BULLDOZED

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

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 km\(^2\)). 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).
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. 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.

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.

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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 as a carbon sink. In fact, MPAs serve a triple ecological, social and climatic purpose. 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. Furthermore, protecting and restoring marine life supports the ocean's function as a carbon sink, sequestering around a third of our greenhouse gas emissions. 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. 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.

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. 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".

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".

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6 Sala and Giakoumi, "No-Take Marine Reserves Are the Most Effective Protected Areas in the Ocean"; Zipan et al., "Marine Partially Protected Areas"; Hollay, McLean, and Csóka, "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.


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, 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. 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. 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.

Yet, despite these repeated warnings, trawling remains authorized in Europe, including within its MPAs. 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].
19 Steadman et al., “New Perspectives on an Old Fishing Practice”.
20 See our report “Time for a U-Turn”.
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.

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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".
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. We cross-referenced this fishing effort with the World Database on Protected Areas (WDPA). 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).
AN UNPRECEDENTED ANALYSIS OF TRAWLING IN EUROPEAN MARINE “PROTECTED” AREAS

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) 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. 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.

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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

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

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.
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. 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

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

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**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.

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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. 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”.

UNE ANALYSE INÉDITE DE LA PÊCHE AU CHALUT DANS LES AIRES MARINES « PROTÉGÉES » EUROPÉENNES.
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 (305,890 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 640 vessels fishing in MPAs in 2023, followed by Italy with 529 fishing vessels and France with 364 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 Italy (7.86 hours/km², Figure 4, appendix 8).
<table>
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<tr>
<th>Country</th>
<th>Number of MPAs</th>
<th>Area covered by MPAs (km²)</th>
<th>Percentage of EEZ protected (%)</th>
<th>Number of boats detected in the EEZ</th>
<th>Number of trawling hours in the EEZ (h)</th>
<th>Number of boats detected in MPAs</th>
<th>Number of trawling hours in MPAs (h)</th>
<th>Percentage of trawling in MPAs (%)</th>
<th>Average fishing intensity in the EEZ (h/km²)</th>
<th>Average fishing intensity in MPAs (h/km²)</th>
<th>Average size of boats in the EEZ (m)</th>
<th>Average size of boats in MPAs (m)</th>
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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 CO₂ emissions, it is essential to launch a plan to "de-trawl" European fishing fleets by 2030. 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.
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. 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. 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.

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

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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 ten 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.** 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.

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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.

<table>
<thead>
<tr>
<th>MMSI</th>
<th>Pavilion</th>
<th>Ship name</th>
<th>Size (meters)</th>
<th>Fishing hours outside MPAs</th>
<th>Fishing hours inside MPAs</th>
<th>Percentage in MPAs</th>
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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 1,772 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 3,858 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 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

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

Top 3: number of trawling hours

Top 3: trawling intensity
AN UNPRECEDENTED ANALYSIS OF TRAWLING IN EUROPEAN MARINE "PROTECTED" AREAS

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 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
Italy

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

In this country, 1,040 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% 16.71% 323,938 5.72 h/km²
of EEZ protected inside MPAs trawling hours in MPAs Average trawling intensity

Top 3: number of trawling hours

Top 3: trawling intensity

- Isola Tremiti
- Pelagos Sanctuary For The Conservation Of Marine Mammals
- Santuario per i Mammiferi Marino
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.

- **Germany**

**Number of MPAs:** 218

**Surface area of MPAs:** 99,554 km²

- 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**
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% 33.68% 153,654 8.76 h/km²
of EEZ protected inside MPAs trawling hours in MPAs Average trawling intensity

Top 3: number of trawling hours

Top 3: trawling intensity

- Wadden Sea
- Waddenzee Area
- Waddenzee
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% 17.95% 85,128 4.51 h/km²

of EEZ protected inside MPAs trawling hours in MPAs Average trawling intensity

**Top 3: number of trawling hours**

**Top 3: trawling intensity**
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
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
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
**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 inside MPAs
- **28.33%** trawling hours in MPAs
- **11,111** trawling hours in MPAs
- **3.79 h/km²** Average trawling intensity

**Top 3: number of trawling hours**

**Top 3: trawling intensity**
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% 15.15% 8,638 1.89 h/km²
of EEZ protected inside MPAs trawling hours in MPAs Average trawling intensity

Top 3: number of trawling hours

Top 3: trawling intensity
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% 11.33% 8,127 1.96 h/km²
of EEZ protected inside MPAs trawling hours in MPAs Average trawling intensity

Top 3: number of trawling hours
Top 3: trawling intensity
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

Top 3: number of trawling hours

5,087 trawling hours in MPAs
1 h/km² Average trawling intensity

Top 3: trawling intensity
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%  2.43%  4,741  0.36 h/km²
of EEZ protected  inside MPAs  trawling hours in MPAs  Average trawling intensity

Top 3: number of trawling hours

Top 3: trawling intensity
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
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
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**

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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
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% 16.51% 492 0.08 h/km²
of EEZ protected inside MPAs trawling hours in MPAs Average trawling intensity

Top 3: number of trawling hours

Top 3: trawling intensity
Lithuania

Number of MPAs: 21
Surface area of MPAs: 4107 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% 8.15%
of EEZ protected inside MPAs

137 0.09 h/km²
trawling hours in MPAs Average trawling intensity

Top 3: number of trawling hours

Top 3: trawling intensity
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
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% 1.47% 42 3.61 h/km²
of EEZ protected inside MPAs trawling hours in MPAs 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.

<table>
<thead>
<tr>
<th>Country</th>
<th>Area covered by MPAs [km²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portugal</td>
<td>2×10⁵</td>
</tr>
<tr>
<td>France</td>
<td>1×10⁵</td>
</tr>
<tr>
<td>Spain</td>
<td>8×10⁴</td>
</tr>
<tr>
<td>Italy</td>
<td>6×10⁴</td>
</tr>
<tr>
<td>Germany</td>
<td>5×10⁴</td>
</tr>
<tr>
<td>Sweden</td>
<td>4×10⁴</td>
</tr>
<tr>
<td>Denmark</td>
<td>3×10⁴</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2×10⁴</td>
</tr>
<tr>
<td>Greece</td>
<td>1×10⁴</td>
</tr>
<tr>
<td>Ireland</td>
<td>5×10³</td>
</tr>
<tr>
<td>Finland</td>
<td>4×10³</td>
</tr>
<tr>
<td>Poland</td>
<td>3×10³</td>
</tr>
<tr>
<td>Estonia</td>
<td>2×10³</td>
</tr>
<tr>
<td>Romania</td>
<td>1×10³</td>
</tr>
<tr>
<td>Croatia</td>
<td>5×10²</td>
</tr>
<tr>
<td>Latvia</td>
<td>4×10²</td>
</tr>
<tr>
<td>Malta</td>
<td>3×10²</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>2×10²</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1×10²</td>
</tr>
<tr>
<td>Belgium</td>
<td>5×10¹</td>
</tr>
<tr>
<td>Cyprus</td>
<td>4×10¹</td>
</tr>
<tr>
<td>Slovenia</td>
<td>3×10¹</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8×10⁴</strong></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of vessels identified according to MMSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>6×10⁴</td>
</tr>
<tr>
<td>Italy</td>
<td>5×10⁴</td>
</tr>
<tr>
<td>France</td>
<td>4×10⁴</td>
</tr>
<tr>
<td>Netherlands</td>
<td>3×10⁴</td>
</tr>
<tr>
<td>Germany</td>
<td>2×10⁴</td>
</tr>
<tr>
<td>Belgium</td>
<td>1×10⁴</td>
</tr>
<tr>
<td>Ireland</td>
<td>5×10³</td>
</tr>
<tr>
<td>Sweden</td>
<td>4×10³</td>
</tr>
<tr>
<td>Croatia</td>
<td>3×10³</td>
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<tr>
<td>Bulgaria</td>
<td>2×10³</td>
</tr>
<tr>
<td>Latvia</td>
<td>1×10³</td>
</tr>
<tr>
<td>Poland</td>
<td>5×10²</td>
</tr>
<tr>
<td>Estonia</td>
<td>4×10²</td>
</tr>
<tr>
<td>Finland</td>
<td>3×10²</td>
</tr>
<tr>
<td>Norway</td>
<td>2×10²</td>
</tr>
<tr>
<td>Malta</td>
<td>1×10²</td>
</tr>
<tr>
<td>Lithuania</td>
<td>5×10¹</td>
</tr>
<tr>
<td>Tunisia</td>
<td>4×10¹</td>
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<tr>
<td>Cyprus</td>
<td>3×10¹</td>
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<tr>
<td>Slovenia</td>
<td>2×10¹</td>
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<td>Romania</td>
<td>1×10¹</td>
</tr>
<tr>
<td>Faroe Islands</td>
<td>5×10⁰</td>
</tr>
<tr>
<td>Russia</td>
<td>4×10⁰</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>3×10⁰</td>
</tr>
</tbody>
</table>
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 German MPS

<table>
<thead>
<tr>
<th>Position</th>
<th>Name of AMP</th>
<th>MPA size (km²)</th>
<th>Year of creation</th>
<th>Country</th>
<th>MPA fishing hours</th>
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<tbody>
<tr>
<td>1</td>
<td>Ramsar-gebiet s-h wattenmeer und angrenzende küstengebiete</td>
<td>4 364</td>
<td>2004</td>
<td>Germany</td>
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<td>4</td>
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<td>5-h seabird protection area</td>
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<td>8</td>
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<td>Außenems</td>
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<td>Germany</td>
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<td>Germany</td>
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<td>Unterems und außenems</td>
<td>59</td>
<td>2017</td>
<td>Germany</td>
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## Position 1
**Saaristomeri**
- **MPA size**: 1,462 km²
- **Year of creation**: 2015
- **Country**: Finland
- **MPA fishing hours**: 471

## Position 2
**Saaristomeri /archipelago sea**
- **MPA size**: 543 km²
- **Year of creation**: 2005
- **Country**: Finland
- **MPA fishing hours**: 471

## Position 3
**Hangon itinen selkä**
- **MPA size**: 111 km²
- **Year of creation**: 2015
- **Country**: Finland
- **MPA fishing hours**: 71

## Position 4
**Hangon itäinen selkä**
- **MPA size**: 110 km²
- **Year of creation**: 2015
- **Country**: Finland
- **MPA fishing hours**: 71

## Position 5
**Tammisaaren ja hangon saaristona ja pohjanpitäjänlahden merensuojelualue /tammisaari and hanko archipelago-and pojo bay marine proteciton area**
- **MPA size**: 474 km²
- **Year of creation**: 2005
- **Country**: Finland
- **MPA fishing hours**: 45

## Position 6
**Tammisaaren ja hangon saaristona ja pohjanpitäjänlahden merensuojelualue**
- **MPA size**: 466 km²
- **Year of creation**: 1998
- **Country**: Finland
- **MPA fishing hours**: 45

## Position 7
**Bird wetlands of hanko and tammisaari**
- **MPA size**: 522 km²
- **Year of creation**: 2004
- **Country**: Finland
- **MPA fishing hours**: 45

## Position 8
**Sellin saaristo**
- **MPA size**: 37 km²
- **Year of creation**: 1998
- **Country**: Finland
- **MPA fishing hours**: 33

## Position 9
**Saaristomeren kansallispuisto**
- **MPA size**: 488 km²
- **Year of creation**: 1982
- **Country**: Finland
- **MPA fishing hours**: 30

## Position 10
**Sellin saariston luonnonsuojelualue**
- **MPA size**: 8 km²
- **Year of creation**: 2014
- **Country**: Finland
- **MPA fishing hours**: 23

## Position 11
**Merenkurkun saaristo /outer bothnian threshold archipelago (the quark)**
- **MPA size**: 1,158 km²
- **Year of creation**: 2005
- **Country**: Finland
- **MPA fishing hours**: 20

## Position 12
**Merenkurkun saaristo**
- **MPA size**: 1,162 km²
- **Year of creation**: 1998
- **Country**: Finland
- **MPA fishing hours**: 20

## Position 13
**Seksmiilarin saaristo**
- **MPA size**: 160 km²
- **Year of creation**: 1998
- **Country**: Finland
- **MPA fishing hours**: 19

## Position 14
**Grimsöranan hylkeidensuojelualue**
- **MPA size**: 22 km²
- **Year of creation**: 2001
- **Country**: Finland
- **MPA fishing hours**: 6

## Position 15
**Getnäsholmen (luonnonsuojelualue)**
- **MPA size**: 0 km²
- **Year of creation**: 2000
- **Country**: Finland
- **MPA fishing hours**: 2

## Position 16
**Uudenkaupungin saaristo/ uusikaupunki archipelago**
- **MPA size**: 539 km²
- **Year of creation**: 2005
- **Country**: Finland
- **MPA fishing hours**: 2

## Position 17
**Uudenkaupungin saaristo**
- **MPA size**: 542 km²
- **Year of creation**: 1998
- **Country**: Finland
- **MPA fishing hours**: 2

## Position 18
**Selkämeren kansallispuisto**
- **MPA size**: 897 km²
- **Year of creation**: 2011
- **Country**: Finland
- **MPA fishing hours**: 1
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## AN UNPRECEDENTED ANALYSIS OF TRAWLING IN EUROPEAN MARINE "PROTECTED" AREAS

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

CONTACT

→ Raphaël Seguin
raphaelseguin@bloomassociation.org

– March 2024