

# Overview of IMO Instruments to protect sensitive sea areas from international shipping

ADRIATIC REGION WORKSHOP ON PSSAs

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# OVERVIEW OF PRESENTATION



## IMO – What is it and how does it work?

### IMO Conventions on Pollution Prevention

- MARPOL
- Ballast Water Management Convention
- Antifouling Systems Convention
- Oil/HNS pollution preparedness and response
- SOLAS

### PSSA concept and process



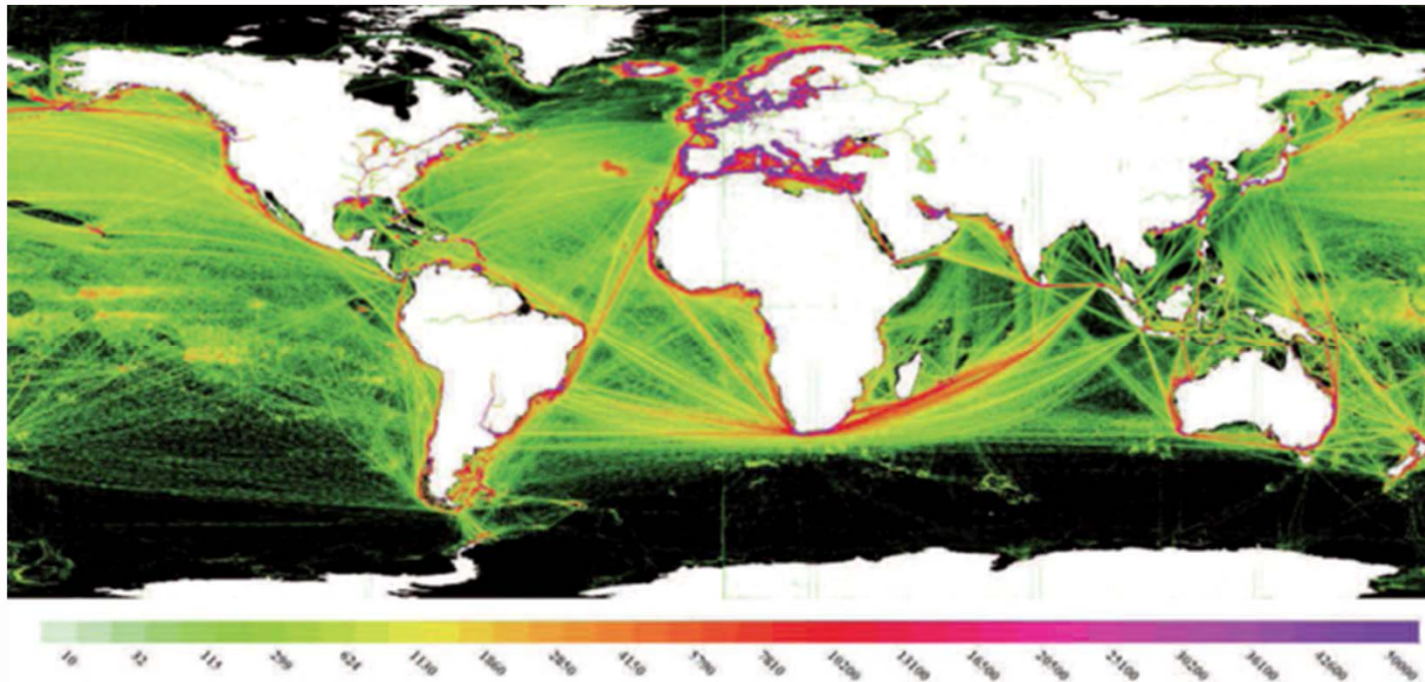


# International Maritime Organization (IMO)

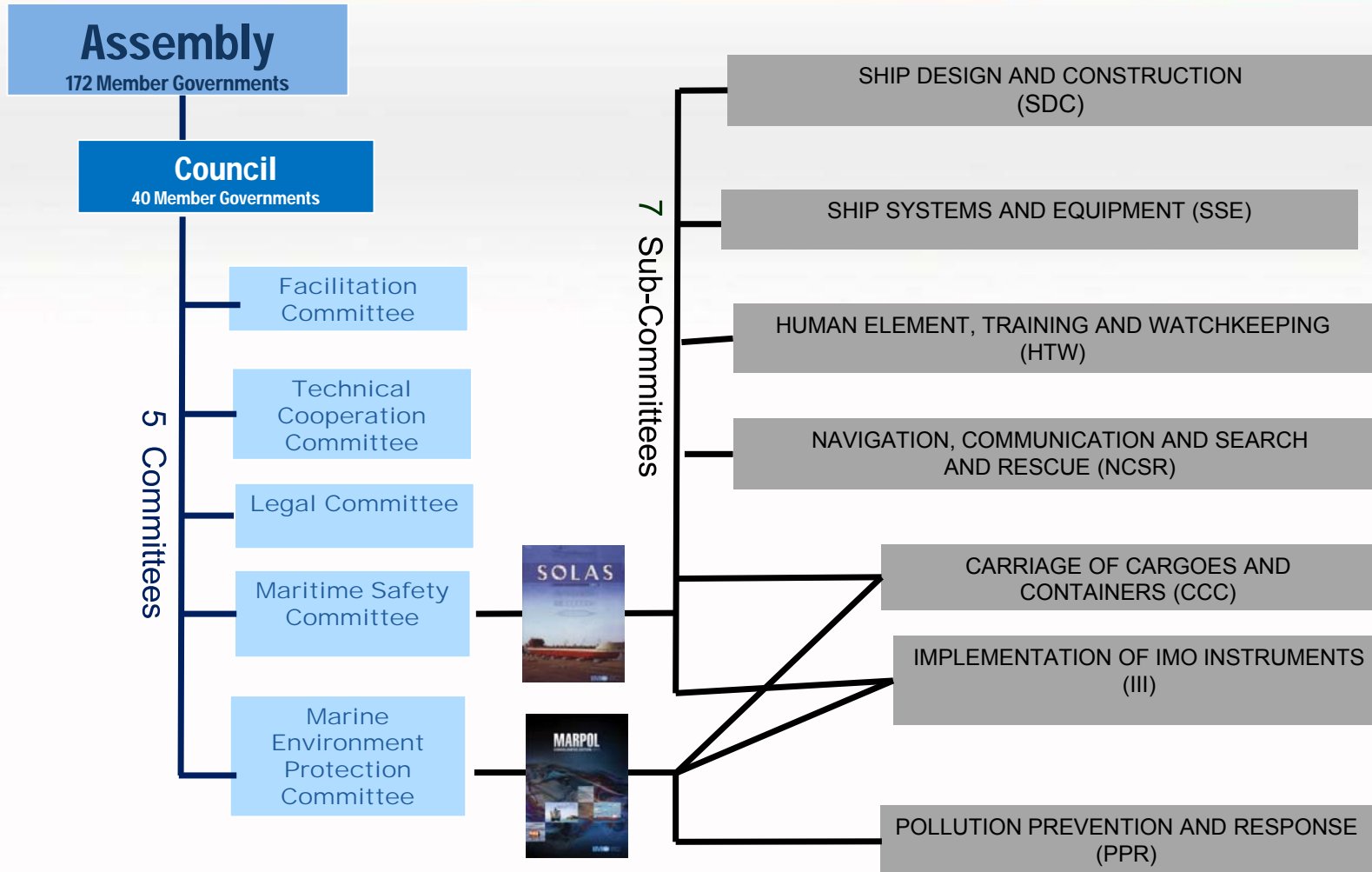


## WHAT IS IT?

- A specialized agency of the United Nations
- IMO Convention was adopted in 1948 and first met in 1959!
- Global coverage: 174 Member States plus 3 Associate Members, 140+ observer organizations (IGOs and NGOs)



# IMO Structure



# Instruments



- Conventions or Protocols
- Amendments to Conventions or Protocols
- Resolutions, codes, guidelines, recommendations, etc.

**The phases from adoption to implementation and enforcement:**

- **Development/Adoption**, after discussion in IMO
- **Entry into force** internationally
- **Implementation** by flag States
- **Enforcement** by port and coastal States

**IMO has no enforcement or ‘policing’ mandate**

# DAMAGE CAUSED BY SHIPS



- Operational discharges
- Accidental or intentional pollution
- Physical damage to marine life and habitats



# DAMAGE CAUSED BY SHIPS



## Examples of particular issues:

- Oil pollution
- Chemicals and garbage
- Mystery spills
- Anti-fouling systems
- Aquatic nuisance species
- Groundings
- Collisions





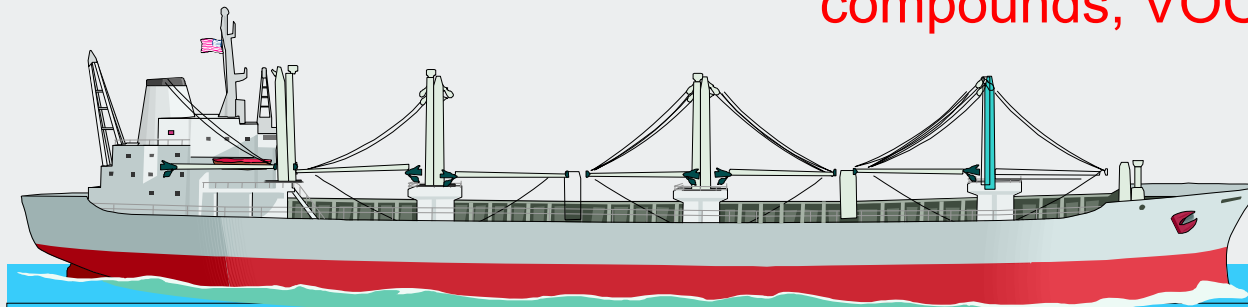
# HARMFUL DISCHARGES AND EMISSIONS



## Exhaust gases:

SO<sub>x</sub> and NO<sub>x</sub> emissions  
CO<sub>2</sub> + GHG

CFC,  
Volatile organic  
compounds, VOC



Oil

Ballast water

Hazardous  
substances

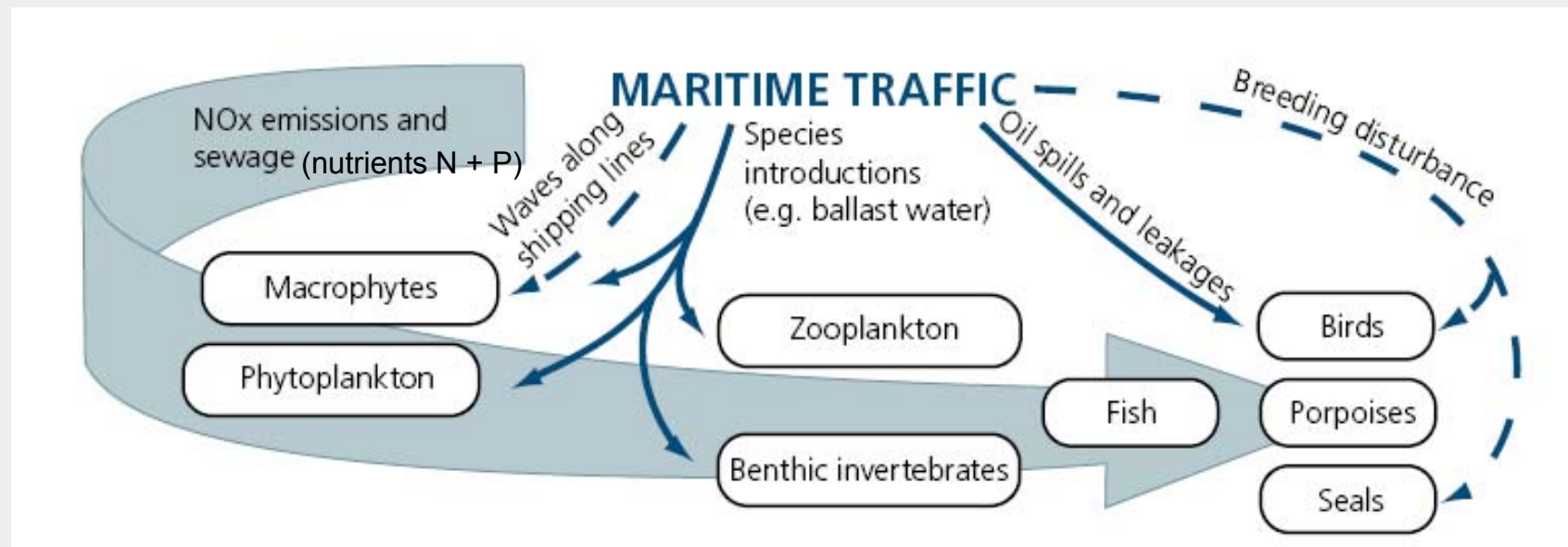
Sewage

Garbage

Antifouling paints



# IMPACTS OF HARMFUL DISCHARGES AND EMISSIONS FROM SHIPS ON MARINE ENVIRONMENT



## IMO and pollution/damage prevention/response



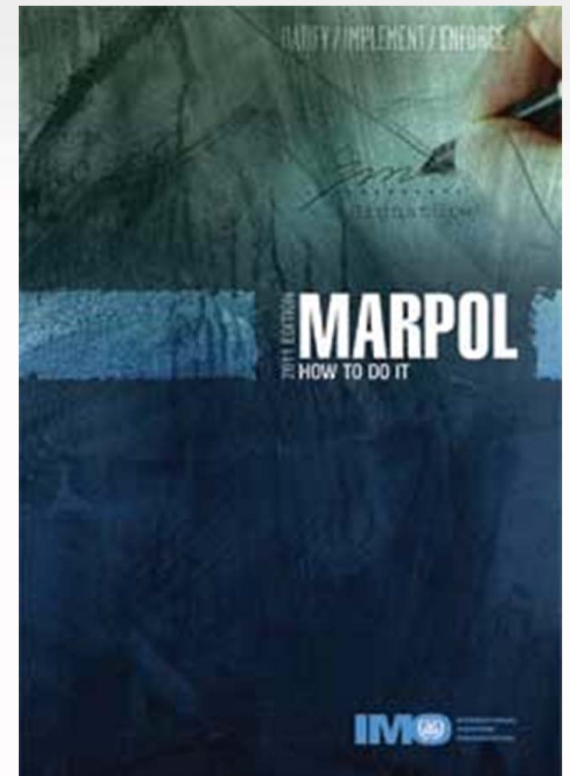
<b>Operational Discharges, including GHG, PM, NOx, SOx and ODS/VOCs</b>	<b>MARPOL</b>
<b>Oil and Chemical Spills/Accidents</b>	<b>OPRC/OPRC-HNS PROT</b>
<b>Transfer of invasive species</b>	<b>Ballast Water Management Convention, Anti-fouling Systems Convention and Biofouling Guidelines</b>
<b>Ship strikes with cetaceans, ship noise and its impact on marine life, polar waters</b>	<b>SOLAS, MARPOL guidelines and codes</b>
<b>Area Based Management Tools</b>	<b>Special Areas under MARPOL, PSSAs and SOLAS</b>

# MARPOL



## International Convention on the Prevention of Pollution from Ships

- Six annexes cover operational ship-generated pollution
- Ensures ships are adequately designed, equipped, certified and inspected.
- Requires Port States to deal with wastes – port reception facilities.
- Applies to all ships, although not to pollution arising from the exploration and exploitation of sea-bed mineral resources.



# MARPOL Annexes



<b>Annexes I &amp; II</b>	<b>Annex III</b>	<b>Annex IV</b>	<b>Annex V</b>	<b>Annex VI</b>
Oil and Noxious Liquid Substances	Harmful Substances Carried at Sea in Packaged Form	Sewage from Ships	Garbage from Ships	Air Pollution from Ships
In Force	In Force	In Force	In Force	In Force
152 Parties	138 Parties	131 Parties	144 Parties	75 Parties
99% of World Tonnage	97% of World Tonnage	89% of World Tonnage	98% of World Tonnage	95% of World Tonnage

Almost universal uptake by world fleet



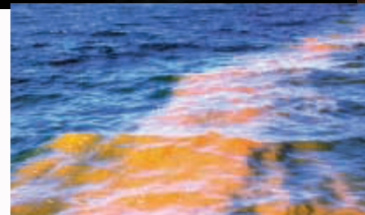
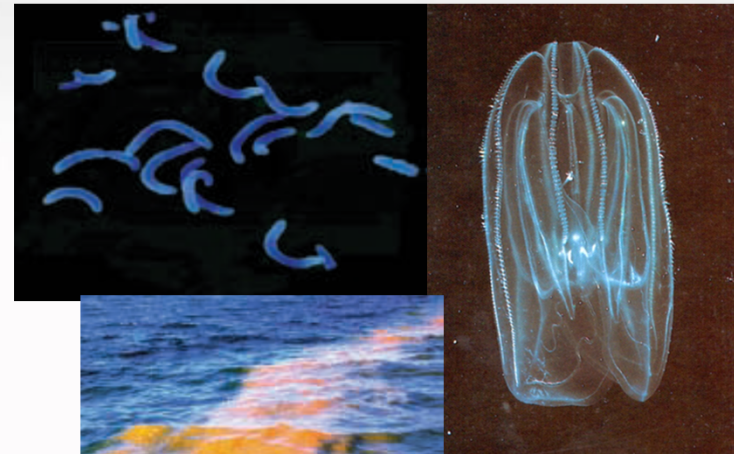
# Ballast Water Management



**Aims to prevent, reduce and ultimately eliminate the risks caused by the transfer of aquatic organisms and pathogens by ships**

Entered into force on  
8 September 2017

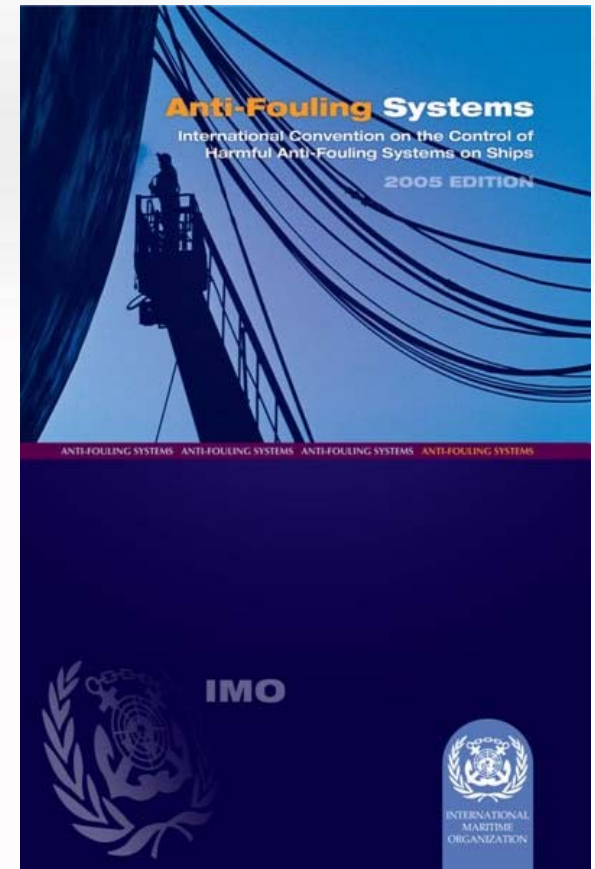
Currently 81 State Parties (80%)



# Anti-Fouling Systems Convention



- Adopted in October 2001 to prohibit the use of harmful organotins (TBTs) in anti-fouling paints on ships.
- Establishes a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems.
- Provides global framework to limit adverse effects of such substances on the marine environment and human health.
- In force since September 2008; 89 Contracting Parties; 96% of world tonnage.



# OPRC/OPRC-HNS PROT



## Pollution preparedness and response

### Global framework for international cooperation

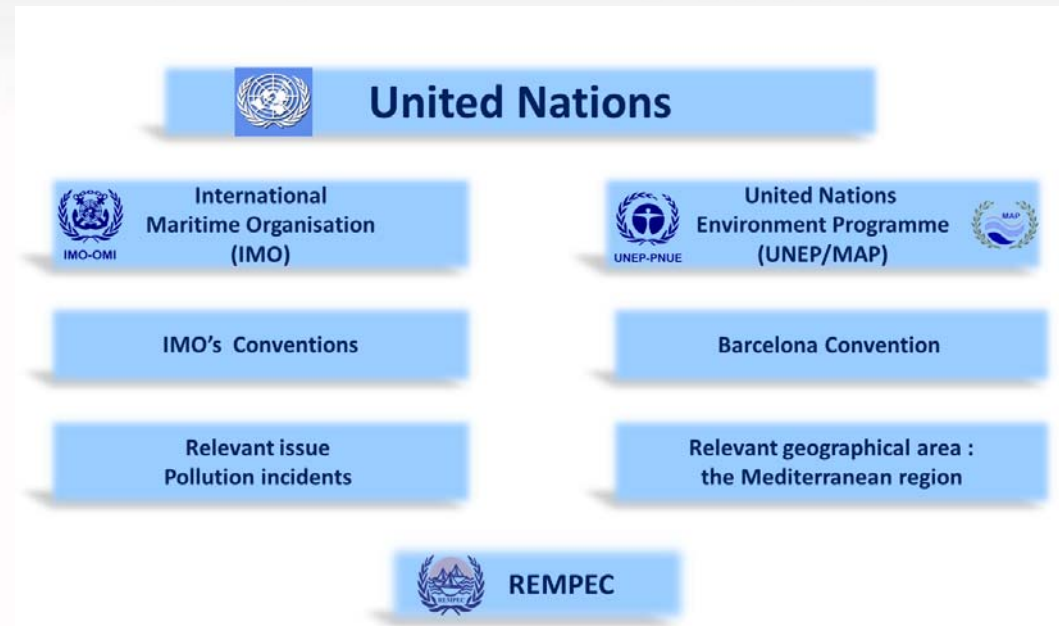
Despite effective prevention measures such as those established through MARPOL, **accidents** still occur, in which case a good level of **preparedness to effectively respond is key**

➤ The International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) and OPRC–HNS Protocol





# REMPEC - IMO and UNEP cooperation in the Mediterranean





## REMPEC Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021)



Addresses, inter alia:

- Biofouling to **minimise the transfer of invasive aquatic species**
- Provision of **reception facilities in ports**
- **Monitoring and surveillance of illicit discharges, enforcement and the prosecution of discharge offenders**
- Establishing **Ship's Routeing Systems**
  
- Assist in identification of Particularly Sensitive Sea Areas (**PSSAs**)
  
- Reduction of **marine noise caused by ships**
- **Places of refuge** in order to minimise the risks of widespread pollution
- Strengthens the **capacity** of individual coastal States **to respond** efficiently **to marine pollution incidents** through development of **contingency plans**

# IMO's Area based management tools



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

# Special Areas under MARPOL



- Special areas for **technical reasons** relating to their **oceanographical and ecological condition** and to their **sea traffic**, the adoption of ....**mandatory methods for the prevention of sea pollution** is required providing a **higher level of protection** than other areas of the sea.
- **Must show** that basic MARPOL requirements **do not provide adequate protection**
- Special Area designation can only become effective when **adequate port reception facilities** in States bordering Special Area are provided, in accordance with the provisions of MARPOL
- Separate guidance and requirements for Emission Control Areas (ECAs).

# MARPOL Annex I Special Area - OIL



## Special Areas

### Annex I: Oil

Mediterranean Sea

Baltic Sea

Black Sea

Red Sea

Adopted

Date Entered into Force

In Effect from

2 Nov 1973	2 Oct 1983	2 Oct 1983
2 Nov 1973	2 Oct 1983	2 Oct 1983
2 Nov 1973	2 Oct 1983	2 Oct 1983
2 Nov 1973	2 Oct 1983	*

### Annex II: NLS Antarctic area

30 Oct 1992

1 Jul 1994

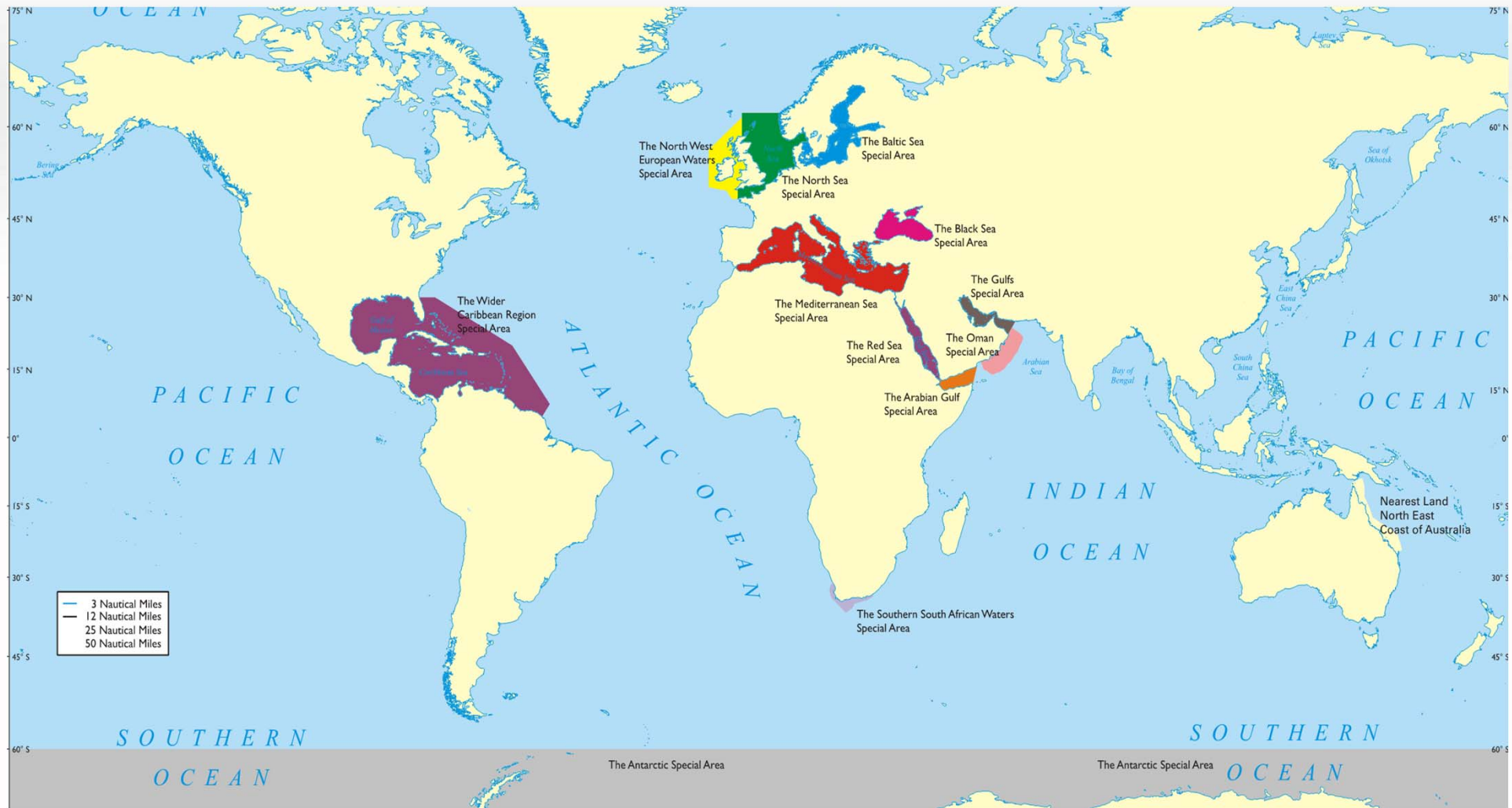
1 Jul 1994

### Annex V: Garbage

Mediterranean Sea	2 Nov 1973	31 Dec 1988	1 May 2009
Baltic Sea	2 Nov 1973	31 Dec 1988	1 Oct 1989
Black Sea	2 Nov 1973	31 Dec 1988	* —
Red Sea	2 Nov 1973	31 Dec 1988	* —



# SPECIAL AREAS UNDER MARPOL



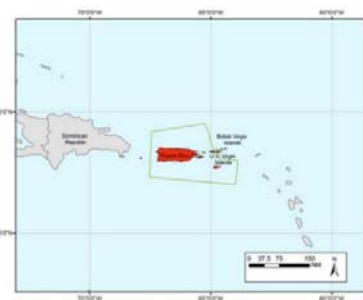
# Air pollution – Emission control areas (ECAs)



## Stricter limits for SO<sub>x</sub>, PM and NO<sub>x</sub>



North American ECA  
SO<sub>x</sub>, PM and NO<sub>x</sub>

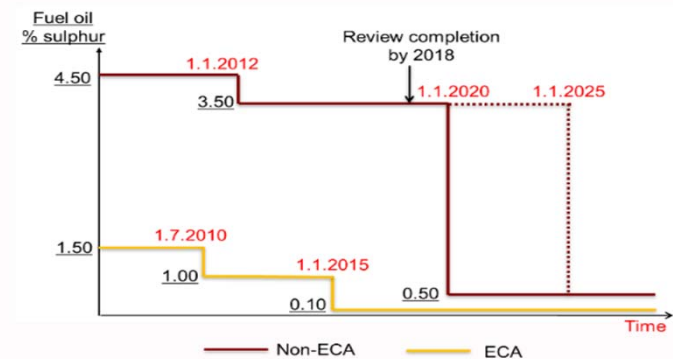


US Caribbean Sea ECA  
SO<sub>x</sub>, PM and NO<sub>x</sub>



North Sea and Baltic Sea ECAs  
SO<sub>x</sub> and NO<sub>x</sub> from 1 January 2021

- In ECAs fuels with a sulphur content of 0.10% m/m have to be used.
- Ships operating in NO<sub>x</sub> ECAs constructed on or after 1 January 2016 have to meet the NO<sub>x</sub> Tier III limit defined by the Organization.
- An equivalent form of compliance can be used, e.g. exhaust gas cleaning systems (scrubbers), alternative fuels, etc.

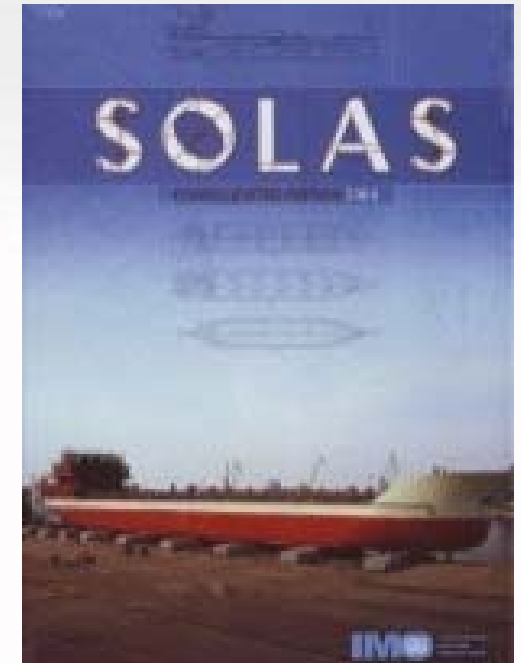


# SOLAS Convention



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

- Specifies minimum **standards for the construction, equipment and operation** of ships, compatible with their safety.
- **Flag States are responsible** for ensuring that ships under their flag comply with its requirements (survey + certified).
- **Provisions to inspect ships** of other Contracting States if there are clear grounds for believing that the ship and its equipment do not substantially comply - **Port State control**.



# SOLAS Convention -Tools



Chapter V, on vessel navigational safety and thereby environmental protection

**Regulation 10 – Routeing systems**

**Regulation 11 – Reporting systems**

**Regulation 12 - Vessel Traffic Services**

Strict procedures for planning and proposals must go to IMO – Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)

Established only where:

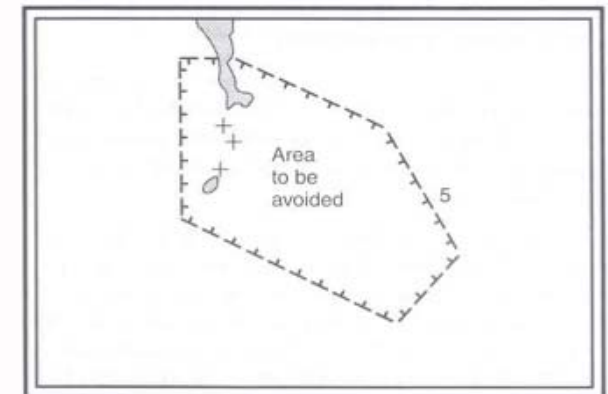
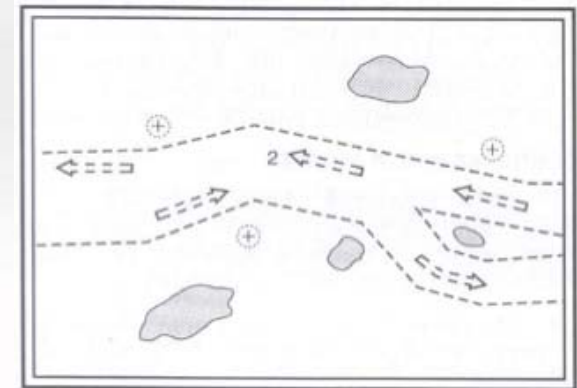
- Inadequate survey or insufficient aids to navigation may lead to danger of stranding
- Local knowledge is considered essential for safe passage
- **Unacceptable damage to the environment could occur from a casualty**



# Routeing and Reporting systems



- Establishing a ships' routeing system **is the responsibility** of the **Government or Governments** concerned.
- Ships' routeing or reporting systems are **usually recommendatory** and may be made **mandatory** for
  - all ships,
  - certain categories of ships or
  - ships carrying certain cargoes
- Examples: traffic separation schemes, a deep-water route and areas to be avoided
- Ship reporting systems shall be **free of charge to the ships** concerned



## PSSA – What is it?



“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)

# PSSA Designation



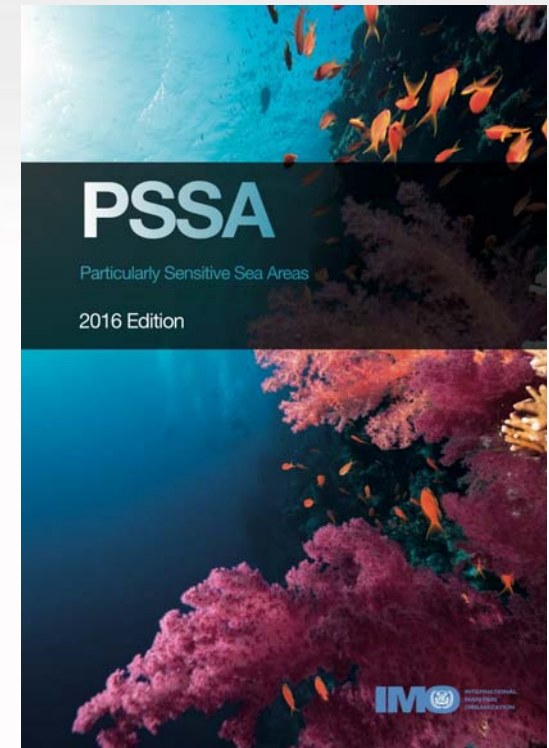
“At the time of designation of a PSSA, an associated protective measure, which meets the requirements of the appropriate legal instrument establishing such measure, must have been approved or adopted by IMO to prevent, reduce, or eliminate the threat or identified vulnerability”

Measures are to be implemented in accordance with international law

# 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





## ECOLOGICAL CRITERIA

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



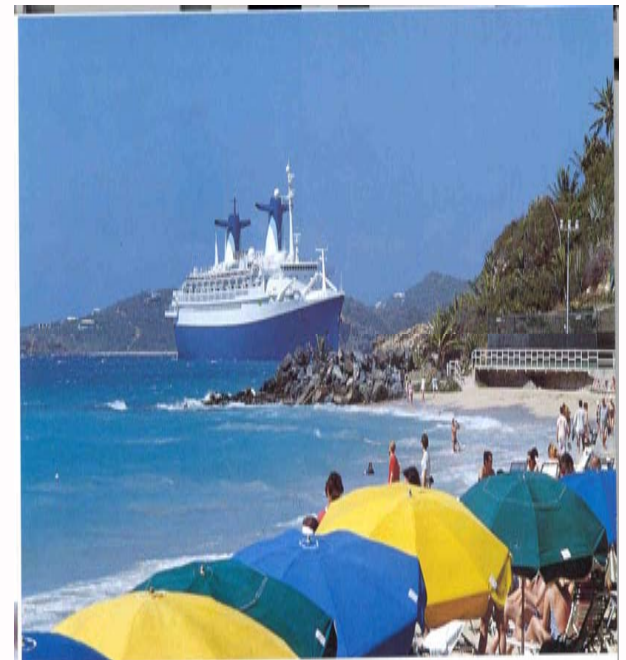
## SCIENTIFIC & EDUCATIONAL CRITERIA

- Baseline studies
- Research



## SOCIAL, CULTURAL & ECONOMIC CRITERIA

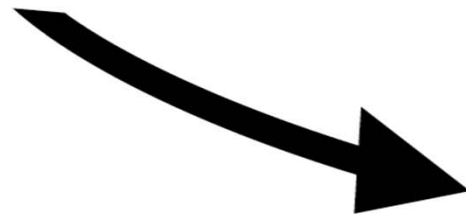
- Socio Economic
- Human dependency
- Cultural heritage



# Criteria used in identifying EBSAs, MPAs, RAMSAR, WH, areas, etc compared to PSSAs (Shipping)



Criteria	Biodiversity	UNCLOS	Migratory Species	Wetlands	Nat. and Cult. Heritage
Uniqueness or rarity	●	●	●	●	
Special importance for life history of species	●		●	●	●
Importance for threatened/endangered/declining species/habitats	●	●	●	●	
Vulnerability, fragility, sensitivity, slow recovery	●	●			
Biological productivity	●		●		
Biological diversity	●			●	●
Naturalness	●		●		
Social, cultural and economic criteria (e.g. exceptional beauty, associated with traditions or beliefs or traditional sea uses)					●
Scientific and educational value					



Criteria	Shipping
Uniqueness or rarity	●
Special importance for life history of species	●
Importance for threatened/endangered/declining species/habitats	●
Vulnerability, fragility, sensitivity, slow recovery	●
Biological productivity	●
Biological diversity	●
Naturalness	●
Social, cultural and economic criteria (e.g. exceptional beauty, associated with traditions or beliefs or traditional sea uses)	●
Scientific and educational value	●



# VULNERABILITY OF THE AREA TO DAMAGE FROM INTERNATIONAL MARITIME ACTIVITIES



## Vessel Traffic Characteristics

- Vessel types
- Cargoes



## Natural Factors

- Hydrography
- Meteorological
- Oceanographic



## Past Incidents

## Associated Protective Measures



**Associated Protective Measures (APMs)** must be included in submission of PSSA or accompanied by a proposal that such measures will be developed, examples:

MARPOL Special Area

MARPOL Annex VI Emission Control Areas

SOLAS Regulations 10, 11 and 12



# Legal Basis – PSSA APMs



Any measure available under existing IMO instrument

Any measure that does not yet exist but could become available through amendment of an IMO instrument

Would only be available after the IMO instrument was amended – long process

Any measure proposed for adoption in the territorial sea or pursuant to Article 211(6) of UNCLOS where existing measures are not adequate.



## Associated Protective Measures



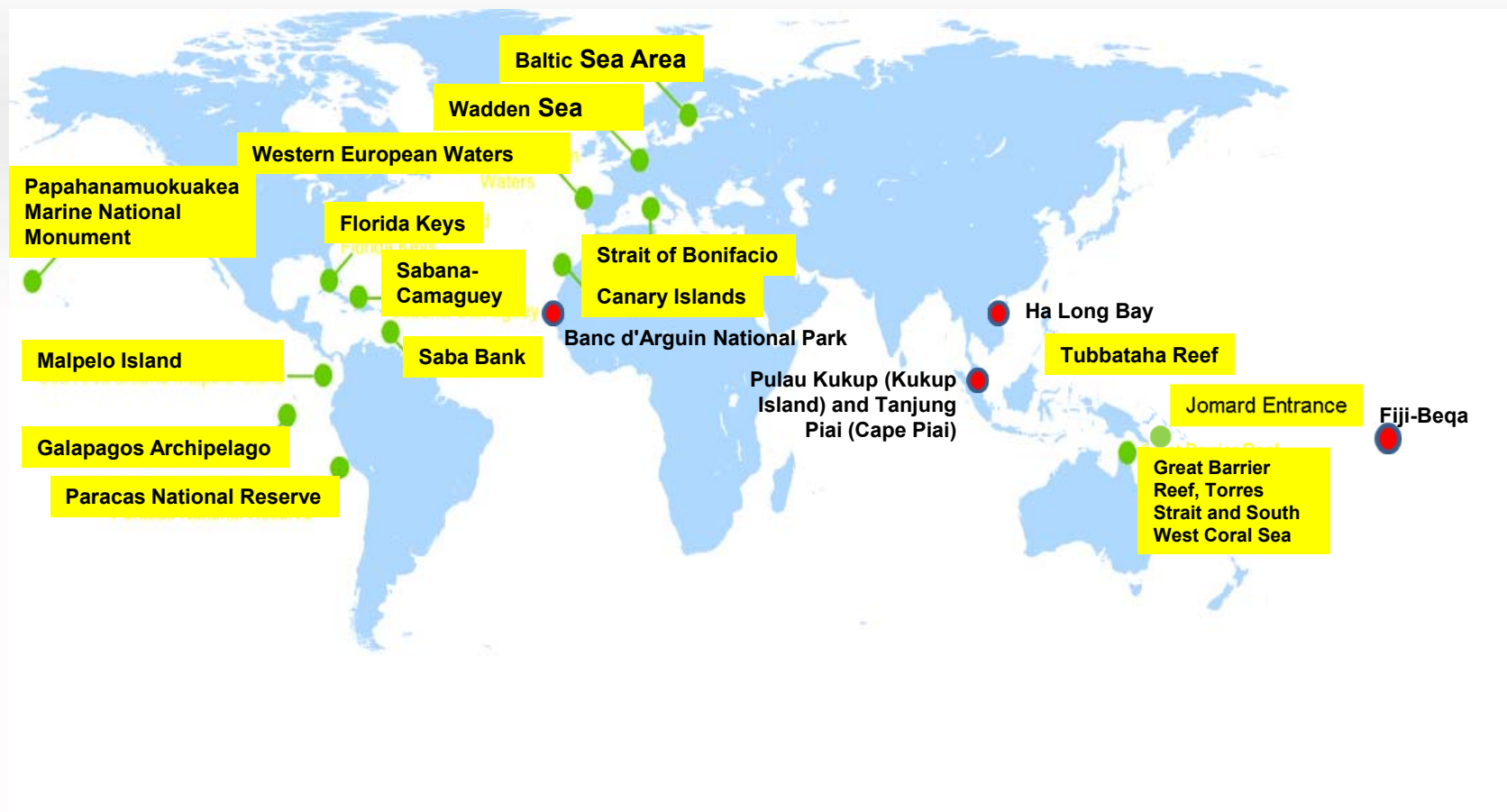
- *IMO – pilotage regimes*
- *Mandatory reporting e.g. for tankers carrying heavy grades of fuel oil*
- *Traffic separation schemes or Areas to be avoided*
- *No Anchoring Areas*
- *Discharge prohibitions e.g. MARPOL Special Areas, ECAs*
- *Or using other existing IMO measures*

# Benefits of PSSA designation



- Addresses the area's vulnerability to damage by international shipping
- Increases maritime safety
- Increases community and mariners' awareness of the sensitivity of, and risks to navigation in the area
- Also greatly facilitates reporting of violations and may prevent violations that would never have been detected or prosecuted

# Existing PSSAs (yellow) plus in prep (red)





# Conclusions - PSSAs



1. Issue must relate to international shipping
2. Size of area commensurate with demonstrated need
3. Adequate documentation of criteria and vulnerability
4. Legal basis for APMs must be clearly demonstrated tailored to address risk identified
5. Linkage between the three elements: Area -Threats - Measures



United Nations  
Environment Programme



Mediterranean Action Plan  
Barcelona Convention



SPA / RAC

*The Mediterranean  
Biodiversity  
Centre*

Thanks  
For your attention!

Edward Kleverlaan  
IMO-PSSA Expert  
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