SkyTruth
Cerulean

Mediterranean Sea

Chronic Oil Pollution Analysis

July 2020 – January 2024

Mediterranean Sea
Chronic Oil Pollution Analysis

CONTENTS

KEY FINDINGS

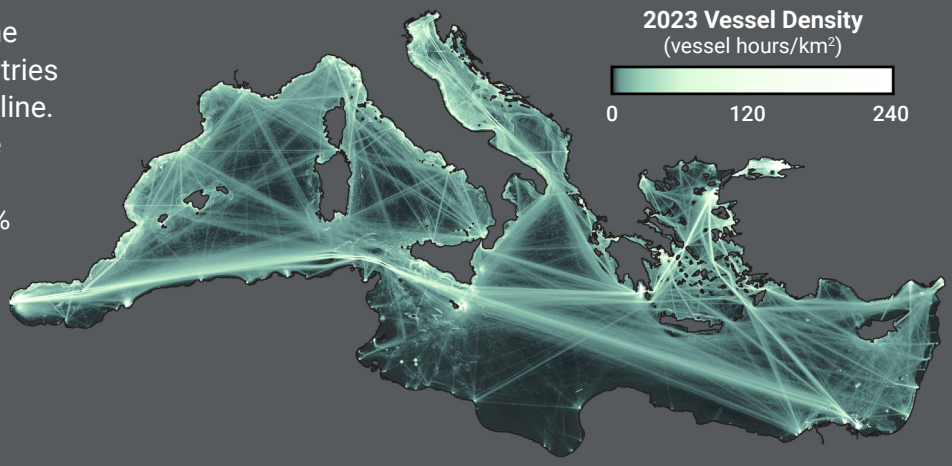
- We identified **757 oil slicks** in the Mediterranean Sea from July 2020 – January 2024 covering **1.9 million hectares**.
- The exclusive economic zone (EEZ) of **Greece** had the highest number of oil slicks in the Mediterranean (182), followed by **Italy** (163) and **Egypt** (102).
- More than **75%** of the vessels associated with an oil slick were **oil/chemical tankers**.
- **Six flag states** – Marshall Islands, Panama, Malta, Singapore, Liberia, Togo – were associated with over **60% of slicks** by identifiable vessels.
- **Six repeat polluters** were associated with more than 1 oil slick. These vessels included **a container ship** flagged by Egypt and **oil/chemical tankers** flagged by Hong Kong, Panama, Russia, Marshall Islands, and Liberia.
- **Two minimally-protected marine protected areas (MPAs)** – Mediterranean Cetacean Migration Corridor and the Pelagos Sanctuary for the Conservation of Marine Mammals – **saw the greatest number of oil slicks inside their borders**.

BACKGROUND INFORMATION

The Mediterranean is a crucial biodiversity hub

The Mediterranean Sea is a global biodiversity hotspot. It harbors around **11% of all marine species in less than 1% of the global marine area.**[1] Furthermore, around 20% of these species exist only in the Mediterranean. This includes whales, dolphins, porpoises, loggerhead and green turtles, monk seals, and more than 80 species of sharks and rays.

On top of being home to countless marine species, the region also touches 22 countries with a shared 46,000 kilometers of coastline. The coast hosts 87 seaports, making the region a key player in the global shipping network, and representing more than 20% of the world's water trade. The region's maritime transport sector generates an annual gross value of $27 billion, provides jobs for 550,000 people, and is expected to grow by 4% per annum for the next decade.[2]



At the same time, the Mediterranean Sea faces numerous pollution threats, including oil spills. Over the last 50 years, marine mammal populations in the region have decreased 41% and a recent study coordinated by the Spanish National Research Council (CSIC) found a high concentration of invasive species and an accelerated loss of natural habitats in the sea.[3]

Marine protected areas (MPAs) have been created to protect this unique nature hub, but there is still a long road to go before regulation efforts are sufficient to meet goals enumerated in the 30x30 agreement and protect the sea from further deterioration.[4]

Methodology

This report uses data from SkyTruth's Cerulean platform, a global monitoring system for ocean oil pollution. Cerulean uses machine learning and cloud computing to scan all European Space Agency Sentinel-1 radar satellite images collected over the ocean and inland seas to detect potential oil slicks and their likely sources. This report relies on an early version of the model that prioritizes the detection of oil pollution from vessels; it is not a comprehensive review of all oil pollution sources, such as offshore oil platforms and coastal runoff.

1 ETC-UMA, "An assessment of marine biodiversity protection in the Mediterranean Sea: a threatened global biodiversity hotspot", Interreg Med Biodiversity Protection project, 2022. **2** EEA, Mediterranean Sea region briefing - The european environment - state and outlook 2015. (2020, November 23). **3** Gallardo, B. et al. Risks posed by invasive species to the provision of ecosystem services in Europe. Nat Commun 15, 2631 (2024). https://doi.org/10.1038/s41467-024-46818-3. **4** The Nature Conservancy, "Why we're committing to 30x30: Protect 30% of Land & Water by 2030."

MEDITERRANEAN SEA OIL SLICKS

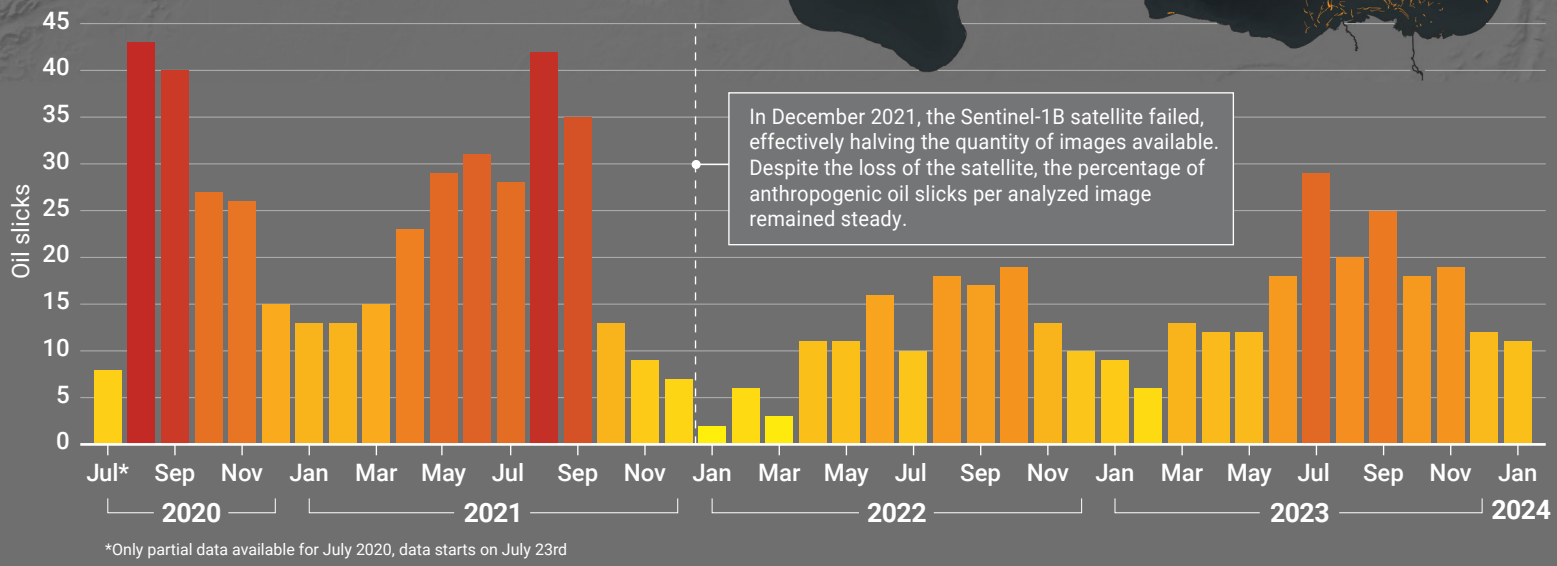
July 2020 – January 2024

757
Total oil slicks

1.9 Million hectares
of oil on the surface of the Mediterranean Sea

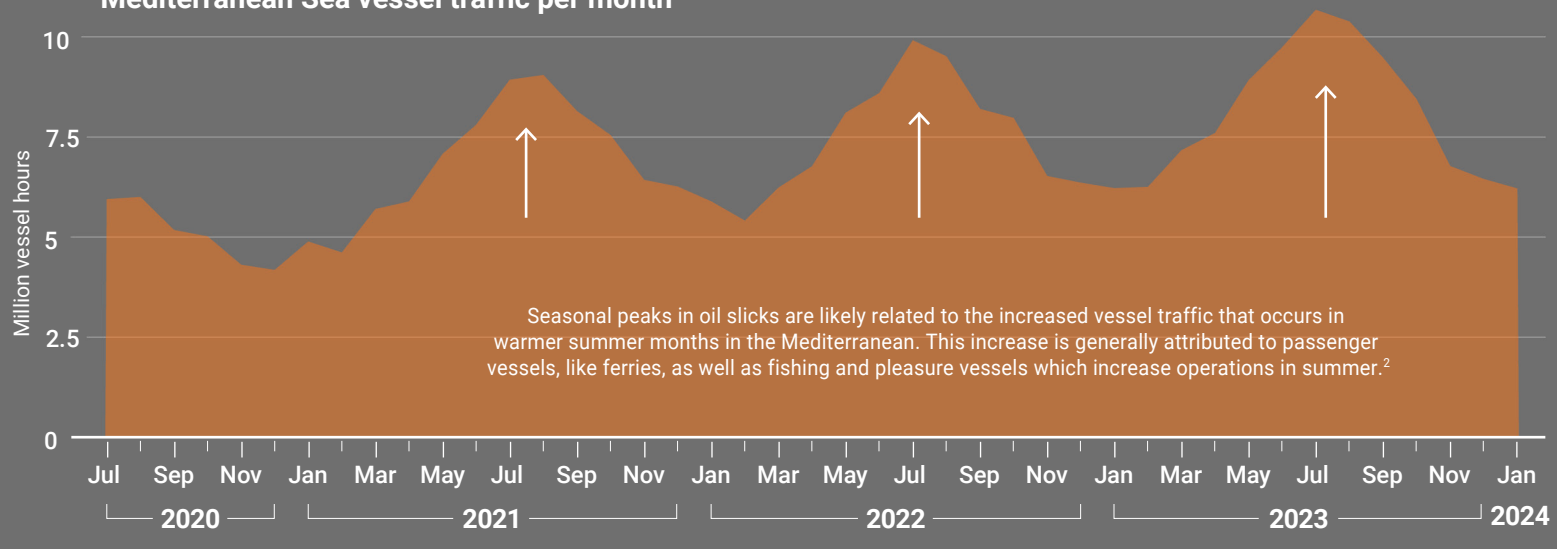
A standard football (soccer) pitch is about 0.75 hectares. The total oil area in the Mediterranean during this period was enough to cover 2.6 million pitches.

Anthropogenic oil slicks per month



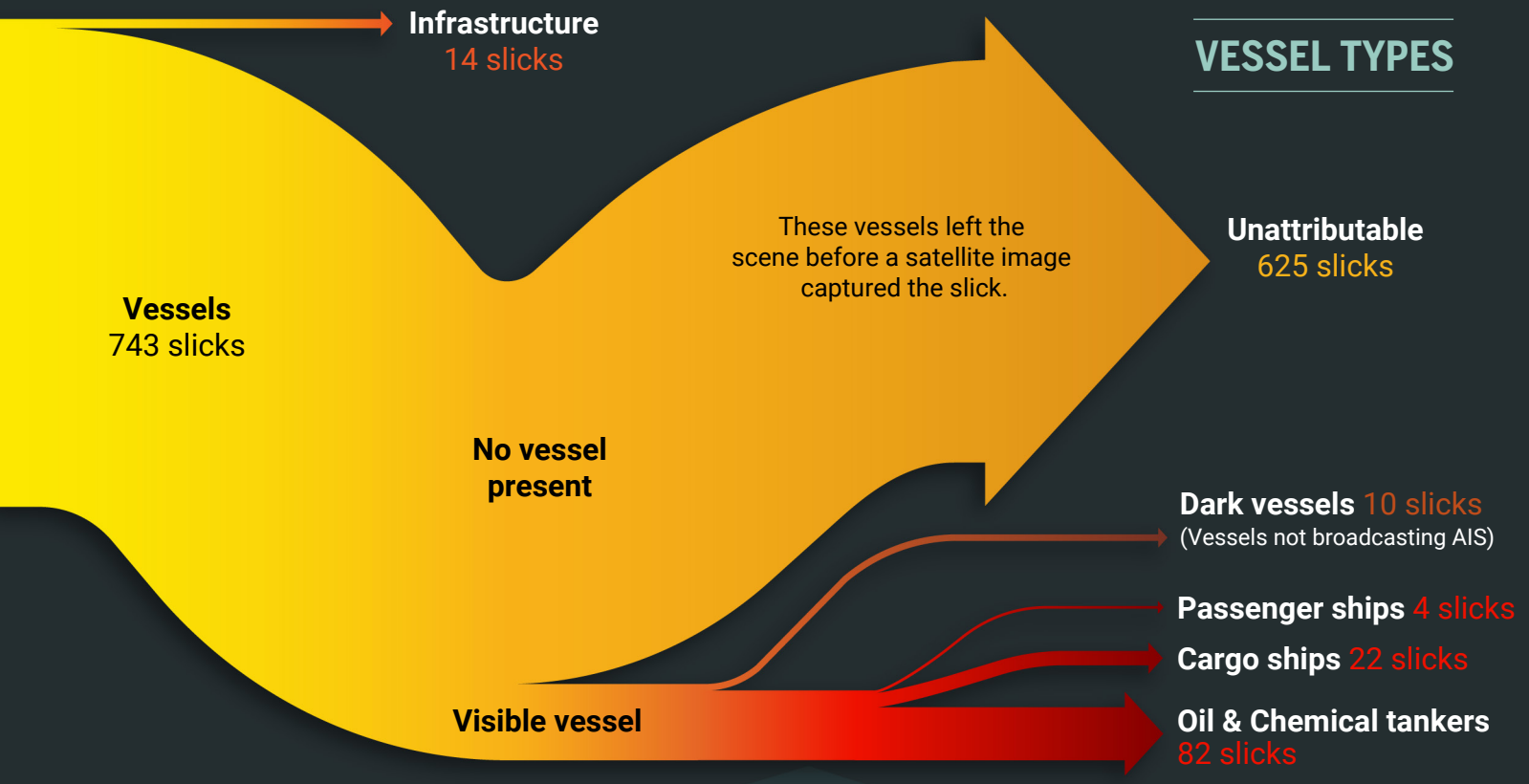
*Only partial data available for July 2020, data starts on July 23rd

Mediterranean Sea vessel traffic per month[1]



1 Global vessel traffic data source: MapLarge, Global Maritime Traffic (www.globalmaritimetraffic.org);
2 Coomber, F.G., et al. "Description of the vessel traffic within the north Pelagos Sanctuary: Inputs for Marine Spatial Planning and management implications within an existing international Marine Protected Area." Marine Policy 69 (2016): 102-113.

SOURCES OF OIL IN THE MEDITERRANEAN



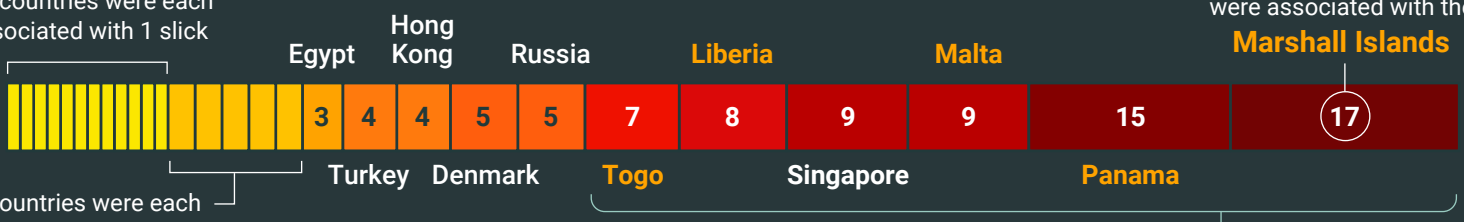
108 slicks were associated with vessels that were broadcasting AIS signals

FLAG STATES

Country in which a ship is registered and required to comply with its regulations.

12 countries were each associated with 1 slick

17 slicks were associated with the **Marshall Islands**



5 countries were each associated with 2 slicks

1 slick	2 slicks
Bahamas	Comoros
Bangladesh	Cyprus
Barbados	Italy
Cook Islands	Sierra Leone
Germany	Vietnam
Gibraltar	
Greece	
Norway	
St Kitts and Nevis	
St Vincent Grenadines	
Tanzania	
Vanuatu	

Flags of Convenience

5 out of 6 of these flag states - Marshall Islands, Panama, Malta, Liberia, Togo - are flags of convenience. Ships can fly the flag of a country that differs from the country of ownership - these are considered flags of convenience.[1] Ship owners do this to seek out flag states with minimal regulation, cheap registration fees, low or no taxes and freedom to employ cheap labor.[1]

6 flag states

were associated with **over 60%** of the slicks by broadcasting vessels.

Since it's often the responsibility of the flag state to hold bad actors to account, ships flying flags of convenience are routinely seen to behave badly with little to no repercussions.[2] Vessels flagged to their country of ownership may be more likely to face disciplinary action.[2]

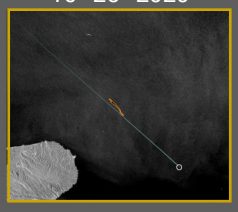
1 Flags of Convenience, ITF Global. www.itfglobal.org/en/sector/seafarers/flags-of-convenience; **2** WWF, ITF. "Real and present danger: flag state failure and maritime security and safety." (2008).

REPEAT POLLUTERS IN THE MEDITERRANEAN

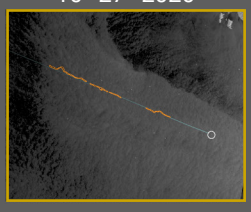
Six vessels were associated with oil slicks in the Mediterranean Sea on more than one occasion.

1

10–25–2020



10–27–2020

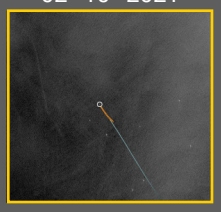


Ship type: **Oil/Chemical tanker**

Flag: **Hong Kong**

2

02–10–2021



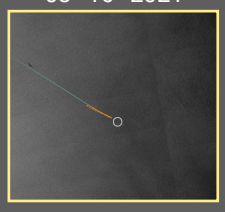
09–17–2023

Ship type: **Container ship**

Flag: **Egypt**

3

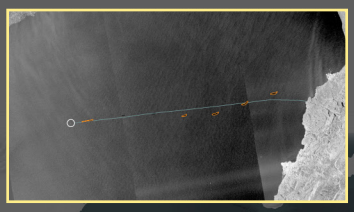
03–16–2021



Ship type: **Oil/Chemical tanker**

Flag: **Panama**

07–08–2023

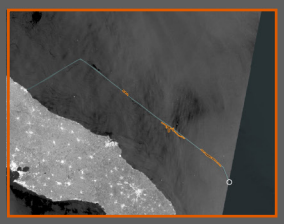


4

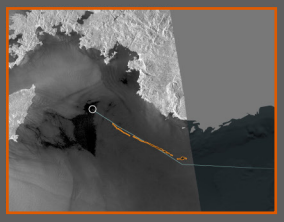
Ship type: **Oil/Chemical tanker**

Flag: **Russia**

06–04–2021

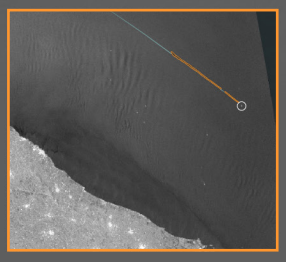


07–09–2021

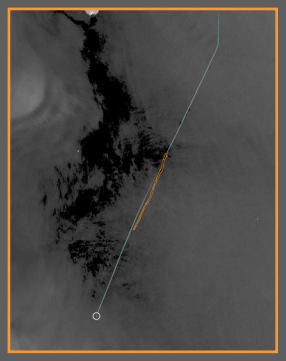


5

07–04–2021



07–05–2021



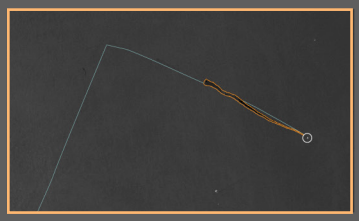
Ship type: **Oil/Chemical tanker**

Flag: **Marshall Islands**

10–21–2023

6

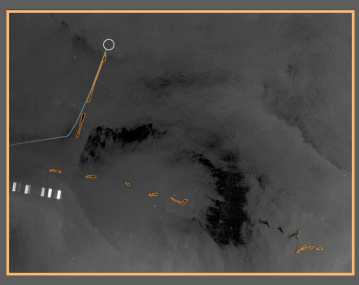
09–05–2021 17:00 UTC



Ship type: **Oil/Chemical tanker**

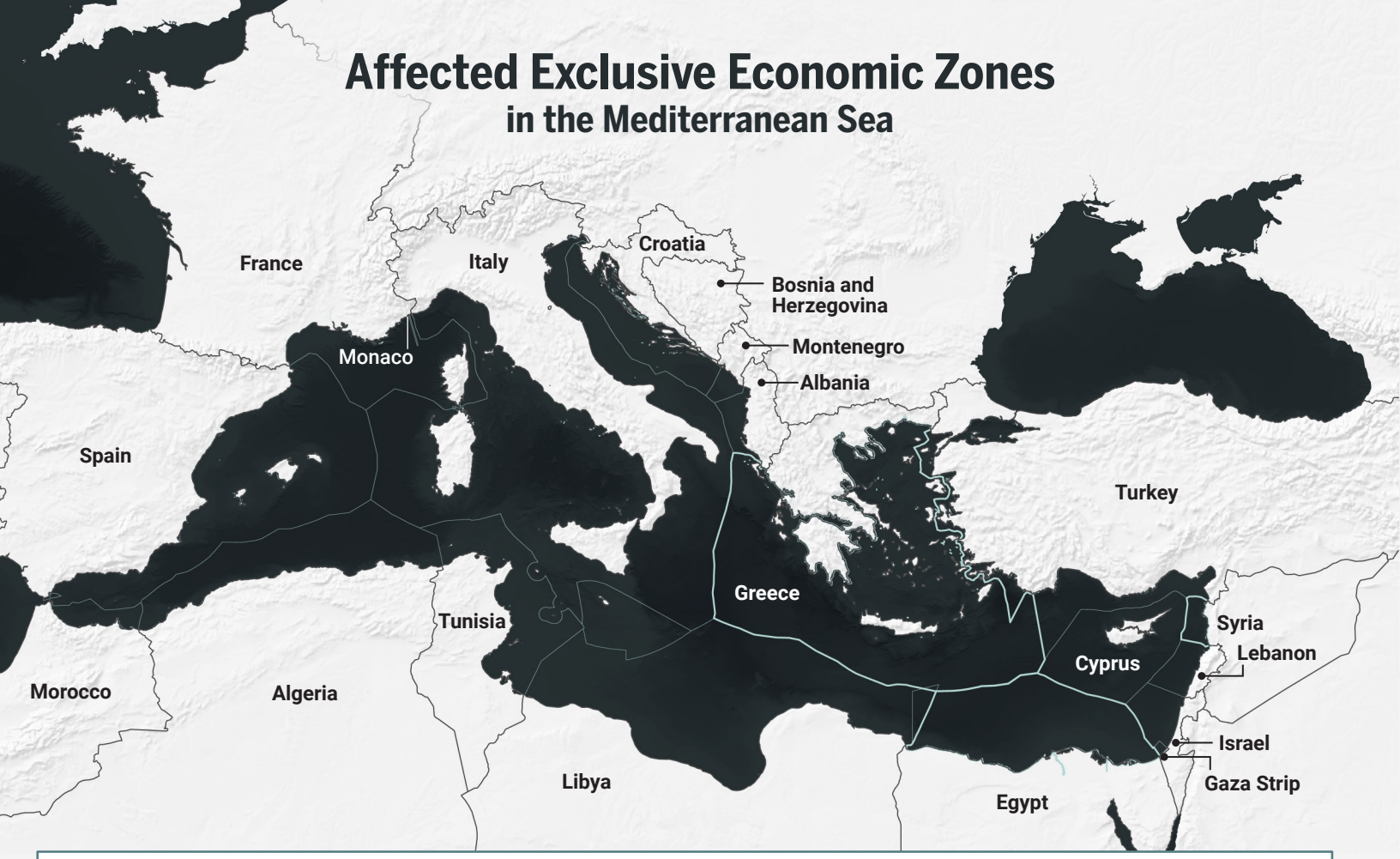
Flag: **Liberia**

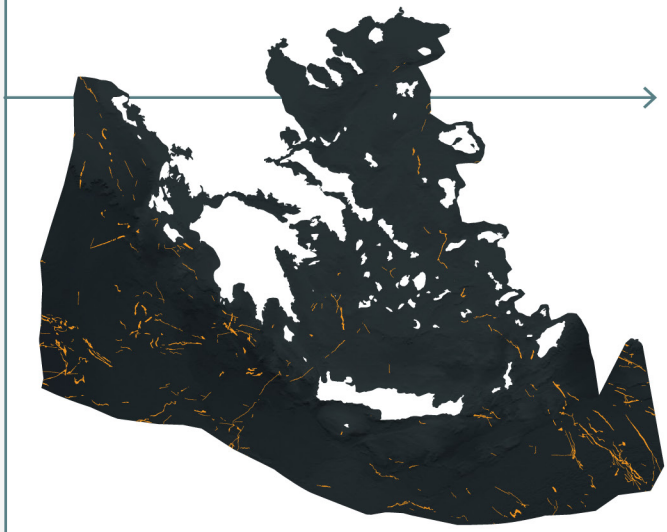
09–05–2021 5:00 UTC



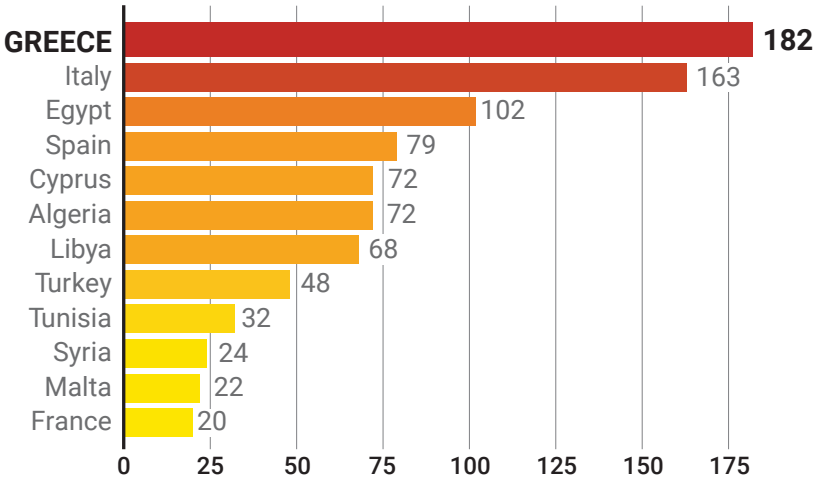
08–13–2021

Affected Exclusive Economic Zones
in the Mediterranean Sea

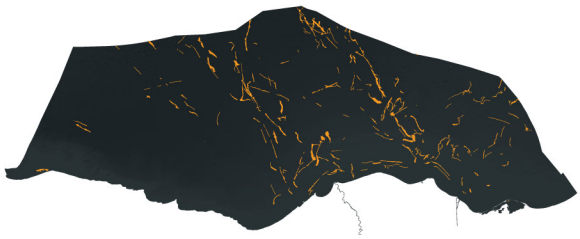




Most impacted EEZ by oil slick count

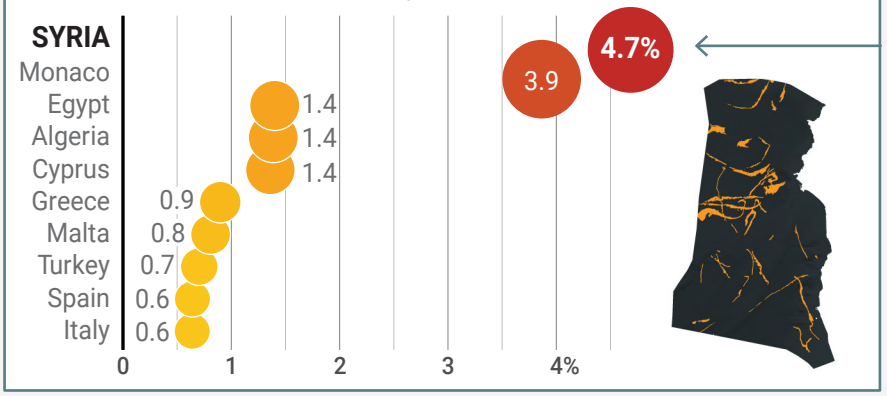


Most impacted EEZ by oil slick count and area combined



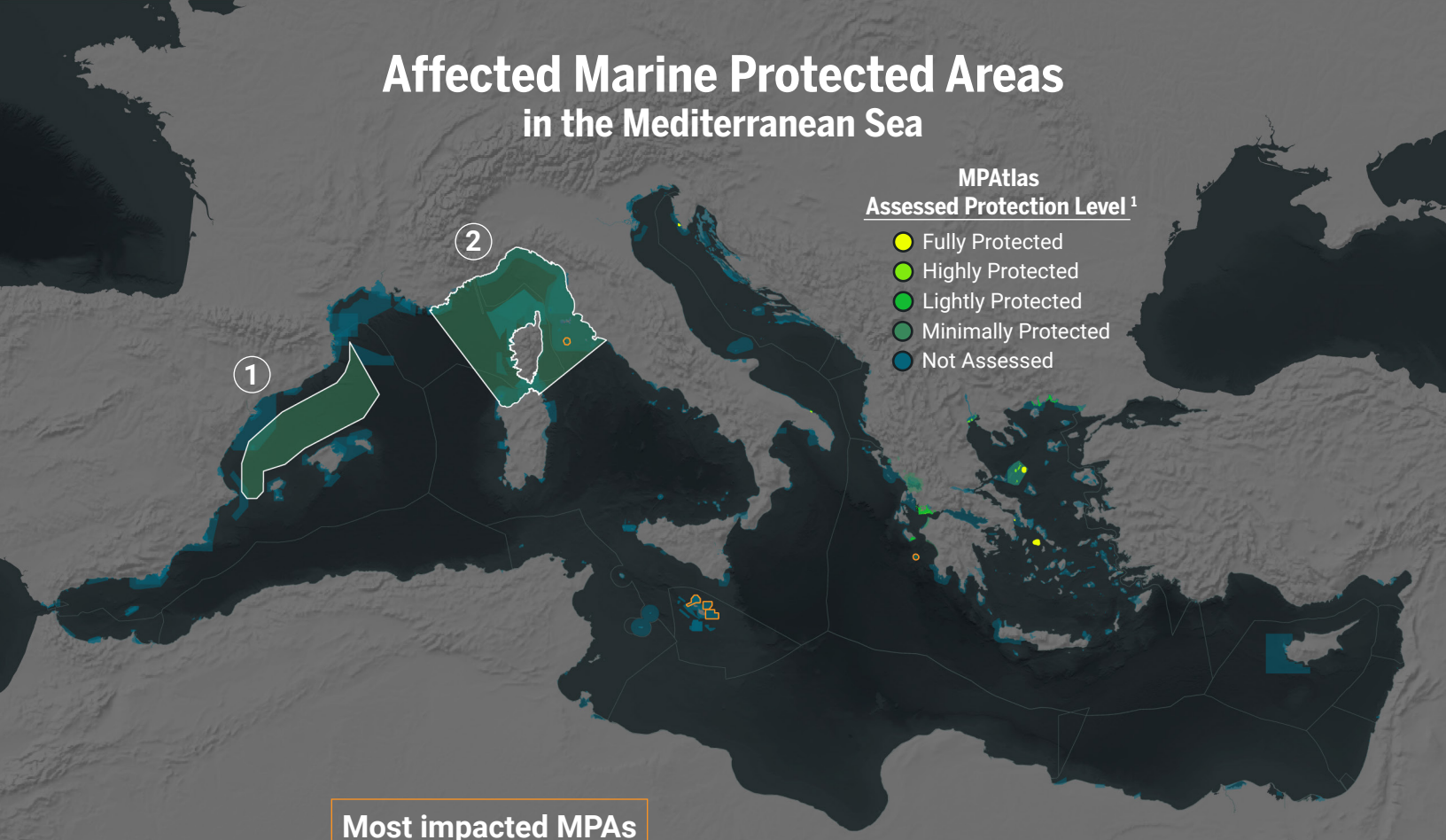
EGYPT

Most impacted EEZ by percent of area affected



EEZ Data source: Maritime Boundaries and Exclusive Economic Zones, version 11. (marineregions.org)

Affected Marine Protected Areas
in the Mediterranean Sea



Most impacted MPAs by oil slick count

1 Corredor de migración de cetáceos del Mediterráneo

(Mediterranean Cetacean Migration Corridor)

Number of oil slicks: **25**

Designation Type: **National**
Country: **Spain**
Established: **2018**
Protection level: **Minimally Protected**[1]

The migration corridor was established in 2018 and added to the Specially Protected Areas of Mediterranean Importance (SPAMI) list. Its creation was intended to protect both migratory cetaceans like fin whales, an IUCN-listed endangered species, and non-migratory species present in the area, such as dolphins, pilot whales, sperm whales, sea turtles and sea birds.Though the assessment is incomplete, MPAtlas found the area to be only minimally protected.[1]

2 Pelagos Sanctuary for the Conservation of Marine Mammals

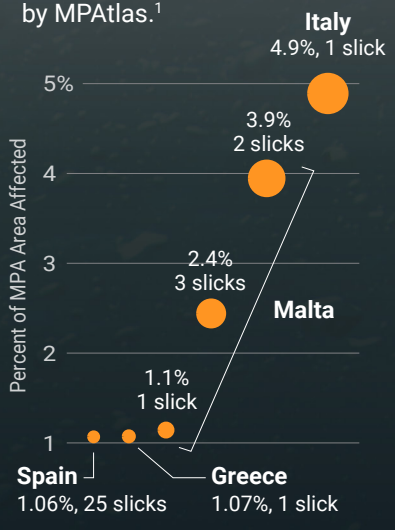
Number of oil slicks: **13**

Designation Type: **Regional**
Countries: **France, Italy, Monaco**
Established: **2002**
Protection level: **Minimally Protected**[1]

The sanctuary is the first of its kind to be created, with multiple nations agreeing to protect marine mammals and their habitat against human disturbance. France, Italy, and Monaco signed the Pelagos agreement in 1999, and the sanctuary came into effect in February 2002. The area includes breeding and feeding grounds of multiple endangered or vulnerable cetaceans, including fin whales, sperm whales, and pilot whales, as well as other marine mammals. Though the assessment is incomplete, MPAtlas found the area to be only minimally protected.[1]

Most impacted MPAs by oil slick area

MPAs heavily impacted by oil slick area tend to be small; 5 of the 6 MPAs with the largest percent area impacted by oil (outlined in orange on the map), are smaller than 650 km^2. The single larger MPA in the list is the Corredor de migración de cetáceos del Mediterráneo in Spain (detailed to the left). It is also the only one of the 6 areas that has been assessed by MPAtlas.[1]



Each point represents an MPA, listed in footnote 2.

1 MPAtlas, Marine Conservation Institute (www.MPAtlas.org). MPA Data Source: World Database on Protected Areas (www.protectedplanet.net/en)

2 Top 6 impacted MPAs by % area: 1) Isola di Montecristo e Formica di Montecristo, 2) Żona fil-Baħar fil-Lvant, 3) Żona fil-Baħar fil-Grigal, 4) Żona fil-Baħar fit-Tramuntana, 5) Nisides Stamfani Kai Arpyia (Strofades) Kai Thalassia Zoni, 6) Corredor de migración de cetáceos del Mediterráneo

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