



proteus

Proteus Horizon Scan Webinar

The International Maritime Organisation Designations and Datasets

16TH SEPTEMBER 2021

PROTEUS HORIZON SCAN WEBINARS

A series of webinars for Proteus Partners sharing information and insights into the latest trends and developments in biodiversity and ecosystem services policy, initiatives, data and tools.



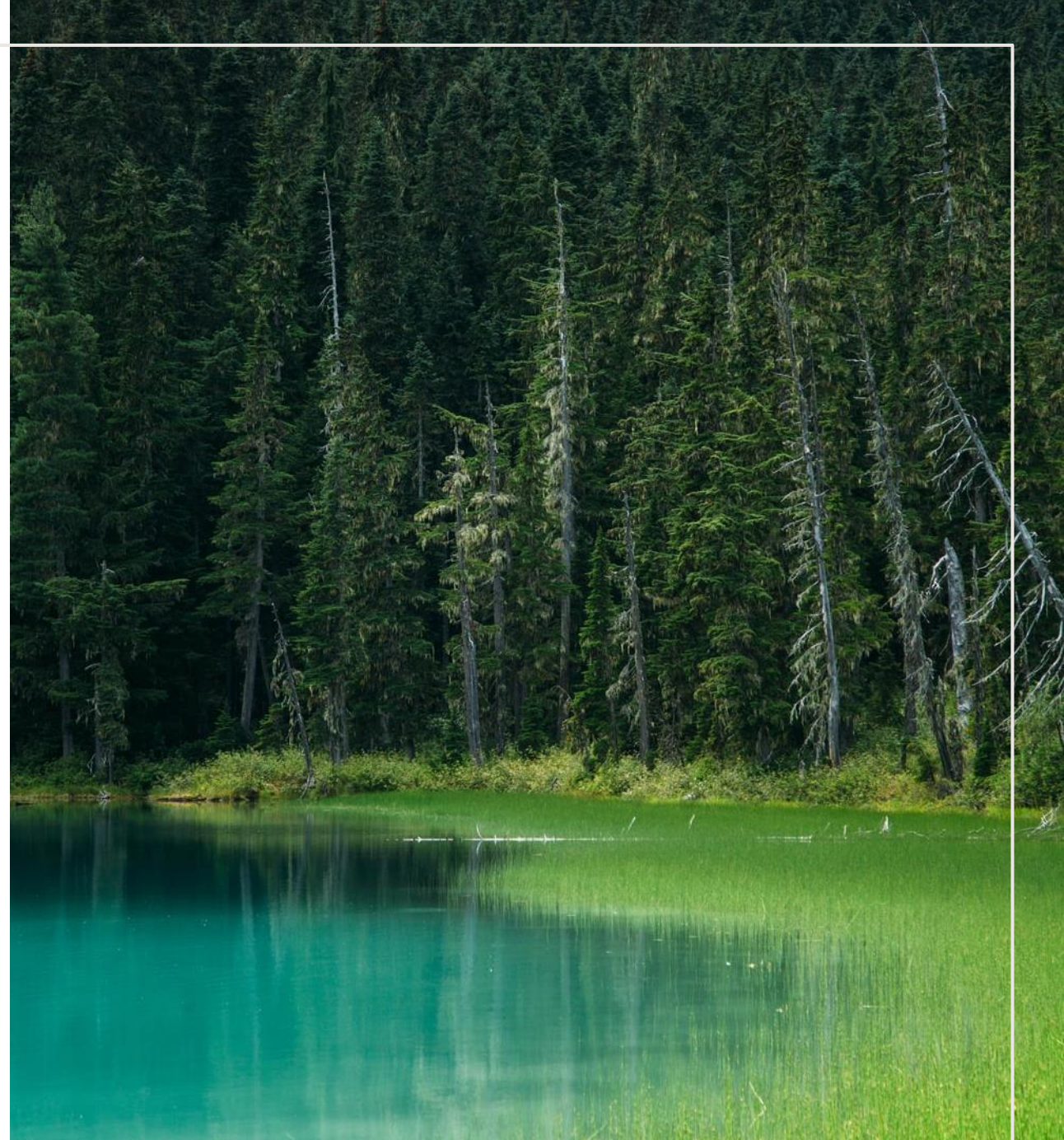
LOGISTICS

- **Scheduling:** AM & PM sessions
- **Rules:** Chatham House rule for discussion, but presentation is recorded
- **Topics:** Your suggestions are welcome!



OVERVIEW

- What are Particularly Sensitive Sea Areas (PSSAs) and The International Convention for the Prevention of Pollution from Ships (MARPOL) Special Areas?
- What are the biodiversity implications of these designations?
- What is the relevance of these designations to Proteus Partners?
- Feedback & Discussion





The International Maritime Organization (IMO): PSSAs and MARPOL Special Areas designations and datasets

Proteus 2021 Horizon Scan Webinar on IMO Designations and Datasets

Fredrik Haag and Andrew Birchenough
Office for the London Convention/Protocol and Ocean Affairs
Marine Environment Division

Introduction - what are we going to cover?



- IMO
- Shipping and hazards
- IMO's area based management tools
 - Special Areas
 - Emission Control Areas
 - PSSAs
 - SOLAS
- PSSAs/Special Areas designation, protective measures and effectiveness
- Relevance of the designations

The International Maritime Organization

- The United Nations specialized agency responsible for safe, secure and efficient shipping and the prevention of pollution from shipping
- 174 Member States and three Associate Members, including all major ship-owning nations and all major coastal states

“Safe, secure and efficient shipping on cleaner oceans”



The International Maritime Organization

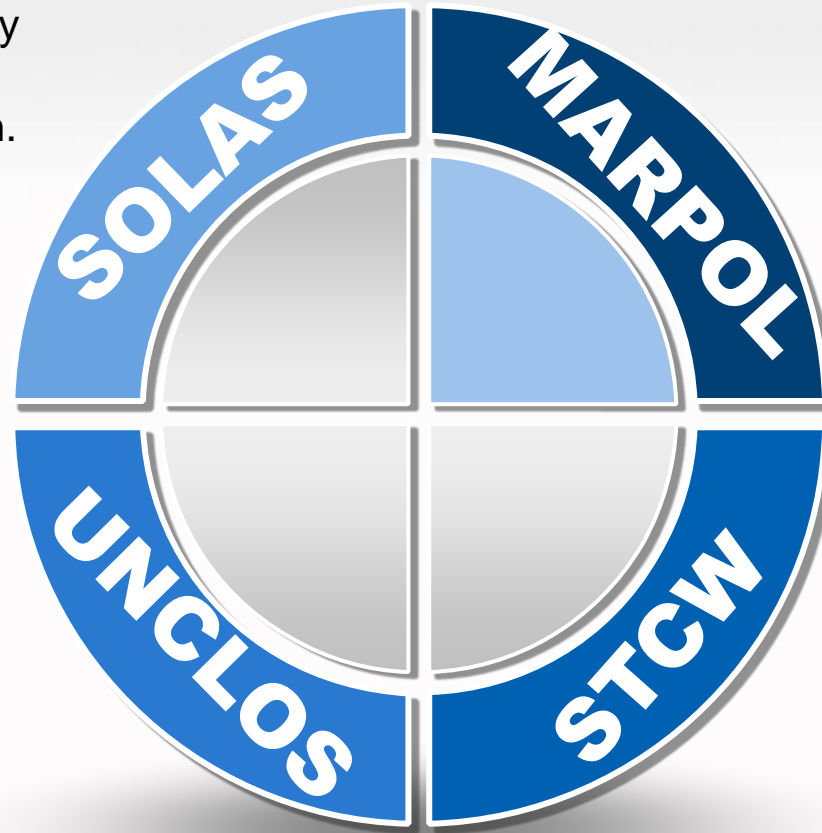
- IMO is the global standard-setting authority for the safety, security and environmental performance of international shipping.
- IMO's mandate covers a wide range of issues to prevent and control pollution caused by ships and to mitigate the effects of any damage that may occur as a result of maritime operations and accidents
- Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented.
- IMO has promoted the adoption of some 50 conventions and protocols and adopted more than 1,000 codes and recommendations concerning maritime safety and security, the prevention of pollution and related matters.

The regulatory framework



Interplay Safety – Environment - People and UNCLOS

Safety requirements apply to all ships which are subject to the Convention.



Provides the mandatory environmental protection level with zero discharge requirements in some areas.

Legal framework governing the rights and responsibilities of nations in their use of ocean space.

Guidance and recommendations for training and competency of officers and masters on ships.

Environmental risks from ships

- Operational discharges

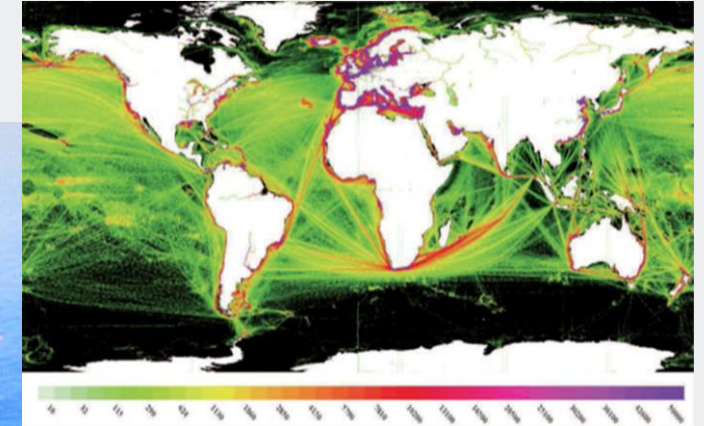
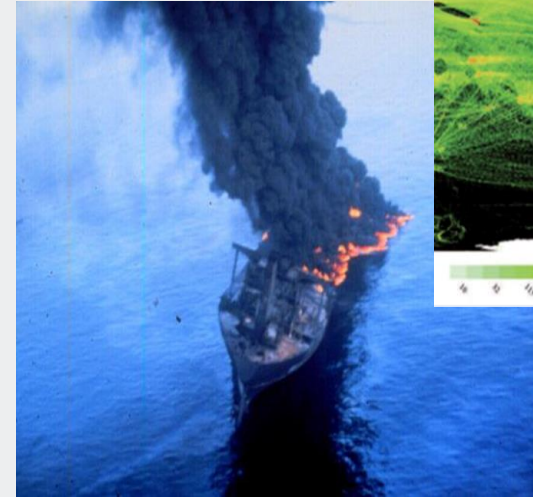
- Oil/oily mixtures ; Noxious liquid substances
- Sewage ; Garbage
- Anti-fouling paints ; Harmful aquatic organisms

- Accidental or intentional pollution

- Groundings/collisions
- Equipment or hull failure

- Physical damage to marine habitats or organisms

- Ship strikes – Cetaceans
- Anchor/ grounding damage



IMO pollution damage/prevention



Operational Discharges, including GHG, NOx, SOx and ODS/VOCs

MARPOL

Oil and Chemical Spills/Accidents

OPRC/OPRC-HNS PROT

Transfer of invasive species

Ballast Water Management Convention and Biofouling Guidelines

Ship strikes with cetaceans, ship noise and its impact on marine life, polar waters

SOLAS, MARPOL guidelines and codes

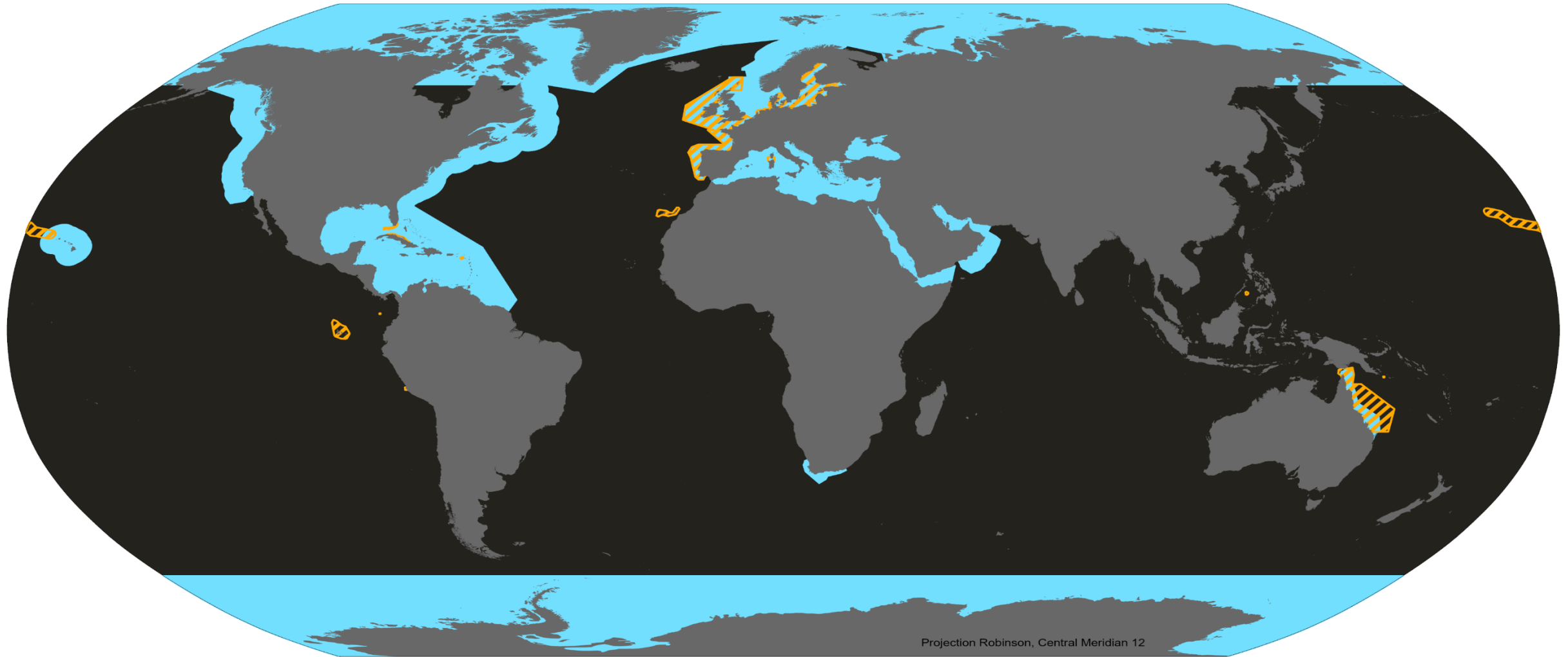
Area Based Management Tools

Special Areas & ECAs under MARPOL, PSSAs and SOLAS

IMO's Area based management tools

- **Special areas and emission control areas - MARPOL (I, II, IV, V, VI)**
 - (2013 Guidelines A 28/Res.1087)
- **Particularly Sensitive Sea Areas (PSSAs)**
 - (2005 Guidelines A.982(24) and as amended by MEPC.267(68))
- **Other tools and measures**
 - SOLAS – routing, vessel traffic services, reporting

Global distribution of International Convention for the Prevention of Pollution from Ships (MARPOL) Special Areas and Particularly Sensitive Sea Areas (PSSAs)



Projection Robinson, Central Meridian 12

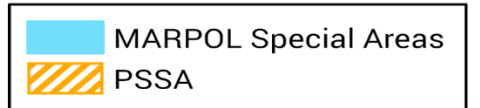
Data sources:

International Maritime Organisation (2014). Global distribution of Particularly Sensitive Sea Areas (PSSA). URL: <http://pssa.imo.org>; <http://www.maritimemaps.co.uk>

International Maritime Organisation (2011). Global distribution of Special Areas under MARPOL. URL: <https://www.imo.org/en/OurWork/Environment/Pages/Special-Areas-Marpol.aspx> <http://www.maritimemaps.co.uk>

Base layers:

United Nations Geospatial, 2020



Special Areas under MARPOL

- MARPOL provides for the designation of specific areas of the ocean as "special areas":

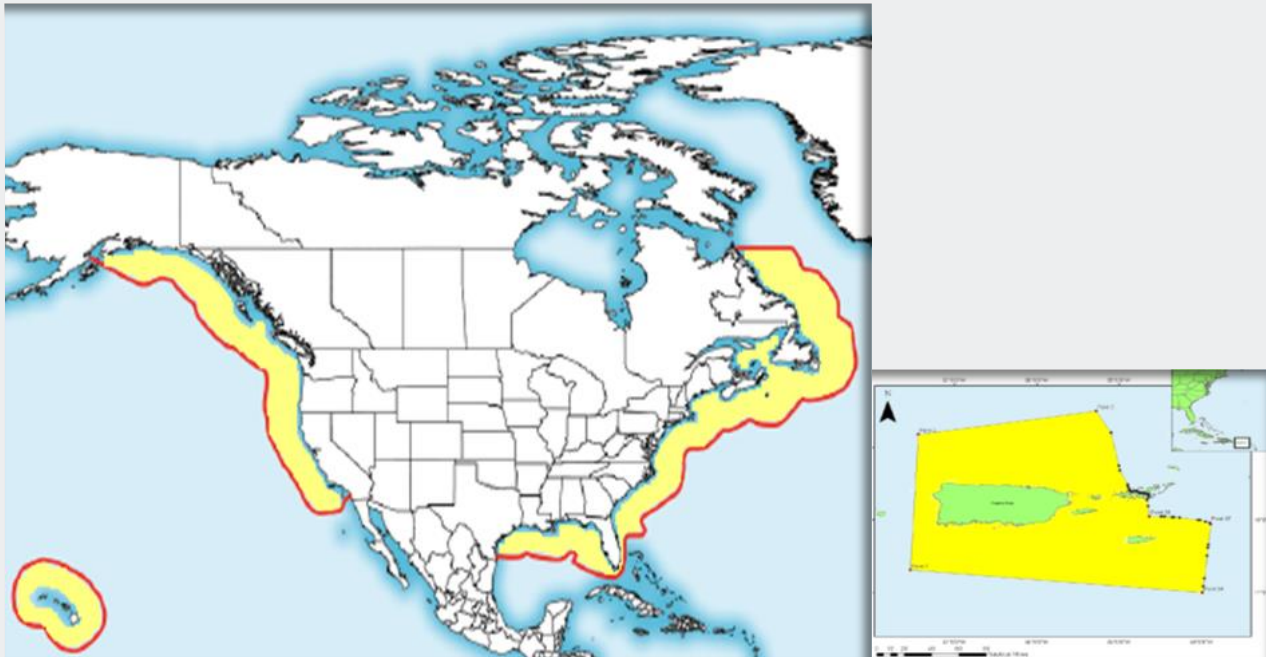
"a sea area where for recognized technical reasons in relation to its oceanographical and ecological conditions and to the particular character of its traffic, the adoption of special mandatory methods for the prevention of sea pollution by oil, noxious liquid substances, or garbage, as applicable, is required."

- Special area designation is only available to parties under:
 - Annex I (oil),
 - Annex II (noxious liquid substances in bulk),
 - Annex IV (sewage), and
 - Annex V (garbage)
- Vessels are subject to stricter controls regarding discharges than under generally applicable international standards
- Proposers must show basic MARPOL requirements do not provide adequate protection for the identified area



Air pollution – Emission control areas (ECAs)

- **Emission control area** = “an area where the adoption of special mandatory measures for emissions from ships is required to prevent, reduce and control air pollution from NO_x or SO_x and particulate matter or all three types of emissions and their attendant adverse impacts on human health and the environment” (Regulation 2 of MARPOL Annex VI)”



North American and US Caribbean Sea ECAs SO_x, PM and NO_x



North Sea and Baltic Sea ECAs
SO_x; NO_x (from 1 January 2021)

Particularly Sensitive Sea Areas (PSSAs)



“A PSSA is an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities.”



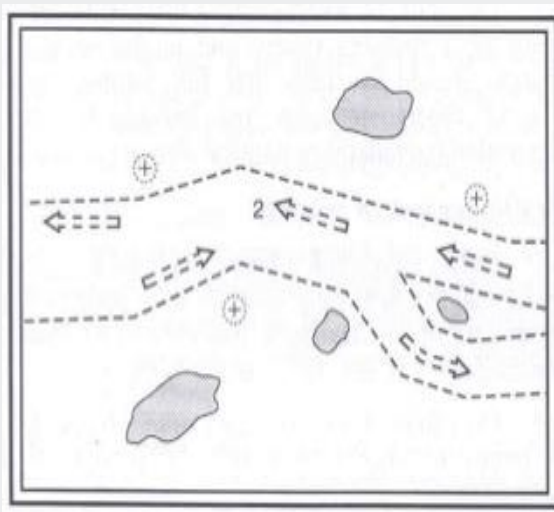
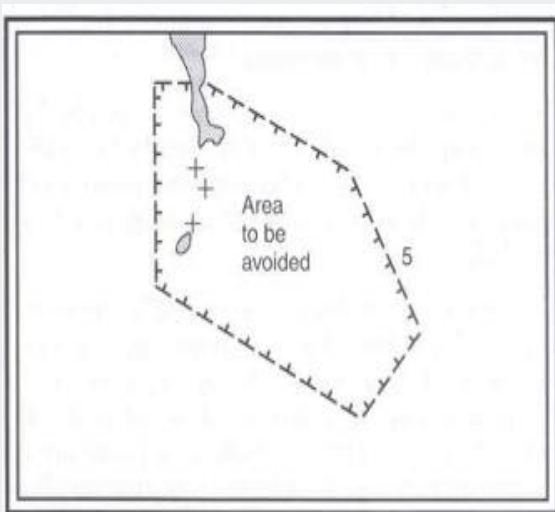
Can be anywhere at sea (TS, EEZ or beyond)

SOLAS – Area based tools

- Designed to improve vessel safety and thereby environmental protection

INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA (SOLAS)

- Regulation 10 – Routeing systems
- Regulation 11 – Reporting systems
- Regulation 12 - Vessel Traffic Services



Any questions so far?





Protecting Vulnerable Seas from Shipping and Marine Pollution

Particularly Sensitive Sea Areas (PSSAs)

- The International Maritime Organization (IMO) has established a mechanism by which these so-called Particularly Sensitive Sea Areas (PSSAs) can be identified and formally designated, together with special protective measures that ships must follow.
- So far, 15 PSSAs have been identified and designated. They include some of the world's best known and iconic maritime locations, such as the Great Barrier Reef, the seas surrounding the Florida Keys and the Galapagos Islands.
- In each case, special protective measures have been agreed and adopted, such as the compulsory routing of ships to avoid altogether these uniquely vulnerable and valuable areas.

PSSAs – Guidelines



- Provide guidance in the formulation and submission of applications for designation of PSSAs
- Provide for the assessment of such applications by IMO – MEPC
- Ensure that:
 - all interests (coastal and flag States, and the environmental and shipping communities) are thoroughly considered



PSSAs - Ecological, socio-economic, or scientific criteria



The following criteria apply to the identification of PSSAs only with respect to the adoption of measures to protect such areas against damage, or the identified threat of damage, from international shipping activities:

Ecological Criteria

- Uniqueness
- Critical habitat
- Diversity
- Productivity
- Spawning grounds
- Integrity
- Fragility
- Bio-geographic importance



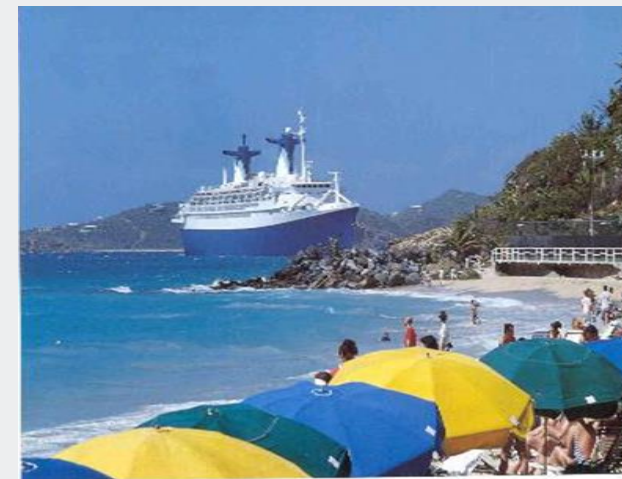
Scientific & Educational Criteria

- Research
- Baseline studies for monitoring
- Education



Social, Cultural & Economic Criteria

- Socio Economic
- Human dependency
- Cultural heritage



PSSAs - Ecological Criteria examples



- **Uniqueness or rarity:** Area or ecosystem is unique if it is “the only one of its kind”, habitats of rare, threatened, or endangered species that occur only in one area are an example
- **Critical habitat:** Essential for survival, function or recovery of fish stocks or rare and endangered species or for the support of LMEs
- **Diversity:** Exceptional variety of species....highly varied ecosystems, habitats and communities

At least one of the criteria must exist throughout the entire area, though the same criterion need not be present throughout the entire area.



Vulnerability of the area to damage from international maritime activities



In addition to meeting at least one of the criteria, the recognized attributes of the area should be at risk from international shipping activities, this involves consideration of:

Vessel Traffic Characteristics

- Vessel types
- Cargoes



Natural Factors Hydrography

- Meteorological
- Oceanographic



Past Incidents



Associated Protective Measures (APMs)



APMs for PSSAs are limited to actions that are to be, or have been, approved by the IMO and can include:

- **Traffic separation schemes or Areas to be avoided**
- **IMO – pilotage regimes**
- **Reporting systems** e.g. for tankers carrying heavy grades of fuel oil
- **No Anchoring Areas**
- **Discharge prohibitions** e.g. designation of MARPOL Special Areas, ECAs
- **Using other existing IMO measures** - provided they have an identified legal basis





PSSA Designation

- “At the time of designation of a PSSA, an associated protective measure, which meets the requirements of the appropriate legal instrument establishing such measure, must have been approved or adopted by IMO to prevent, reduce, or eliminate the threat or identified vulnerability”
- Measures are to be implemented in accordance with international law

Weblinks:

<https://www.imo.org/en/OurWork/Environment/Pages/PSSAs.aspx>

[Protecting vulnerable seas from shipping and marine pollution by International Maritime Organization \(IMO\) – Exposure](#)



List of adopted PSSAs

- The Great Barrier Reef, Australia (designated a PSSA in 1990)
- The Sabana-Camagüey Archipelago in Cuba (1997)
- Malpelo Island, Colombia (2002)
- The sea around the Florida Keys, United States (2002)
- The Wadden Sea, Denmark, Germany, Netherlands (2002)
- Paracas National Reserve, Peru (2003)
- Western European Waters (2004)
- Extension of the existing Great Barrier Reef PSSA to include the Torres Strait (proposed by Australia and Papua New Guinea) (2005)
- Canary Islands, Spain (2005)
- The Galapagos Archipelago, Ecuador (2005)
- The Baltic Sea area, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden (2005)
- The Papahānaumokuākea Marine National Monument, United States (2007)
- The Strait of Bonifacio, France and Italy (2011)
- The Saba Bank, in the North-eastern Caribbean area of the Kingdom of the Netherlands (2012)
- Extension of Great Barrier Reef and Torres Strait to encompass the south-west part of the Coral Sea (2015)
- The Jomard Entrance, Papua New Guinea (2016)
- Tubbataha Reefs Natural Park, the Sulu Sea, Philippines (2017)

Baltic Sea PSSA

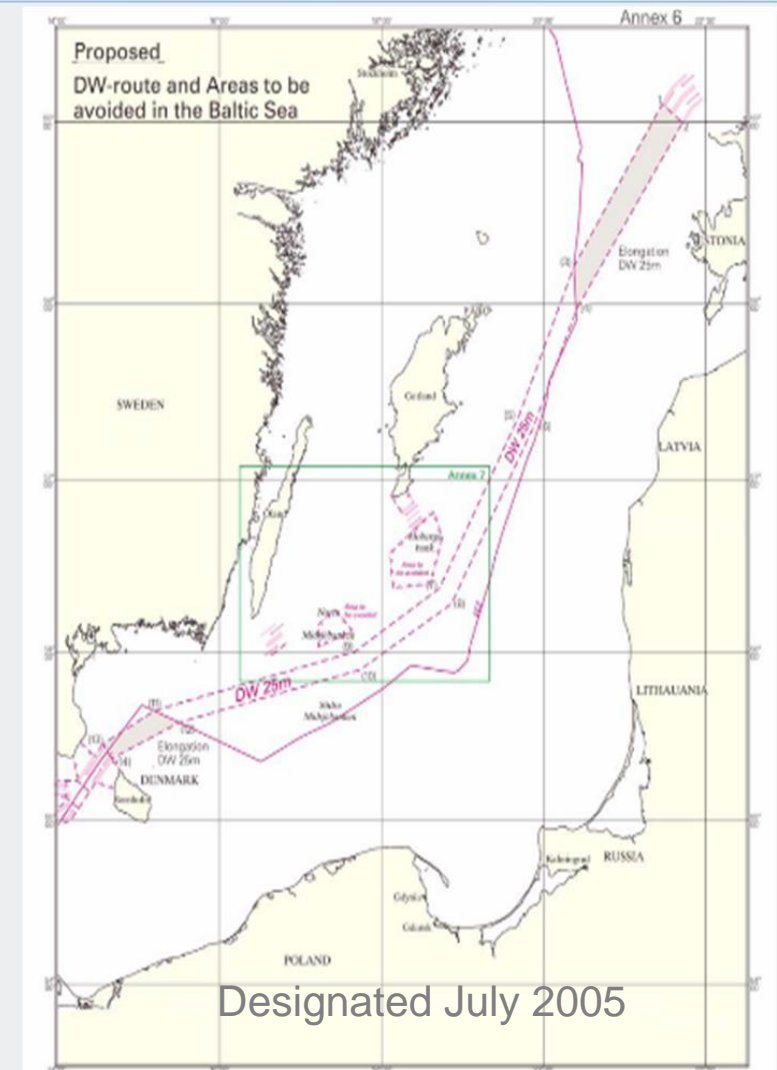
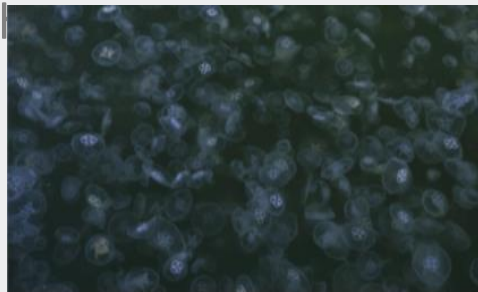
(Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden)



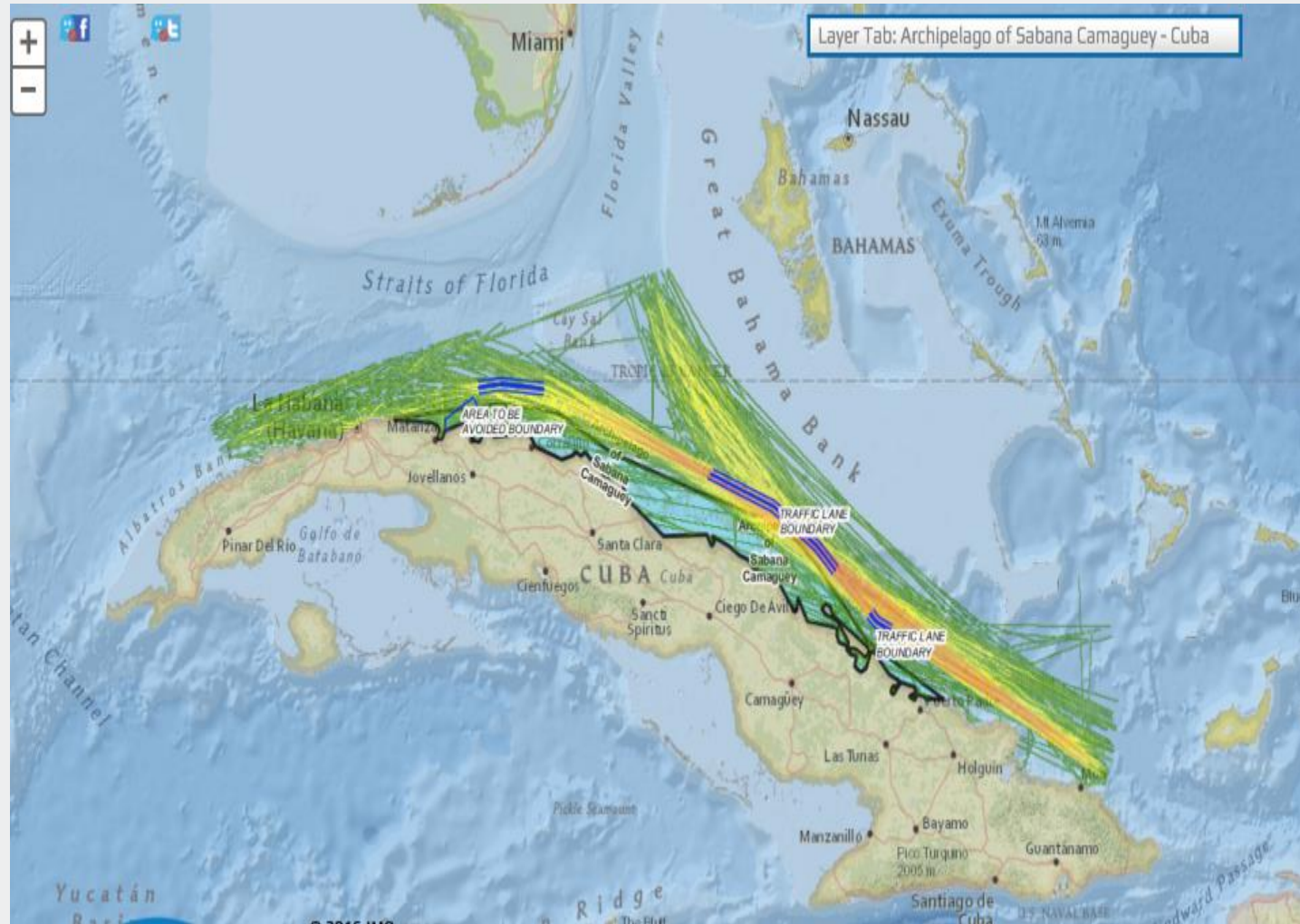
Where? The Baltic Sea is a marginal sea of the Atlantic Ocean, surrounded by nine coastal states.

Why? The Baltic Sea Area is a globally unique and sensitive brackish-water ecosystem. The marine ecosystem is considered as particularly vulnerable to human disturbances. The sea has some of the densest maritime traffic in the world with more than 2,000 ships in the area, on an average day.

What? In the PSSA, IMO has adopted several ship routing and protective measures, including areas to be avoided, deep-water routes, and traffic separation schemes.



Sabana-Camaguey PSSA, Cuba



Special Areas under MARPOL



The criteria which must be satisfied for an area to be given Special Area status are grouped into the following categories:

Oceanographic characteristics

- Particular circulation patterns
- Long residence times
- Extreme ice state
- Adverse wind conditions

Ecological characteristics

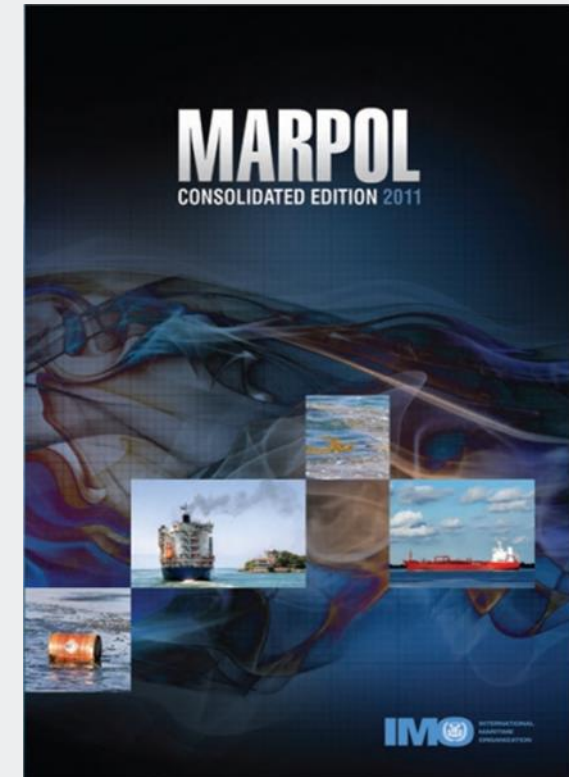
- Depleted, threatened or endangered species
- Areas of high natural productivity
- Spawning, breeding and nursery areas
- Migratory routes
- Rare or fragile ecosystems..

Vessel Traffic Characteristics

- Area is used by ships to an extent that the discharge of harmful substances for areas other than Special Areas would be unacceptable in the light of the existing oceanographic and ecological conditions

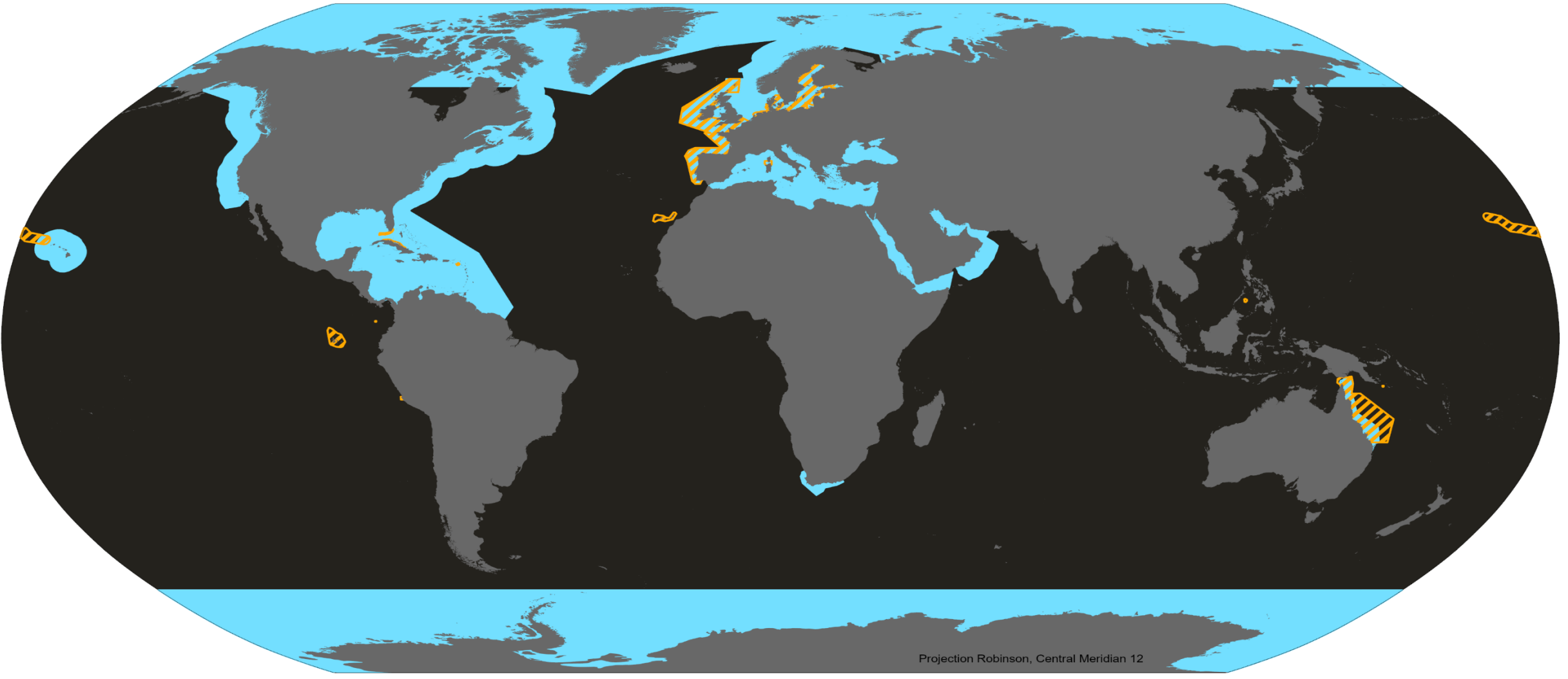
Special areas under MARPOL

Special Areas	Annex I: Oil	Annex II: Noxious Liquid Substances	Annex IV: Sewage	Annex V: Garbage	Annex VI: Prevention of air pollution by ships (Emission Control Areas)
Mediterranean Sea	X			X	
Baltic Sea	X		X	X	X (SO _x , NO _x)
Black Sea	X			X	
Red Sea	X			X	
"Gulfs" area	X			X	
Gulf of Aden	X				
Antarctic area	X	X			
North West European Waters	X				
Oman area of the Arabian Sea	X				
Southern South African waters	X				
North Sea				X	X (SO _x , NO _x)
Antarctic area (south of latitude 60 degrees south)				X	
Wider Caribbean region including the Gulf of Mexico and the Caribbean Sea				X	
North American ECA					X (SO _x , NO _x , PM)
United States Caribbean Sea ECA					X (SO _x , NO _x , PM)



SO_x - Sulphur oxide
 NO_x - Nitrogen oxides
 PM - Particulate matter

Global distribution of International Convention for the Prevention of Pollution from Ships (MARPOL) Special Areas and Particularly Sensitive Sea Areas (PSSAs)



Projection Robinson, Central Meridian 12

Data sources:
International Maritime Organisation (2014). Global distribution of Particularly Sensitive Sea Areas (PSSA). URL: <http://pssa.imo.org>; <http://www.maritimemaps.co.uk>
International Maritime Organisation (2011). Global distribution of Special Areas under MARPOL. URL: <https://www.imo.org/en/OurWork/Environment/Pages/Special-Areas-Marpol.aspx> <http://www.maritimemaps.co.uk>
Base layers:
United Nations Geospatial, 2020

	MARPOL Special Areas
	PSSA

Relevance of IMO area based management tools

- Marine protected areas come in a variety of shapes and sizes and they vary in purpose, management approaches and regulations, resulting in different levels of protection as well as restrictions of human uses
- IMO is the only international body responsible for assessing proposals for and designating areas as PSSAs and Special Areas and adopting measures applicable to international shipping
- Sectoral area-based management tools which apply to a specific sectoral impact, in this case to international shipping
- PSSAs may be coincident with an MPA and may complement and contribute to the conservation objectives of MPA, as States cannot usually impose restrictions to navigation by international shipping without IMO's involvement



Up-to-date regulatory information available from IMO website:

PSSAs :

<https://www.imo.org/en/OurWork/Environment/Pages/PSSAs.aspx>

Special Areas under MARPOL 73/78:

<https://www.imo.org/en/OurWork/Environment/Pages/Special-Areas-Marpol.aspx>

Emission Control Areas

[https://www.imo.org/en/OurWork/Environment/Pages/Emission-Control-Areas-\(ECAs\)-designated-under-regulation-13-of-MARPOL-Annex-VI-\(NOx-emission-control\).aspx](https://www.imo.org/en/OurWork/Environment/Pages/Emission-Control-Areas-(ECAs)-designated-under-regulation-13-of-MARPOL-Annex-VI-(NOx-emission-control).aspx)

Thank you for listening

www.imo.org



email: olcp@imo.org



What is the relevance of these designations to Proteus Partners?

Luca Koerner, Associate Programme Officer

An offshore oil rig is shown in the ocean under a dramatic sky at sunset or sunrise. The rig's complex steel structure is silhouetted against the colorful horizon, with some lights visible on the platform. The water in the foreground is dark blue with white-capped waves.

RELEVANCE OF PSSA & MARPOL DESIGNATIONS

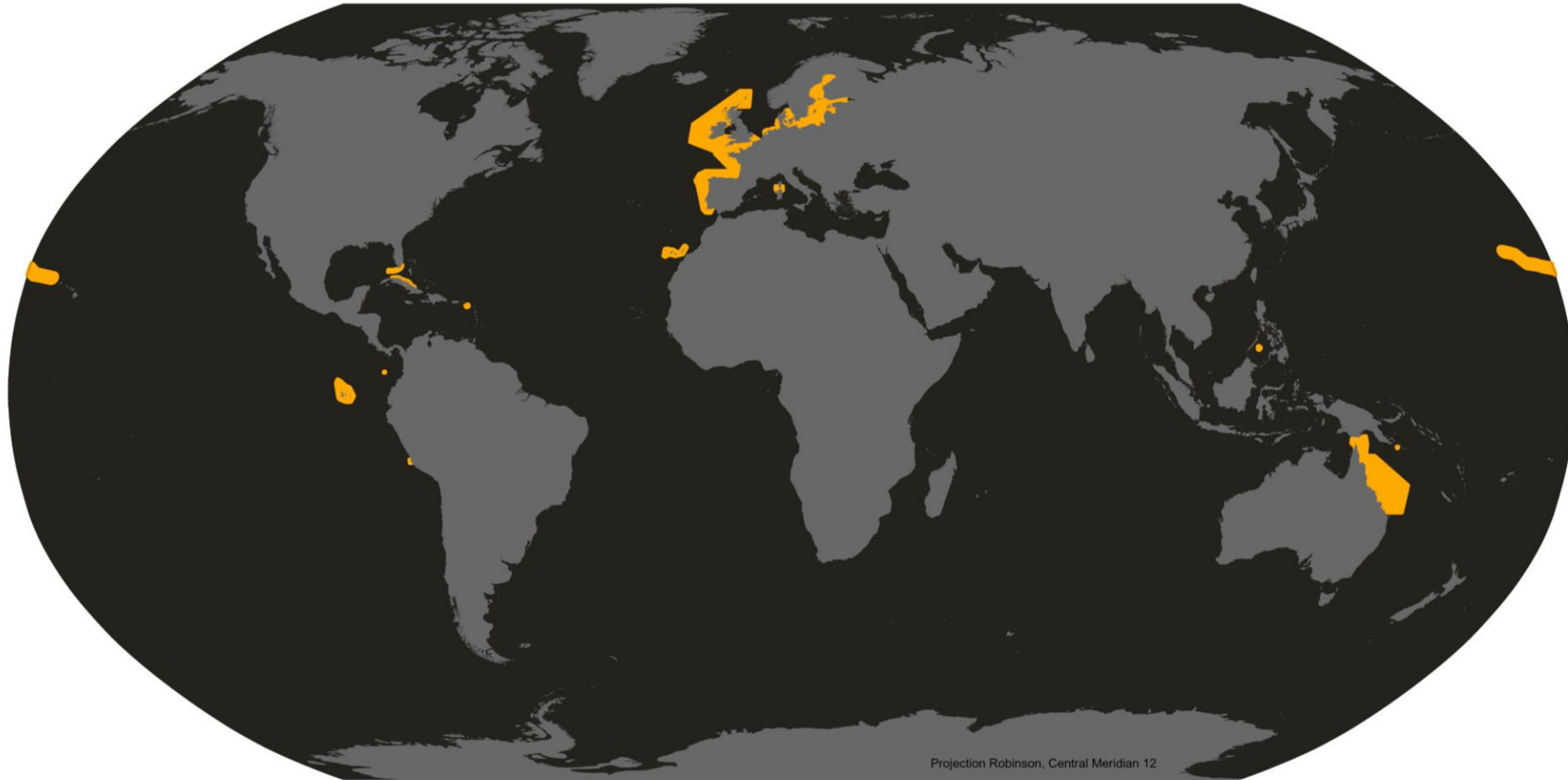
- PSSA and MARPOL Special Areas data can support biodiversity screening.
- Associated Protective Measures (APMs) for PSSAs may have implications for marine industrial activities.
 - Designated as areas to be avoided
 - Shipping Rerouting
 - Discharge and emission restrictions

AVAILABLE DATASETS

- Particularly Sensitive Sea Areas (PSSA)
- International Convention for the Prevention of Pollution from Ships (MARPOL) Special Areas
 - Datapacks available on request
 - GIS layer, Metadata sheets, additional resources



PARTICULARLY SENSITIVE SEA AREAS (PSSA)



Data sources:

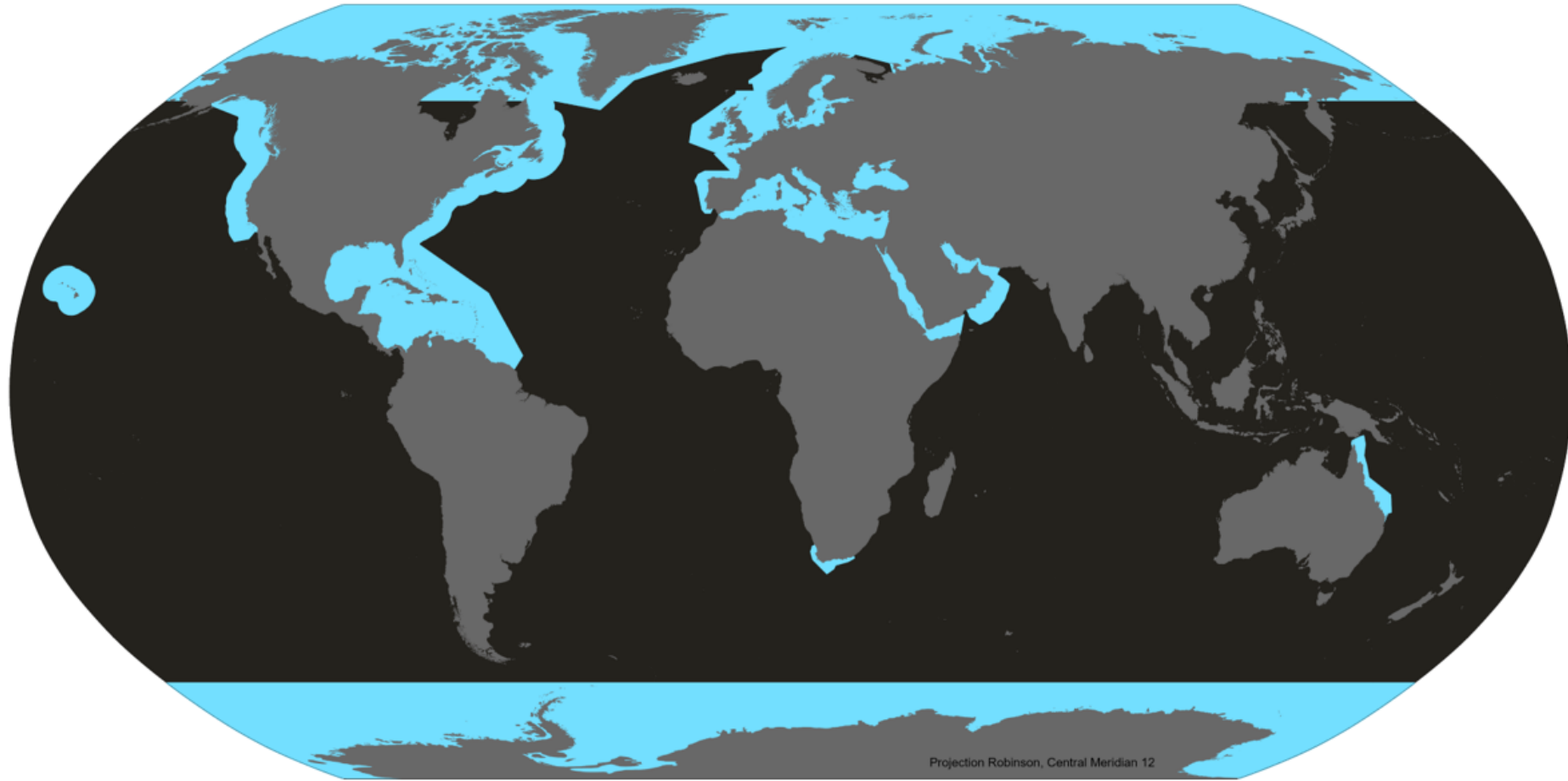
International Maritime Organisation (2014). Global distribution of Particularly Sensitive Sea Areas (PSSA). URL: <http://pssa.imo.org>; <http://www.maritimemaps.co.uk>

Base layers:


United Nations Geospatial, 2020



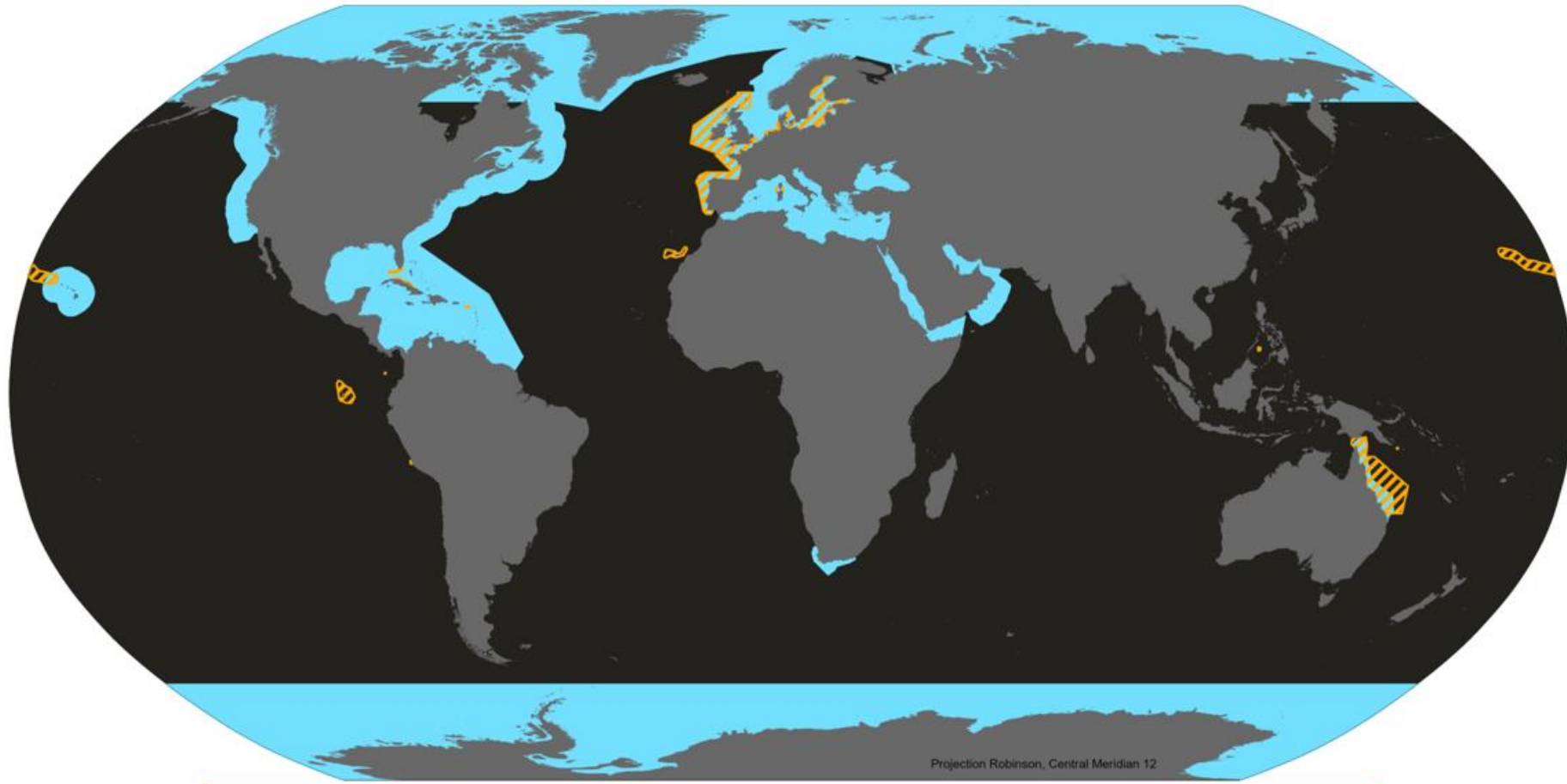
MARPOL SPECIAL AREAS



Data sources:
International Maritime Organisation (2011). Global distribution of Special Areas under MARPOL. URL: <https://www.imo.org/en/OurWork/Environment/Pages/Special-Areas-Marpol.aspx> <http://www.maritimemaps.co.uk>
Base layers:
United Nations Geospatial, 2020

 MARPOL Special Areas

PSSA AND MARPOL S.A. OVERLAP



Data sources:

International Maritime Organisation (2014). Global distribution of Particularly Sensitive Sea Areas (PSSA). URL: <http://pssa.imo.org>; <http://www.maritimemaps.co.uk>

International Maritime Organisation (2011). Global distribution of Special Areas under MARPOL. URL: <https://www.imo.org/en/OurWork/Environment/Pages/Special-Areas-Marpol.aspx> <http://www.maritimemaps.co.uk>

Base layers:

United Nations Geospatial, 2020



MORE BIODIVERSITY DATA



- ...Or get in touch and request individual datasets

- proteus@unep-wcmc.org
- alex.ross@unep-wcmc.org

The image shows a screenshot of a web interface titled 'Data available through the Proteus Partnership'. It features a table with columns for 'UNEP World Database of Protected Areas (WDPA)', 'UNEP World Database of Protected Areas (WPA)', 'UNEP World Database of Protected Areas (WPA)', and 'UNEP World Database of Protected Areas (WPA)'. The table lists various protected areas and their status across different categories. The interface includes a legend and a search bar.

Protected Area	UNEP World Database of Protected Areas (WDPA)	UNEP World Database of Protected Areas (WPA)	UNEP World Database of Protected Areas (WPA)	UNEP World Database of Protected Areas (WPA)
International Convention for the Protection of the Undersea Cultural Heritage (ICU)	Yes	Yes	Yes	Yes
International Convention for the Protection of the Undersea Cultural Heritage (ICU)	Yes	Yes	Yes	Yes
International Convention for the Protection of the Undersea Cultural Heritage (ICU)	Yes	Yes	Yes	Yes
International Convention for the Protection of the Undersea Cultural Heritage (ICU)	Yes	Yes	Yes	Yes
International Convention for the Protection of the Undersea Cultural Heritage (ICU)	Yes	Yes	Yes	Yes



Q&A

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The International Maritime Organisation Designations and Datasets

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