intensity (number of fishing hours / km²) in European MPAs by country in 2023. The red point represents the average fishing intensity in each country's EEZ outside MPAs. If this point is below the average fishing intensity in the corresponding country's MPAs (represented by the black bar in each box), then fishing intensity in MPAs is higher than in the country's unprotected waters.**



Top 30 most trawled MPAs by country

For each country, the top 30 MPAs most fished by trawlers (where top of the maximum number of MPAs per country). As stated in the methodology, the WDPA database is far from perfect: it depends on the complete and correct voluntary declaration of marine protection data by countries. The same geographical area may be covered by several MPAs under different protection regimes. Finally, reporting errors sometimes create double counting in MPAs (for example, in Germany, the MPA "Borkum-riffgrund" was registered twice, once under the name "Borkum-riffgrund" and once under the name "Borkum riffgrund".

Top 30 **Germany**

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Ramsar-gebiet s-h wattenmeer und angrenzende küstengebiete	4 364	2004	Germany	61,316
2	Ntp s-h wattenmeer und angrenzende küstengebiete	4 326	2010	Germany	61,274
3	Schleswig-holsteinisches wattenmeer	4 253	1985	Germany	60,678
4	S-h wadden sea national park	4 344	2005	Germany	60,664
5	S-h seabird protection area	1 614	2005	Germany	54,843
6	Seevogelschutzgebiet helgoland	1 610	2004	Germany	54,255
7	Niedersächsisches wattenmeer und angrenzendes küstenmeer	3 333	2001	Germany	25,991
8	Niedersächsisches wattenmeer	3 242	1986	Germany	25,492
9	Sylter außenriff - östliche deutsche bucht	5 604	2017	Germany	23,223
10	Sylt.aussenr.-oestl.dt.bucht	5 587	2008	Germany	23,181
11	Spa östliche deutsche bucht	3 128	2004	Germany	20,008
12	Sylter außenriff	5 306	2007	Germany	17,879
13	Nationalpark niedersächsisches wattenmeer	2 555	2010	Germany	13,889
14	Waddensea and hallig islands of schleswig-holstein	2 591	2004	Germany	11,166
15	Schleswig-holstein wadden sea and adjacent areas	2 591	1991	Germany	11,166
16	Waddensea of lower saxony	1 951	1992	Germany	9,756
17	Wattenmeer, ostfriesisches wattenmeer & dollart	1 092	1976	Germany	7,120
18	Außenems	120	2019	Germany	3,153
19	Wattenmeer, elbe-weser-dreieck	423	1976	Germany	2,762
20	Doggerbank	1 692	2007	Germany	2,067
21	Wattenmeer, jadebusen & westliche wesermündung	469	1976	Germany	1,633
22	Unterems und außenems	59	2017	Germany	931
23	Steingrund	174	2010	Germany	862
24	Schleswig-holsteinisches elbästuar und angrenzende flächen	144	2010	Germany	594
25	Borkum-riffgrund	624	2007	Germany	542
26	Borkum riffgrund	625	2017	Germany	542
27	Borkum riff	101	2010	Germany	527
28	Niedersächsischer mündungstrichter der elbe	78	2018	Germany	525
29	Hamburgisches wattenmeer	110	1990	Germany	282
30	Unterelbe	114	2018	Germany	267

Top 10 Belgium

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Vlaamse banken , sbz 1 and sbz2	1 180	2012	Belgium	13,570
2	Vlaamse banken	1 106	2012	Belgium	9,855
3	Sbz 2 / zps 2	144	2005	Belgium	5,625
4	Vlakte van de raan	63	2020	Belgium	2,080
5	Sbz3	57	2012	Belgium	1,980
6	Sbz 3 / zps 3	56	2005	Belgium	1,977
7	Sbz 1 / zps 1	109	2005	Belgium	1,664
8	De middenkust	1	2003	Belgium	17
9	Kustbroedvogels te zeebrugge-heist	4	2005	Belgium	1
10	Ijzermonding	0	1999	Belgium	1

Top 17 Bulgaria

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Ropotamo	887	2008	Bulgaria	3,738
2	Emine	171	2007	Bulgaria	3,401
3	Bakarlaka	215	2007	Bulgaria	2,273
4	Emona	554	2015	Bulgaria	798
5	Kompleks kaliakra	436	2017	Bulgaria	747
6	Aheloy - ravda - nesebar	28	2016	Bulgaria	520
7	Emine - irakli	76	2008	Bulgaria	214
8	Plazh gradina - zlatna ribka	11	2008	Bulgaria	210
9	Kaliakra	55	2007	Bulgaria	81
10	Galata	13	2008	Bulgaria	57
11	Strandzha	384	2008	Bulgaria	29
12	Koketrays	5	2001	Bulgaria	18
13	Aladzha banka	6	2015	Bulgaria	11
14	Belite skali	15	2007	Bulgaria	8
15	Ezero shabla - ezerets	14	2008	Bulgaria	1
16	Pomorie	11	2008	Bulgaria	1
17	Plazh shkorpilovtsi	11	2008	Bulgaria	0

Top 3 Cyprus

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Akrotirio aspro - petra romiou	20	2005	Cyprus	48
2	Zoni eidikis prostasias chersonisos akama	74	2009	Cyprus	5
3	Periochi polis - gialia	15	2017	Cyprus	2

Top 18 Croatia

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Viški akvatorij	519	2014	Croatia	3 462
2	Lastovski i mljetski kanal	1 072	2014	Croatia	1 014
3	Cres - lošinj	517	2014	Croatia	287
4	J. molat-dugi-kornat-žirje-zlarin-murter-pašman-ugljan-rivanj-sestrunj-molat	825	2014	Croatia	168
5	Brusnik i svetac	14	2014	Croatia	75
6	Pučinski otoci	19	2013	Croatia	47
7	Akvatorij zapadne istre	702	2014	Croatia	44
8	Uvala stivančica	0	2014	Croatia	19
9	Kornati	158	1980	Croatia	10
10	Np kornati i pp telašćica	200	2013	Croatia	10
11	Nacionalni park kornati	158	2014	Croatia	10
12	Pelješac - od uvale rasoka do rta osičac	9	2014	Croatia	3
13	Otok vis - podmorje	24	2014	Croatia	2
14	Lastovsko otočje	139	2006	Croatia	2
15	Park prirode lastovsko otočje	139	2019	Croatia	2
16	Kosmerka - prokladnica - vrtlac - babuljak - podmorje	1	2014	Croatia	1
17	Otok korčula - od uvale poplat do vrhovnjaka	16	2014	Croatia	0
18	Podmorje plavnika i kormata	4	2014	Croatia	0

Top 30 Denmark

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Skagens gren og skagerak	2 689	2011	Denmark	57,933
2	Skagens gren og skagerrak	2 689	2009	Denmark	57,933
3	Vadehavet	1 123	1983	Denmark	15,693
4	Vadehavet med ribe å, tved å og varde å vest for varde	1 134	2011	Denmark	15,684
5	Hirsholmene, havet vest herfor og ellinge å's udløb	91	2011	Denmark	3,871
6	Waters around hirsholmene	91	2005	Denmark	3,871
7	Hirsholmene, havet vest herfor og ellinge å's udløb	91	2009	Denmark	3,871
8	Hirsholmene	35	1977	Denmark	3,828
9	Gule rev	472	2016	Denmark	2,611
10	Kims top og den kinesiske mur	262	2011	Denmark	1,727
11	Kims top and and the chinese wall	262	2009	Denmark	1,727
12	Sydlige nordsø	2 467	2007	Denmark	1,055
13	Store rev	109	2016	Denmark	573
14	Havstrategiområde f	270	2016	Denmark	477
15	Farvandet nord for anholt	460	1983	Denmark	414
16	Anholt and the water north of	461	2009	Denmark	414
17	Jyske rev, lillefiskerbanke	242	2016	Denmark	406
18	Waters north of anholt	114	1977	Denmark	86
19	Anholt og havet nord for	114	2011	Denmark	84
20	Havstrategiområde d2	57	2016	Denmark	82
21	Læsø trindel og tønneberg banke	86	2011	Denmark	31
22	Læsø trindel/tønneberg bank	86	2005	Denmark	31
23	Havstrategiområde c2	6	2016	Denmark	29
24	Bredgrund	642	2011	Denmark	28
25	Flenborg fjord, bredgrund and waters around als	642	2009	Denmark	28
26	Havstrategiområde e	77	2016	Denmark	20
27	Thyborøn stenvolde	78	2016	Denmark	18
28	Havet omkring nordre rønner	185	2011	Denmark	17
29	Waters around northern rönner	185	2005	Denmark	17
30	Strandenge på læsø og havet syd herfor	632	2011	Denmark	14

Top 30 Spain

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Espacio marino del delta de l'ebre-illes columbretes	9 030	2014	Spain	106,829
2	Golfo de cadiz	2 321	2014	Spain	90,003
3	Golfo de cádiz	2 321	2014	Spain	90,003
4	Plataforma-talud marinos del cabo de la nao	2 683	2014	Spain	39,823
5	Espacio marino de la costa da morte	3 150	2014	Spain	38,048
6	Corredor de migración de cetáceos del mediterráneo	46 355	2018	Spain	30,601
7	Sistema de cañones submarinos de aviles	3 389	2016	Spain	21,428
8	Espacio marino de tabarca-cabo de palos	1 261	2014	Spain	20,913
9	Valles submarinos del escarpe de mazarrón	1 550	2016	Spain	16,367
10	Espacio marino de las rias baixas de galicia	2 205	2014	Spain	15,892
11	Espacio marino de las rías baixas de galicia	2 205	2014	Spain	15,892
12	Bahía de almería	1 269	2014	Spain	13,320
13	Bahía de málaga-cerro gordo	610	2014	Spain	12,841
14	Espacio marino de la isla de alborán	663	2014	Spain	11,642
15	Espacio marino de l'empordà	855	2014	Spain	10,572
16	Espacio marino del baix llobregat-garraf	387	2014	Spain	5,660
17	Volcanes de fango del golfo de cadiz	3 184	2016	Spain	4,160
18	Franja litoral sumergida de la región de murcia	130	2019	Spain	1,963
19	Costes del garraf	265	1992	Spain	1,777
20	Espacio marino de punta de candelaira - ria de ortigueira - estaca de bares	765	2014	Spain	1,747
21	Espacio marino de punta de candelaria-ría de ortigueira-estaca de bares	765	2014	Spain	1,747
22	Delta de l`ebre	357	1992	Spain	1,571
23	Ebro Delta	357	1988	Spain	1,571
24	El cachucho	2 617	2011	Spain	1,396
25	Isla de alboran	264	2003	Spain	1,151
26	Alborán	264	2003	Spain	1,139
27	Espacio marino de los islotes litorales de murcia y almería	122	2014	Spain	1,118
28	Espacio marino del sur de mallorca y cabrera	401	2014	Spain	866
29	Espacio marino de cabo peñas	320	2014	Spain	817
30	Espacio marino del norte y oeste de menorca	1 607	2014	Spain	678

Top 26 Estonia

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Kura kurgu hoiuala	1 884	2018	Estonia	249
2	Kura kurgu	1 904	2004	Estonia	249
3	Kura kurk	1 944	2009	Estonia	249
4	Nõva-osmussaare hoiuala (läänemaa)	211	2018	Estonia	152
5	Nõva-osmussaare	213	2004	Estonia	152
6	Pakri hoiuala	163	2018	Estonia	151
7	Pakri	164	2009	Estonia	151
8	Lahemaa	260	2009	Estonia	50
9	Lahemaa rahvuspark	260	2015	Estonia	48
10	Lahemaa rp, mother pv.	254	2015	Estonia	48
11	Pärnu lahe hoiuala	1 006	2018	Estonia	22
12	Pärnu lahe	1 058	2004	Estonia	22
13	Apollo meremadaliku lka, apollo skv.	52	2019	Estonia	3
14	Apollo meremadaliku looduskaitseala	52	2019	Estonia	3
15	Tagamõisa hoiuala	44	2018	Estonia	2
16	Vilsandi	200	2009	Estonia	2
17	Tagamõisa	83	2004	Estonia	2
18	Uhtju looduskaitseala	29	2018	Estonia	2
19	Uhtju lka, uhtju pv.	25	2018	Estonia	2
20	Uhtju	24	2004	Estonia	2
21	Väinamere hoiuala (läänemaa)	623	2018	Estonia	1
22	Väinamere	2 083	2010	Estonia	1
23	Väinameri	2 232	2009	Estonia	1
24	Kolga lahe maastikukaitseala	16	2015	Estonia	0
25	Kolga lahe mka, malusi skv.	5	2015	Estonia	0
26	Kolga lahe	20	2004	Estonia	0

Top 18 Finland

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Saaristomeri	1,462	2015	Finland	471
2	Saaristomeri /archipelago sea	543	2005	Finland	471
3	Hangon itinen selk	111	2015	Finland	71
4	Hangon itäinen selkä	110	2015	Finland	71
5	Tammisaaren ja hangon saariston ja pohjanpitäjänlahden merensuojelualue /tammisaari and hanko archipelago-and pojo bay marine proteciton area	474	2005	Finland	45
6	Tammisaaren ja hangon saariston ja pohjanpitjnlahden meren-suojelualue	466	1998	Finland	45
7	Bird wetlands of hanko and tammisaari	522	2004	Finland	45
8	Seilin saaristo	37	1998	Finland	33
9	Saaristomeren kansallispuisto	488	1982	Finland	30
10	Seilin saariston luonnonsuojelulalue	8	2014	Finland	23
11	Merenkurkun saaristo /outer bothnian threshold archipelago (the quark)	1,158	2005	Finland	20
12	Merenkurkun saaristo	1,162	1998	Finland	20
13	Seksmiilarin saaristo	160	1998	Finland	19
14	Grimsörarnan hylkeidensuojelualue	22	2001	Finland	6
15	Getnäsholmen (luonnonsuojelualue)	0	2000	Finland	2
16	Uudenkaupungin saaristo/ uusikaupunki archipelago	539	2005	Finland	2
17	Uudenkaupungin saaristo	542	1998	Finland	2
18	Selkämeren kansallispuisto	897	2011	Finland	1

Top 30 France

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Bay of Biscay	71 622	2018	France	201,908
2	Pertuis charentais - rochebonne	8 172	2019	France	36,982
3	Camargue	1 460	2018	France	24,507
4	Lion Gulf	4 005	2011	France	20,851
5	Picardy estuaries and the Opal Sea	2 309	2012	France	18,150
6	Gironde estuary and channel sea	6 438	2015	France	15,210
7	Pertuis charentais	4 544	2014	France	14,629
8	Ile d'Yeu sector	2 455	2012	France	10,475
9	Marine area from le d'yeu to the mainland	2 455	2008	France	10,434
10	Nord bretagne do	2 832	2018	France	10,298
11	Cap Ferret canyon head	3 654	2009	France	9,401
12	Ridens and hydraulic dunes of the pas-de-calais strait	679	2016	France	7,643
13	Flanders banks	1 161	2010	France	7,059
14	Cte languedocienne	712	2008	France	5,100
15	Iroise	3 405	2007	France	5,033
16	Chausey	825	2014	France	4,983
17	Western Seine Bay	454	2014	France	3,736
18	Seine-Marine coastline	1 785	2013	France	3,634
19	Cape gray-nose	556	2005	France	3,373
20	Penmarch rocks	457	2014	France	2,604
21	Roches de penmarc'h	457	2019	France	2,604
22	Portion of the sandy coastline of the Aquitaine Coast	507	2015	France	2,070
23	To the right of the hourtin-carcans tang	507	2009	France	2,070
24	To the right of the hourtin-carcans pond	507	2012	France	2,070
25	Portion of sandy coastline on the Aquitaine coast	507	2012	France	2,070
26	Eastern Seine Bay	443	2014	France	2,003
27	Cte bleue marine	188	2015	France	1,900
28	Blue rating	188	2012	France	1,840
29	Bassin d'arcachon	418	2014	France	1,638
30	Calanques [membership area]	972	2012	France	1,253

Top 29 Grèce

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Esoteriko archipelagos ioniou (meganisi, arkoudi, atokos, vromonas)	848	2011	Greece	2,094
2	Nisides parou kai notia antiparos kai thalassia periochi	220	2002	Greece	865
3	Nisoi paxoi kai antipaxoi kai evryteri thalassia periochi	1 317	2011	Greece	818
4	Nisides kalymnou: epano nera, sari, telendos kai thalassia periochi	176	2001	Greece	493
5	Paraktia thalassia zoni apo akr. kyllini eos toumpi - kalogria	102	2011	Greece	127
6	Limnos, limnes chortarolimni kai alyki, kolpos moudrou elos diapori kai chersonisos fakos, nisos sergitsi kai nisides diavates kompiokastria, tigani, karkalas, prasonisi kai thalassia periochi	296	1997	Greece	56
7	Fengari samothrakis, anatolikes aktes, vrachonissida zourafa kai thalassia zoni	50	2011	Greece	49
8	Nisides skyrou kai thalassia periochi	473	2002	Greece	42
9	Voreia chios kai nisoi oinousses kai paraktia thalassia zoni	36	2011	Greece	36
10	Paraktia thalassia zoni apo argostoli eos vlachata (kefalonia) kai ormos mounta	35	2011	Greece	26
11	Dytikes kai voreioanatolikes aktes zakynthou	163	2002	Greece	25
12	Chersonisos rodopou - paralia maleme -kolpos chanion	75	2011	Greece	23
13	Nisos chalki kai nisides: kolofona, pano prassouda, tragousa, strongyli, agios theodoros, maelonisi alimia, krevvati, nisaki, makry kai thalassia periochi	311	2001	Greece	17
14	Ethniko thalassio parko alonnisou - voreion sporadon, anatoliki skopelos	2 314	2011	Greece	17
15	Nisides lesvou (symplegma tomaronision, kodonas, agios georgios, glaronisi, klp) kai thalassia periochi)	78	2001	Greece	15
16	Nisos fournoi kai nisides thymaina alatonisi, thymainaki, strongylo, plaka, makronisi, mikros kai megalos anthropofagos, agios minas kai thalassia periochi	190	2001	Greece	9
17	Nisos tilos kai nisides: antitilos, pelekousa, gaidouronisi, giakoumis, agios andreas, prasouda , nisi kai thalassia periochi	110	2001	Greece	8
18	Mikres kyklades, voreioanatoliki amorgos, anatolikes aktes donousas, gyro nisides kai thalassia periochi	469	2001	Greece	8
19	Anatoliko tmima astypaleas kai nisides kounoupi, fteno, chondropoulo, koytsomytis, moni, agia kyriaki, tigani, chondri, ligno, fokionisia, katsagreli, pontikoyssa, fidoyssa, ktenia kai thalassia periochi	259	2001	Greece	4
20	Nisides mykonou: rineia, chtapodia, kai tragonisi kai thalassia periochi	166	2002	Greece	3
21	Zones prostasias tis fysis pf_1, pf_2, pf_3 kai pf_4 ethnikou parkou limnothalasson mesolongiou	159	2006	Greece	2
22	Ethniko parko limnothalasson mesolongiou - aitolikou, kato rou kai ekvolon acheloou kai evinou kai nison echinadon	160	2006	Greece	2
23	Delta acheloou, limnothalassa mesolongiou - aitolikou, ekvoles evinou, nisoi echinades, nisos petalas	152	2011	Greece	2
24	Delta acheloou, limnothalassa mesolongiou - aitolikou kai ekvoles evinou, nisoi echinades, nisos petalas, dytikos arakynthos kai stena kleisouras	152	1988	Greece	2
25	Messolonghi lagoons	182	1975	Greece	2
26	Limnothalasses stenon lefkadas (palionis - avlimon) kai alykes lefkadas	12	2002	Greece	2
27	Voreioanatoliko akro kritis: dionysades, elasa kai chersonisos sidero (akra mavro mouri - vai - akra plakas) kai thalassia zoni	314	2011	Greece	1
28	Dionysades nisoi kai thalassia zoni	169	1997	Greece	1
29	Anatoliko tmima nisou symis kai nisides kouloundros seskli, troumpeto, marmaras, karavalonisi, megalonisi, gialesino, oxeia, chondros, platy, nimos kai thalassia periochi nisou symis	73	2001	Greece	0

Top 29 Ireland

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Kenmare river	381	2010	Ireland	267
2	South-west porcupine bank bag	329	2016	Ireland	130
3	South-west porcupine bank	329	2009	Ireland	130
4	Hovland mound province bag	1 085	2016	Ireland	105
5	Hovland mound province	1 085	2009	Ireland	105
6	Codling fault zone bag	30	2016	Ireland	100
7	Rockabill to dalkey island bag	271	2019	Ireland	65
8	Lough swilly bag	74	2018	Ireland	62
9	Donegal bay spa	89	2004	Ireland	62
10	Porcupine bank canyon bag	779	2016	Ireland	60
11	Lough swilly spa	60	1995	Ireland	53
12	Blacksod bay/broad haven spa	117	1995	Ireland	39
13	Mullet/blacksod bay complex	96	2009	Ireland	39
14	South east rockall bank bag	1 486	2016	Ireland	34
15	Roaringwater bay and islands	115	2009	Ireland	31
16	Belgica mound province bag	410	2016	Ireland	29
17	Belgica mound province	410	2009	Ireland	29
18	North-west porcupine bank bag	714	2016	Ireland	17
19	North-west porcupine bank	713	2009	Ireland	17
20	Blasket islands bag	214	2019	Ireland	12
21	Blasket islands	214	2009	Ireland	12
22	West connacht coast bag	642	2019	Ireland	8
23	Inishmore island bag	121	2019	Ireland	6
24	Rockabill spa	52	1988	Ireland	6
25	Hook head bag	168	2017	Ireland	3
26	St. john's point sac	8	2017	Ireland	2
27	Saltee islands bag	156	2019	Ireland	1
28	Howth head coast spa	2	2008	Ireland	1
29	Carnsore point bag	86	2016	Ireland	1

Top 30 Italy

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Santuario per i mammiferi marini	23 634	1999	Italy	118,866
2	Isole tremiti	1 933	2006	Italy	24,443
3	Arcipelago delle pelagie - area marina e terrestre	3 862	2005	Italy	9,199
4	Area marina di capo passero	740	2019	Italy	6,823
5	Litorale di gallipoli e isola s. andrea	677	1998	Italy	1,920
6	Isola di pantelleria e area marina circostante	90	2005	Italy	1,641
7	Fondali dell'arcipelago delle isole egadi	540	2019	Italy	1,351
8	Riserva naturale marina isole egadi	535	1991	Italy	1,340
9	Arcipelago delle egadi - area marina e terrestre	442	2005	Italy	1,268
10	Da tavolara a capo comino	988	2020	Italy	1,253
11	Parco nazionale del circeo	111	1988	Italy	733
12	Area marina protetta regno di nettuno	108	2007	Italy	726
13	Fondali delle isole pelagie	38	2019	Italy	276
14	Area marina protetta isole pelagie	38	2002	Italy	274
15	Fondali di capo san marco - sciacca	181	2020	Italy	254
16	Fondali dell'isola di capo passero	53	2020	Italy	195
17	Mare della magna grecia	292	2019	Italy	187
18	Fondali tra terracina e lago lungo	30	2017	Italy	155
19	Tegnùe di chioggia	27	2018	Italy	141
20	Secche di macchiatonda	20	2017	Italy	135
21	Rauccio	60	2018	Italy	127
22	Isola di san pietro	40	2017	Italy	123
23	Alimini	23	2018	Italy	118
24	Plemmirio	23	2008	Italy	117
25	Area marina protetta plemmirio	23	2004	Italy	117
26	Fondali del plemmirio	23	2019	Italy	117
27	Fondali tra capo circeo e terracina	54	2017	Italy	116
28	Area marina protetta santa maria di castellabate	68	2009	Italy	104
29	Aquatina di frigole	30	2018	Italy	99
30	Posidonieto san vito - barletta	123	2018	Italy	94

Top 6 Latvia

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Rīgas līča rietumu piekraste	1 315	2010	Latvia	3,701
2	Rigas lica rietumu piekraste	1 311	2010	Latvia	3,701
3	Selga uz rietumiem no tūjas	586	2010	Latvia	2,587
4	Selga uz rietumiem no tujas	585	2010	Latvia	2,587
5	Irbes šaurums	1 720	2010	Latvia	2,346
6	Irbes saurums	1 715	2008	Latvia	2,346

Top 4 Lithuania

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Sambijos plynaukštės biosferos poligonas	250	2015	Lithuania	135
2	Sambijos plynaukštė	250	2016	Lithuania	135
3	Klaipėdos-ventspilio plynaukštės biosferos poligonas	320	2015	Lithuania	2
4	Klaipėdos-ventspilio plynaukštė	319	2015	Lithuania	2

Top 18 Malta

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Żona fil-baħar fil-lvant	626	2016	Malta	2,143
2	Żona fil-baħar fl-inħawi tal-graben ta' medina	913	2016	Malta	1,678
3	Żona fil-baħar fin-nofsinhar	836	2016	Malta	1,452
4	Żona fil-baħar fil-lbiċ	255	2016	Malta	1,435
5	Żona fil-baħar madwar għawdex	550	2016	Malta	862
6	Żona fil-baħar fil-grigal	352	2016	Malta	813
7	Żona fil-baħar fil-punent	466	2016	Malta	608
8	Żona fil-baħar bejn il-ponta ta' san dimitri (għawdex) u il-qaliet	154	2010	Malta	314
9	Żona fil-baħar fl-inħawi tal-graben tat-tramuntana ta' għawdex	390	2016	Malta	305
10	Żona fil-baħar fit-tramuntana	319	2016	Malta	288
11	Żona fil-baħar fix-xlokk	219	2016	Malta	98
12	Żona fil-baħar bejn rdum majjiesa u għar lapsi	14	2005	Malta	68
13	Żona fil-baħar fl-inħawi tal-punent tal-graben ta' malta	201	2018	Malta	60
14	Żona fil-baħar fl-inħawi tal-majjistral tal-graben ta' malta	107	2018	Malta	32
15	Żona fil-baħar fil-majjistral	56	2016	Malta	27
16	'Żona fil-baħar fl-inħawi ta'' għar lapsi u ta'' filfla'	26	2010	Malta	15
17	Żona fil-baħar fl-inħawi ta' għar lapsi u ta' filfla	26	2012	Malta	15
18	Fortifikazzjonijiet tal-port	3	2001	Malta	7

Top 22 The Netherlands

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Waddenzee	2 568	2009	Netherlands	46,395
2	Wadden sea	2 555	1984	Netherlands	46,200
3	Waddensea area	2 296	1986	Netherlands	39,924
4	Noordzeekustzone	1 410	2010	Netherlands	38,357
5	North sea coastal area	1 407	2000	Netherlands	38,357
6	Nnn-en	2 202	2014	Netherlands	36,767
7	Voordelta	823	2008	Netherlands	27,057
8	Friese front	2 882	2016	Netherlands	11,807
9	Nnn-nh	1 165	2018	Netherlands	10,338
10	Vlakte van de raan	198	2009	Netherlands	8,025
11	Westerschelde & saeftinghe	394	2010	Netherlands	6,437
12	Doggersbank	4 763	2016	Netherlands	5,505
13	Doggerbank	4 687	2009	Netherlands	5,409
14	Klaverbank	1 237	2009	Netherlands	4,512
15	Nnn-zh	330	2014	Netherlands	4,083
16	Nnn-gr	555	2016	Netherlands	2,048
17	Oosterschelde	331	2002	Netherlands	975
18	Schiermonnikoog	35	1989	Netherlands	403
19	Duinen goeree & kwade hoek	4	2008	Netherlands	115
20	Ijsselmeer	1 097	2010	Netherlands	41
21	Haringvliet	72	2000	Netherlands	10
22	Solleveld & kapittelduinen	1	2011	Netherlands	3

Top 9 Poland

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Zatoka pucka	607	2004	Poland	310
2	Zatoka pomorska	3 068	2004	Poland	301
3	Przybrzeżne wody bałtyku	1 921	2004	Poland	202
4	Przybrzezne wody baltyku	1 921	2006	Poland	202
5	Ostoja na zatoce pomorskiej	2 415	2009	Poland	133
6	Zatoka pucka i półwysep helski	214	2008	Poland	101
7	Lawica slupska	799	2009	Poland	67
8	Ławica słupska	799	2004	Poland	67
9	Nadmorski park krajobrazowy	101	1978	Poland	2

Top 9 Portugal

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Aveiro/ nazaré	2 925	2015	Portugal	11,958
2	Costa sudoeste	1 618	2008	Portugal	3,181
3	Cabo raso	1 326	2015	Portugal	3,098
4	Ilhas berlengas	1 025	1988	Portugal	223
5	Ria de aveiro	213	1988	Portugal	37
6	Berlengas	94	1981	Portugal	2
7	Arrábida	51	1976	Portugal	1
8	Arrábida / espichel	52	2008	Portugal	1
9	Arrabida	50	2015	Portugal	1

Top 3 Romania

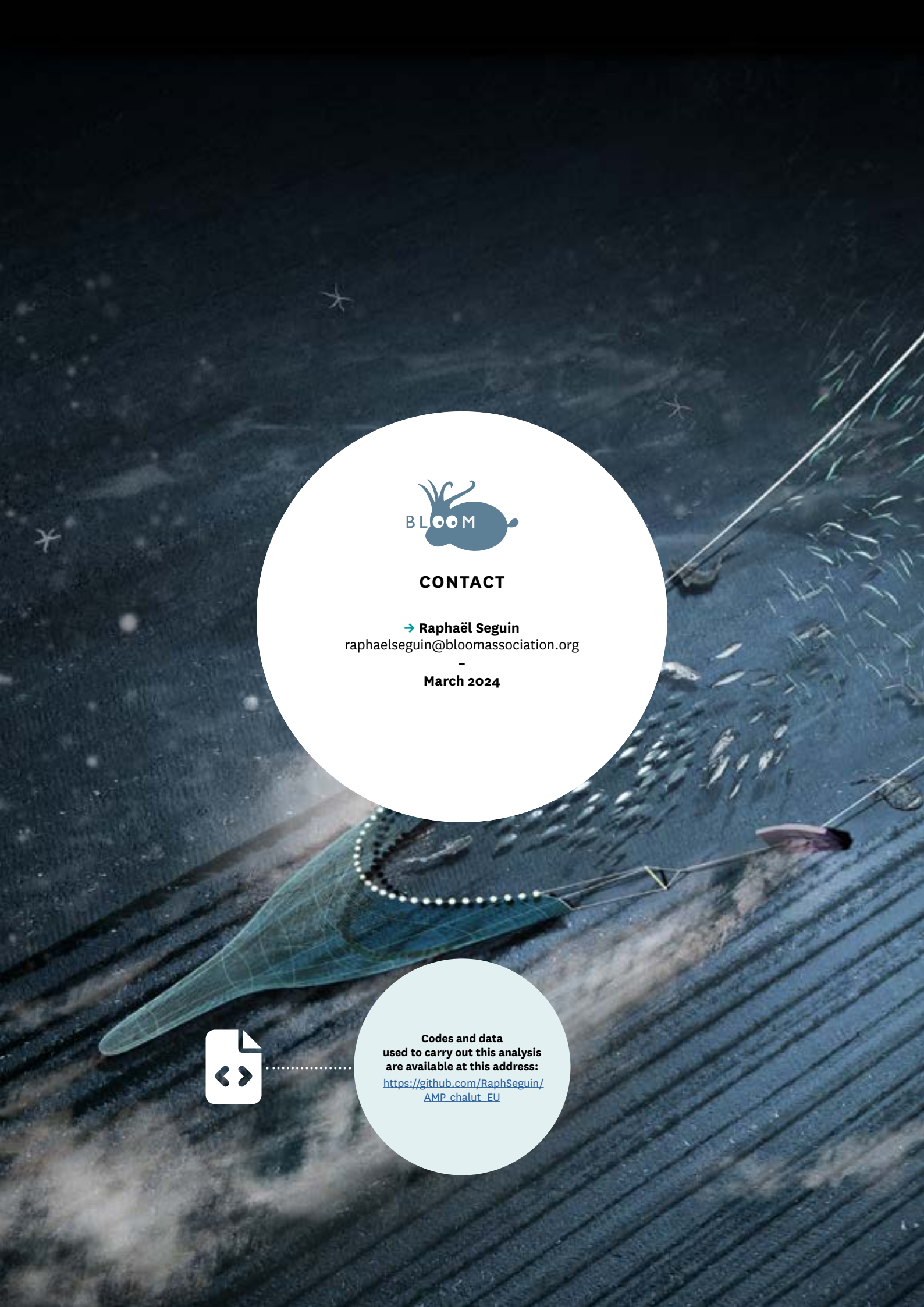
Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Delta dunării - zona marină	3 339	2009	Romania	433
2	Marea neagră	1 449	2007	Romania	398
3	Danube delta	1 821	1991	Romania	335

Top 4 Slovenia

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Krajinski park strunjan	1	2004	Slovenia	39
2	Strunjan	1	2013	Slovenia	39
3	Naravni rezervat strunjan	0	2004	Slovenia	37
4	Krajinski park debeli rtič	1	2018	Slovenia	3

Top 30 Sweden

Position	Name of AMP	MPA size (km²)	Year of creation	Country	MPA fishing hours
1	Bratten	1 205	2012	Sweden	9,038
2	Kosterfjorden-väderöfjorden	569	2006	Sweden	3,844
3	Kosterfjorden-vderfjorden	520	2011	Sweden	3,795
4	2014914 kosterhavets nationalpark	379	2009	Sweden	2,359
5	Nordvstra sknes havsomrde	1 339	2016	Sweden	1,664
6	Nordvästra skånes havsområde	1 343	2016	Sweden	1,664
7	Hoburgs bank och midsjbankarna	10 488	2016	Sweden	1,620
8	Hoburgs bank och midsjöbankarna	10 513	2016	Sweden	1,620
9	2014991 väderöarna	181	2011	Sweden	1,404
10	2051741 skånska kattegatt	586	2020	Sweden	843
11	Tanumskusten	52	2011	Sweden	222
12	2000957 tanumskusten	53	2011	Sweden	220
13	Stora middelgrund och rde bank	114	2017	Sweden	201
14	Stora middelgrund och röde bank	114	2009	Sweden	201
15	Lilla middelgrund	178	2006	Sweden	99
16	2001950 gullmarn	102	2001	Sweden	91
17	Gullmarsfjorden	99	2011	Sweden	91
18	Balg	76	1996	Sweden	53
19	Balgö	76	1995	Sweden	53
20	Morups bank	6	2009	Sweden	24
21	Fladen	133	2011	Sweden	18
22	2001318 askö	51	2007	Sweden	14
23	Fifång-askö-hartsö	250	2008	Sweden	14
24	2001679 örefjärden-snöanskärgården	464	2014	Sweden	8
25	Vrngskrgrden	64	1996	Sweden	5
26	Vrångöskärgården	65	1995	Sweden	5
27	2000807 vrångöskärgården	45	1979	Sweden	4
28	Finngrundet-stra banken	231	2017	Sweden	4
29	Finngrund-östra banken	231	2011	Sweden	4
30	Finngrundet-östra banken	231	2008	Sweden	4



CONTACT

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March 2024

Codes and data used to carry out this analysis are available at this address:
https://github.com/RaphSeguin/AMP_chalut_EU