EUROFLEETS+ Floating University

"State and sustainable use of the ocean biological resources: the case of the Nephrops norvegicus (Norway lobster)"

Onboard the R/V Mário Ruivo

Portugal, June 15 – July 5

Eurofleets+

An alliance of European marine research infrastructure to meet the evolving needs of the research and industrial communities

MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD)

An ecosystem based approach to management

IPMA

MSFD Descriptors Leaders:

Teresa Moura (D1), Patrícia Gonçalves (D3), Clara Lopes (D10)

MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD)

25.6.2008 EN Official Journal of the European Union L 164/19

DIRECTIVES

DIRECTIVE 2008/56/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 17 June 2008

establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

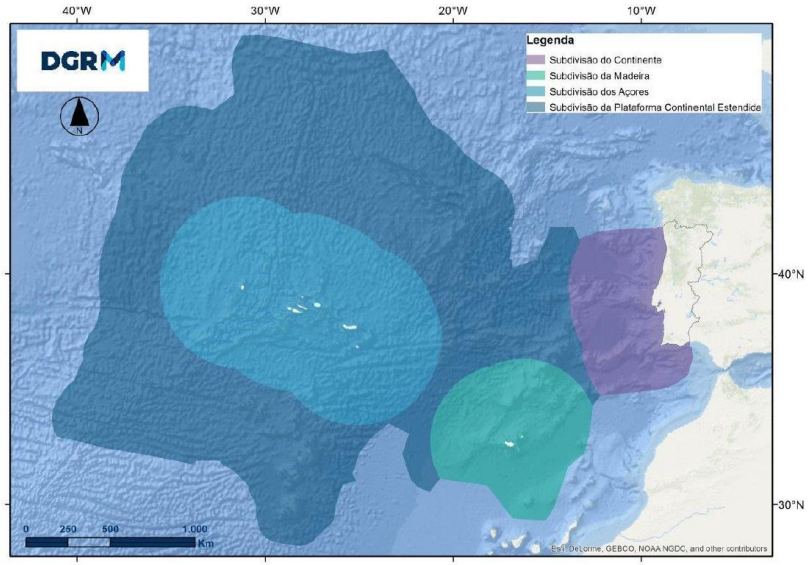
impact on marine waters regardless of where their effects occur.

- Member states shall take the necessary measures to achieve or mantain good environmental status in the marine environment by the year 2020

- Ecosystem approach to the management of human activities, ensuring that pressure of such activities is kept within levels compatible with the achievement of GES.

MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD)

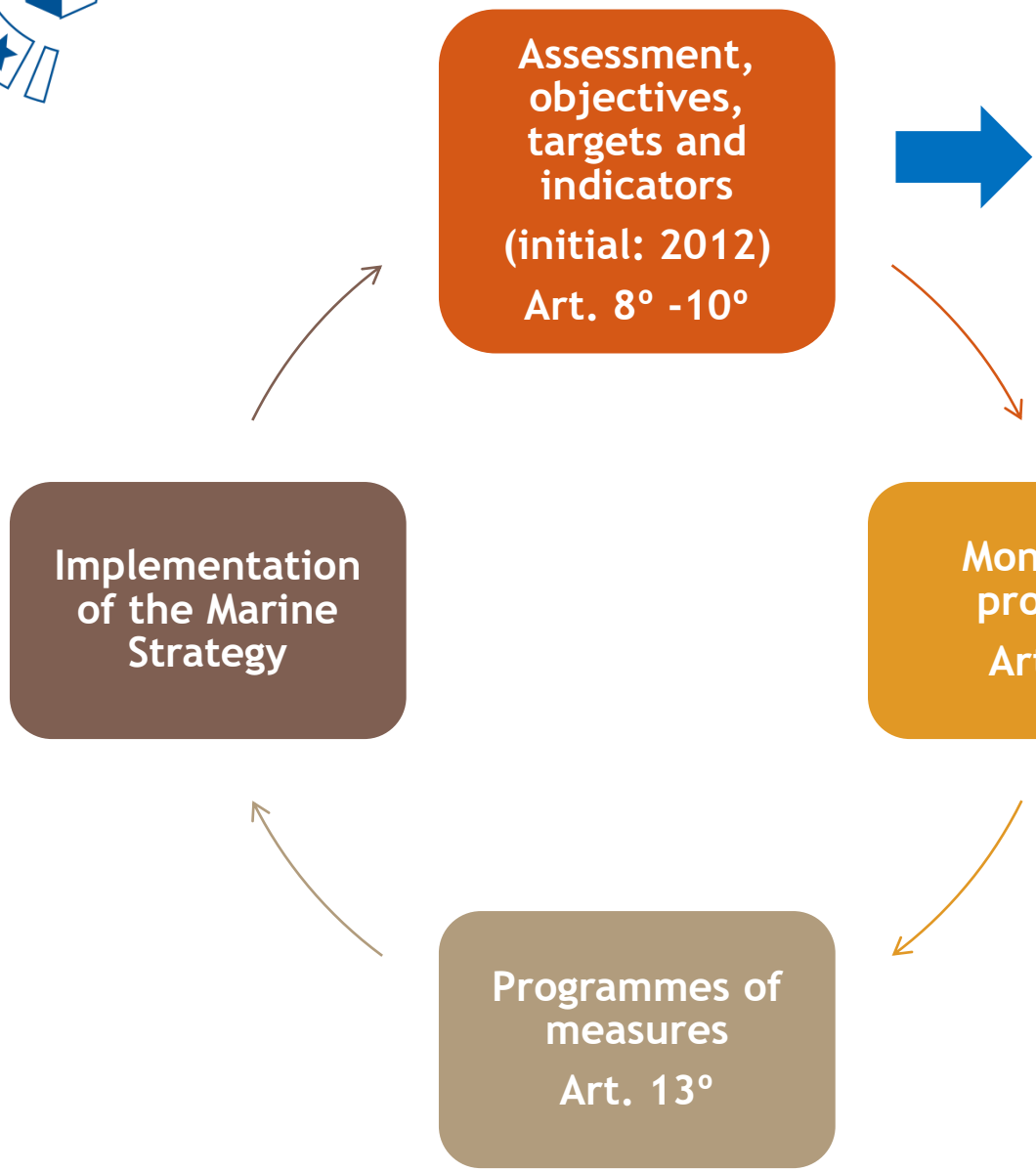
- Cooperation among Member States
- Region: Northeast Atlantic Ocean
- Sub-region: the Bay of Biscay and the Iberian Coast
- Subdivisions (assessed by IPMA):
  - Portugal mainland
  - Extended continental shelf subdivision



Adapted from: Relatorio do 2º ciclo de implementação das Estratégias Marinhas. Parte A (MM, 2020).

Adapted from: DGRM, adaptado (Fonte: adaptado de Agência Europeia do Ambiente, 2017)

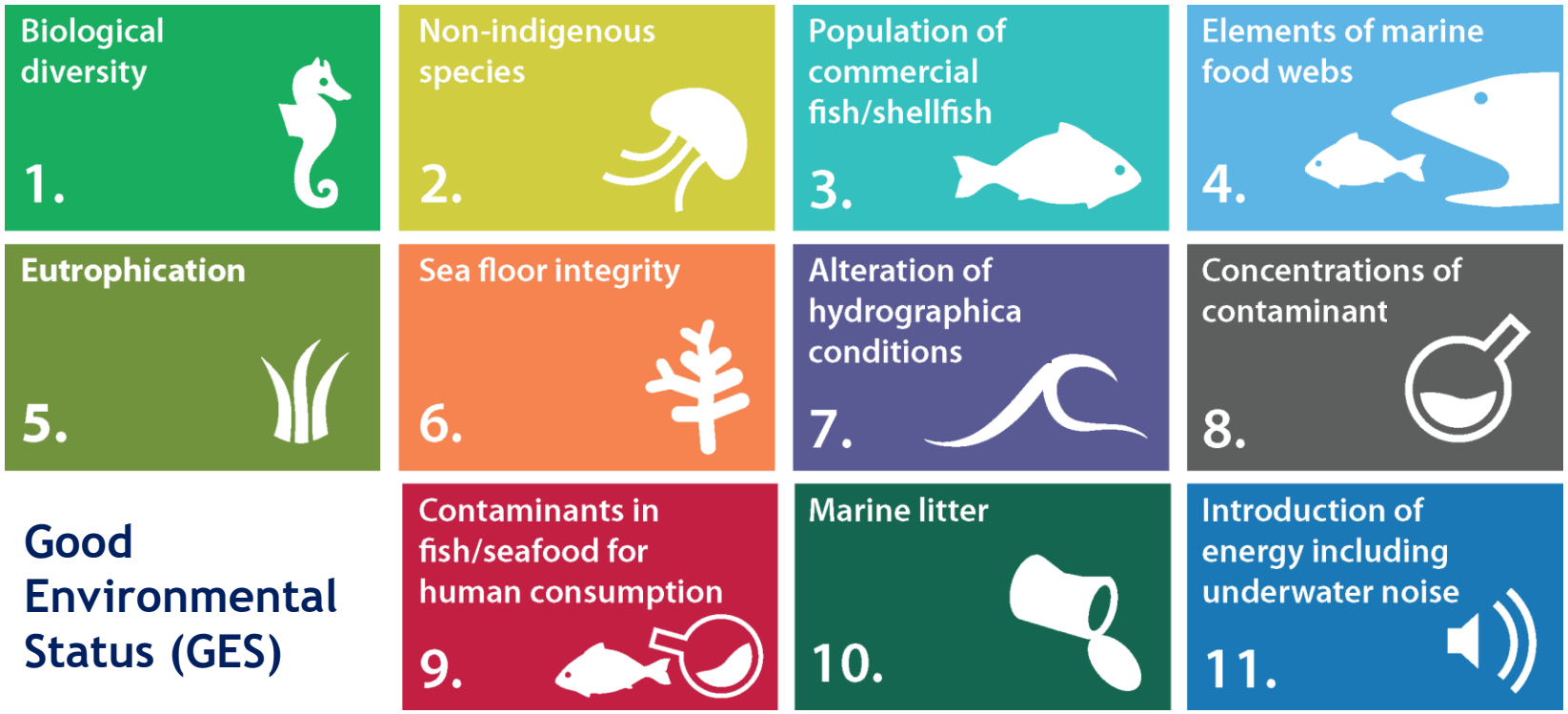
MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD)



- Caracterization and assessment of GES (IPMA + other institutions)
- Analysis of impacts and pressures(DGRM + other institutions)
- Economic and social analysis (DGPM)

Revision every 6 years

MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD)



Adapted from OSPAR

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DESCRIPTOR 1

Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.

IPMA

Biological diversity

1.

- Teresa Moura

D1 - BIODIVERSITY

Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.

Themes

- Theme Species groups of birds, mammals, reptiles, fish and cephalopods (relating to Descriptor 1)
- Pelagic habitats (relating to Descriptor 1)
- Benthic habitats (relating to Descriptors 1 and 6) → D6
- Ecosystems, including food webs (relating to Descriptors 1 and 4) → D4

D1 - BIODIVERSITY

Ecosystem component	Species groups
Birds	Grazing birds Wading birds Surface-feeding birds Pelagic-feeding birds Benthic-feeding birds
Mammals	Small toothed cetaceans Deep-diving toothed cetaceans Baleen whales Seals
Reptiles	Turtles
Fish	Coastal fish Pelagic shelf fish Demersal shelf fish Deep-sea fish
Cephalopods	Coastal/shelf cephalopods Deep-sea cephalopods

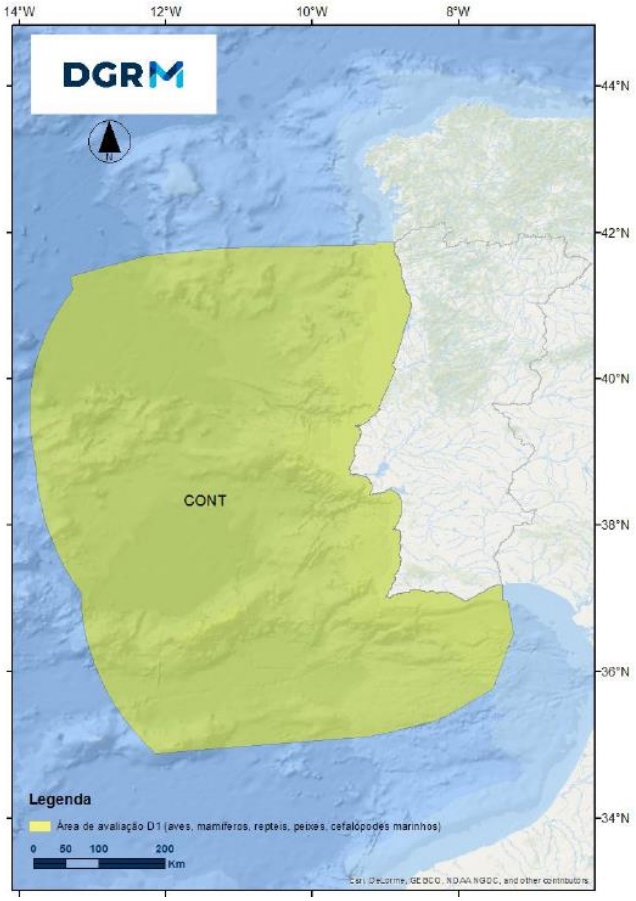
- Select of relevant species from each relevant group; may include comercial species assessed under D3

D1 - BIODIVERSITY

Criteria	Description
D1C1	The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long- term viability is ensured.
D1C2	The population abundance of the species is not adversely affected due to anthropogenic pressures, such that its long-term viability is ensured.
D1C3	The population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity, and survival rates) of the species are indicative of a healthy population which is not adversely affected due to anthropogenic pressures.
D1C4	The species distributional range and, where relevant, pattern is in line with prevailing physiographic, geographic and climatic conditions.
D1C5	The habitat for the species has the necessary extent and condition to support the different stages in the life history of the species.

- Primary/ secondary criteria depneding on the ecosystem component

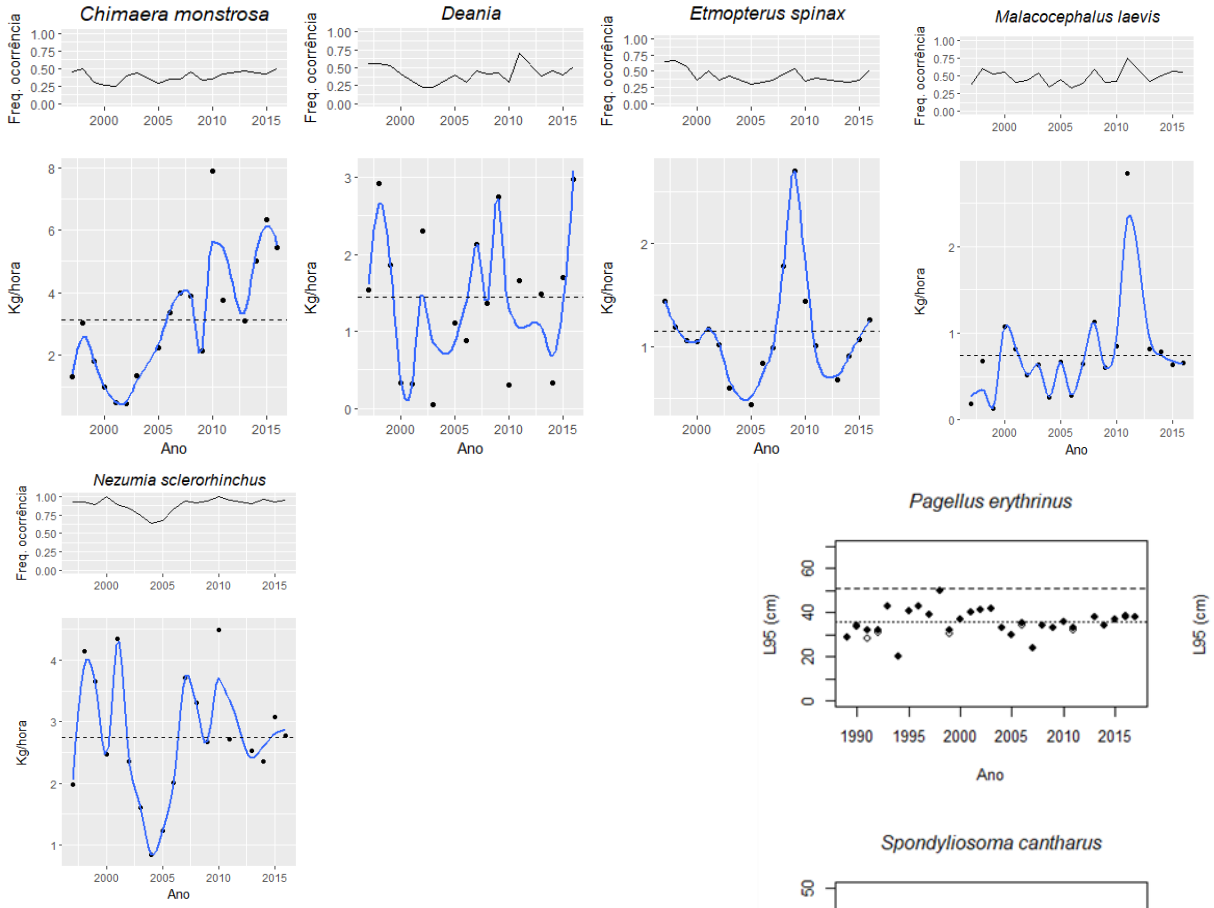
D1 - BIODIVERSITY



Adapted from DGRM, Relatório do 2º ciclo da DQEM

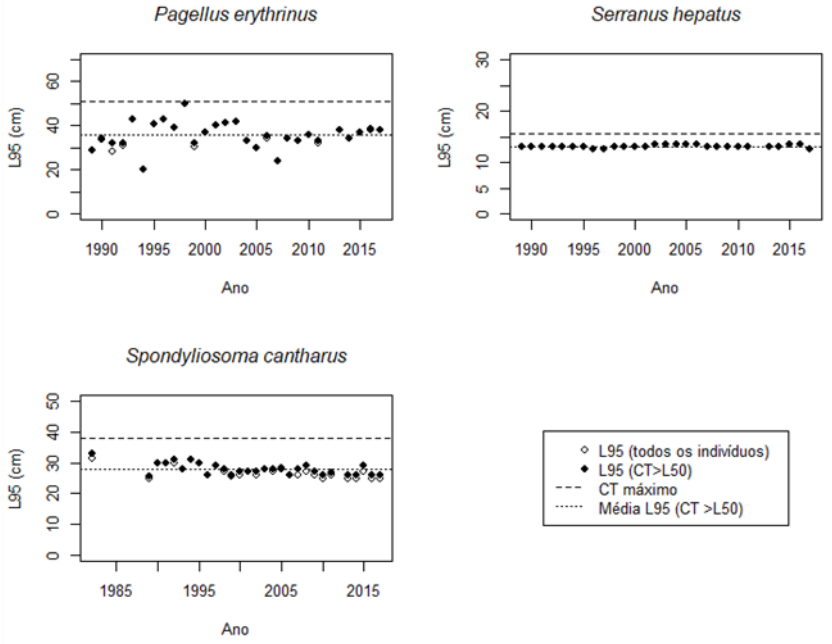
- Assessment area: EEZ
- D1C2 – Biomass – Assessed
- D1C3 – L_{95} (The 95th percentile of a length distribution; not assessed but information presented)
- Source of information: PNAB/DCF
  - demersal (1981- 2017) – coastal and demersal species
  - crustacean surveys (1997-2016) – demersal and deep-water species

D1 - BIODIVERSITY



D1C2- Mean biomass

- *Breakpoint analysis*
- Trend in the last 5 years



D1C3 – L_{95}

D1 - BIODIVERSITY

PEIXES	Elemento	EE	BEA
Peixes costeiros	*Callionymus lyra*		
	Diplodus vulgaris	C	
	Mullus surmuletus	E	
	Pagellus acarne	C	
	Pagellus erythrinus		
	Serranus hepatus		
	Spondyliosoma cantharus		
Peixes pelágicos	*Boops boops**	C	
	Capros aper		
	*Engraulis encrasicolus**	C	
	*Sardina pilchardus**		
	*Scomber colias**	C	
Peixes demersais	*Argentina sphyraena*		
	Gadiculus argenteus		
	*Lepidorhombus boscii**		
	Lepidotrigla spp.		
	*Leucoraja naevus**	C	
	*Lophius budegassa**		
	*Merluccius merluccius**		
	Microchirus variegatus		
	*Micromesistius poutassou**		
	*Raja clavata**	C	
	*Scomber scombrus**		
	*Scyliorhinus canicula**	C	
	*Trachurus picturatus**	D	
	*Trachurus trachurus**		
	*Zeus faber**	C	
Peixes de profundidade	*Chimaera monstrosa*		
	Deania spp.		
	Etmopterus spinax		
	Galeus melastomus	C	
	Malacocephalus laevis		
	Nezumia sclerorhynchus		
	*Phycis blennoides**	E	

* Species assessed under D3

FISH

- GES assessed only for species groups with >3 species assessed
- Species and D3 assessments were included

Achieved

Not achieved

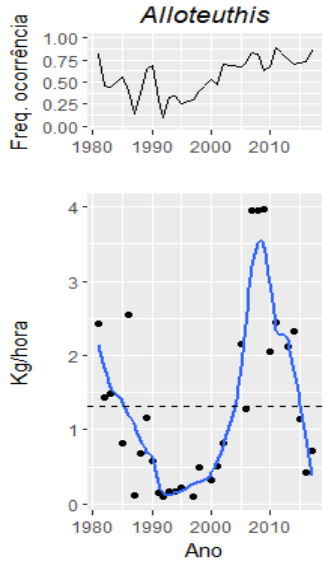
Not assessed

D1 - BIODIVERSITY

CEPHALOPODS

CEFALÓPODES	Elemento	EE	BEA
Costeiros/plataforma	*Alloteuthis* spp.		
	*Loligo vulgaris**	C	
	*Octopus vulgaris**	C	
	Sepia officinalis	C	
Profundidade	*Eledone cirrhosa*		
	Illex coindetii		
	Todaropsis eblanae		

* Species assessed under D3



D1 - BIODIVERSITY

Considerations

The last assessment reflects (for fish and cephalopods):

- ❖ Lack of standardized methodologies for the assessment of GES
- ❖ Lack of thresholds for some criteria

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DESCRIPTOR 3

Populations of all commercially-exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock

IPMA

Population of commercial fish/shellfish

3.

- Patrícia Gonçalves

D3 – COMMERCIAL FISH/SHELFISH

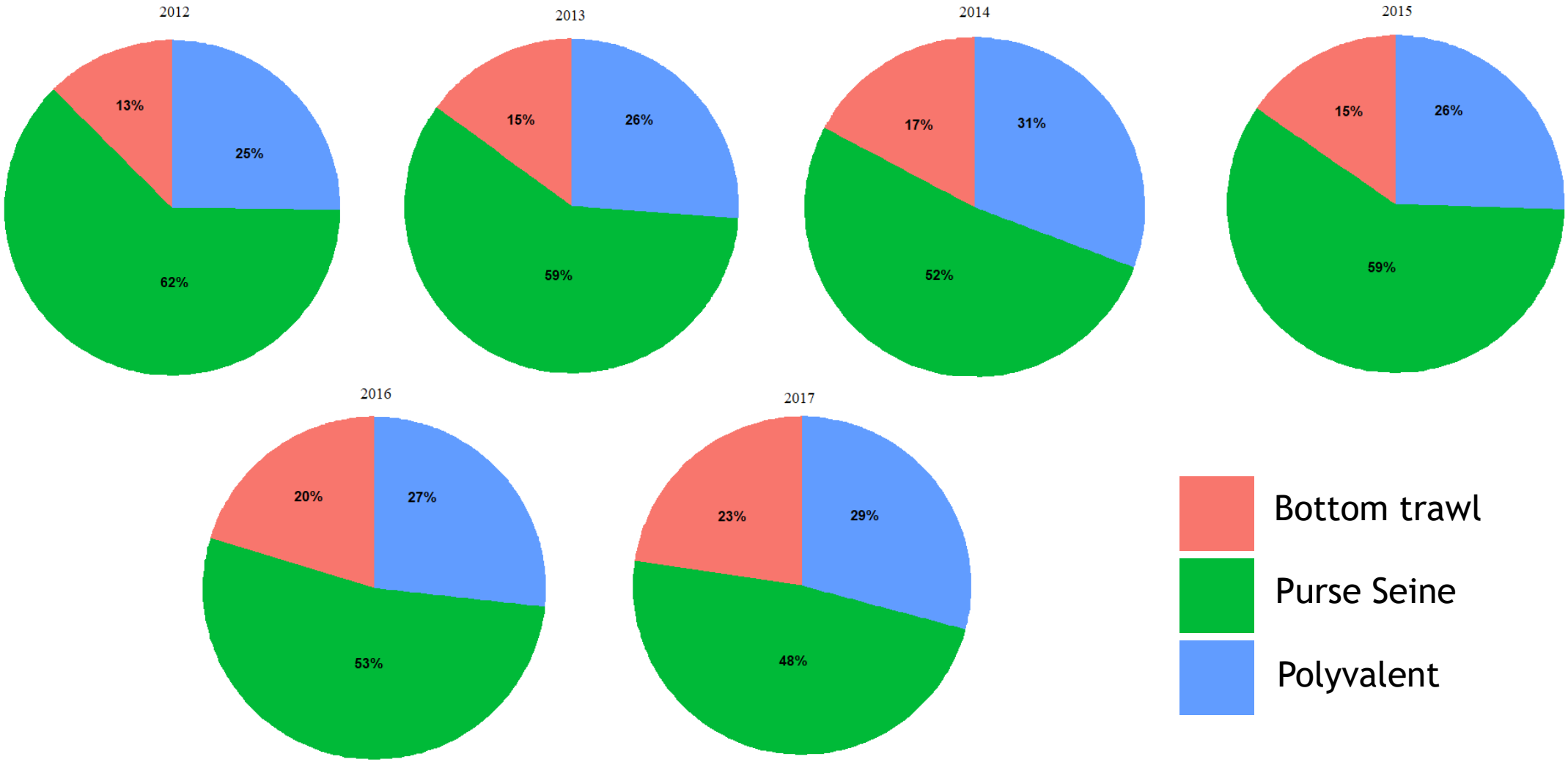
What are commercially exploited fish?

Commercially exploited fish and shellfish are all living marine resources targeted for economic profit such as the bony fish, sharks and rays (known as elasmobranchs), crustacean such as lobsters and shrimps, and molluscs (including bivalves and cephalopods).

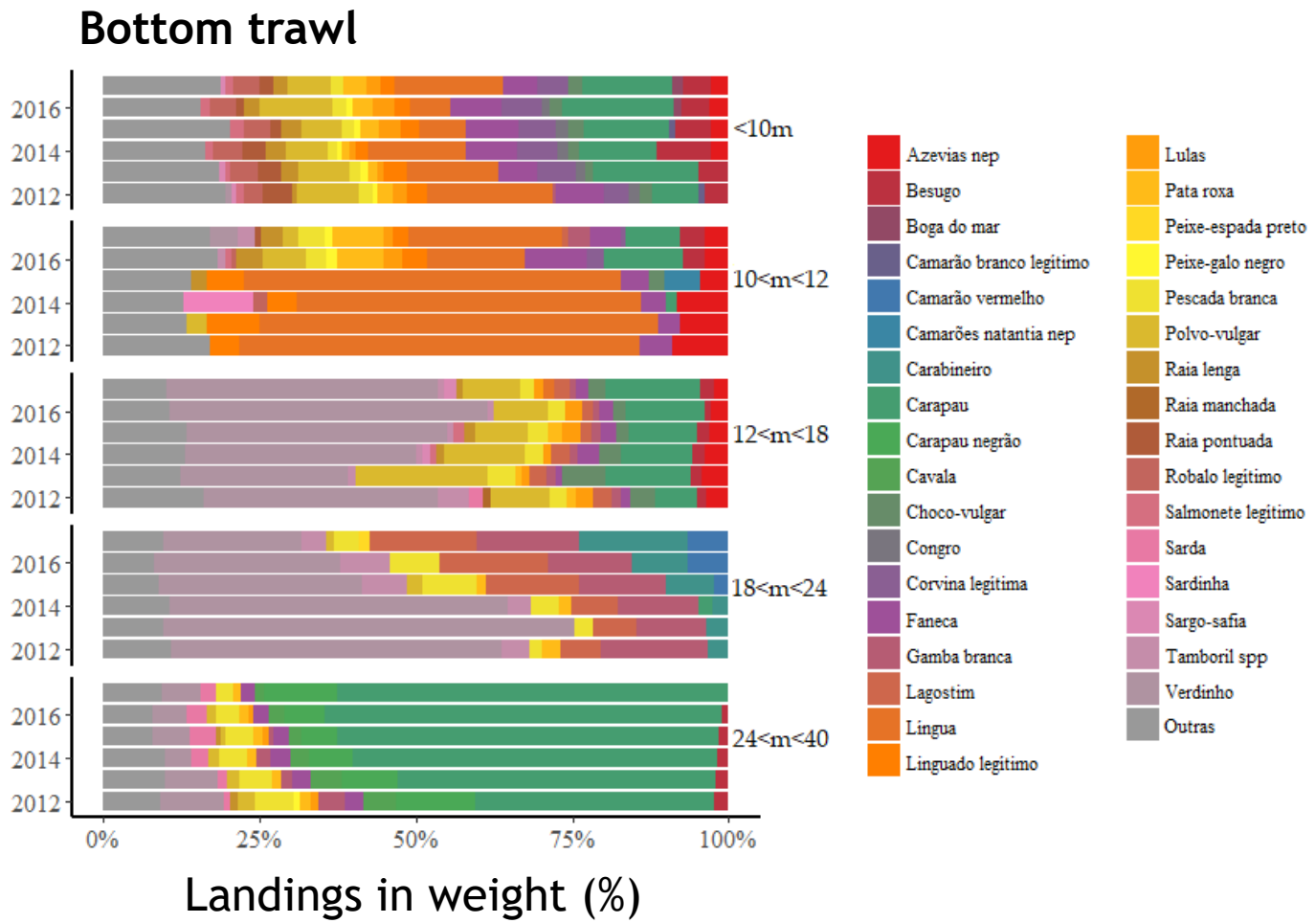
Source: Cascais fish market

Source: Cascais fish market

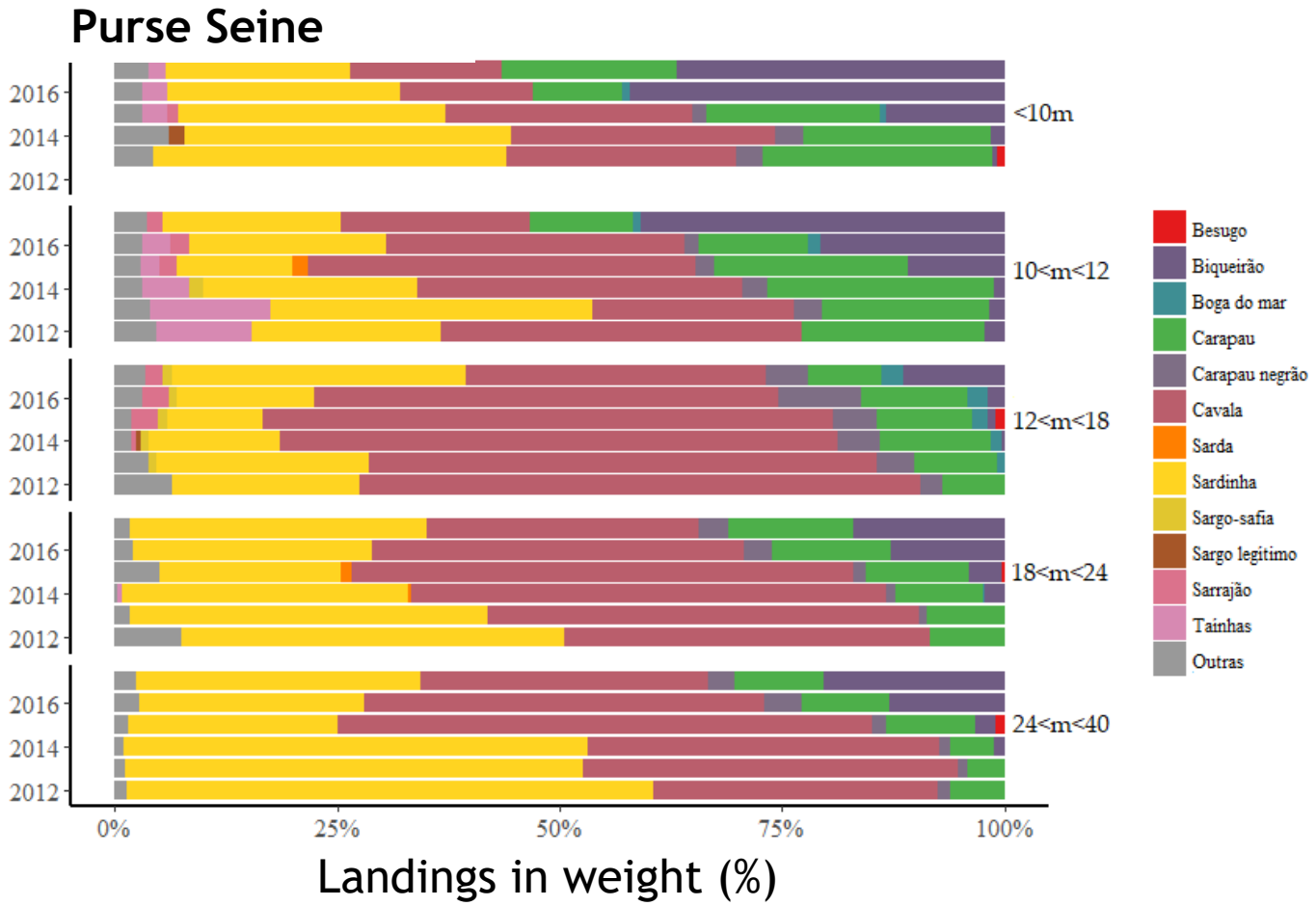
Landings by fishing fleet (2012-2017) (%) – Portugal mainland



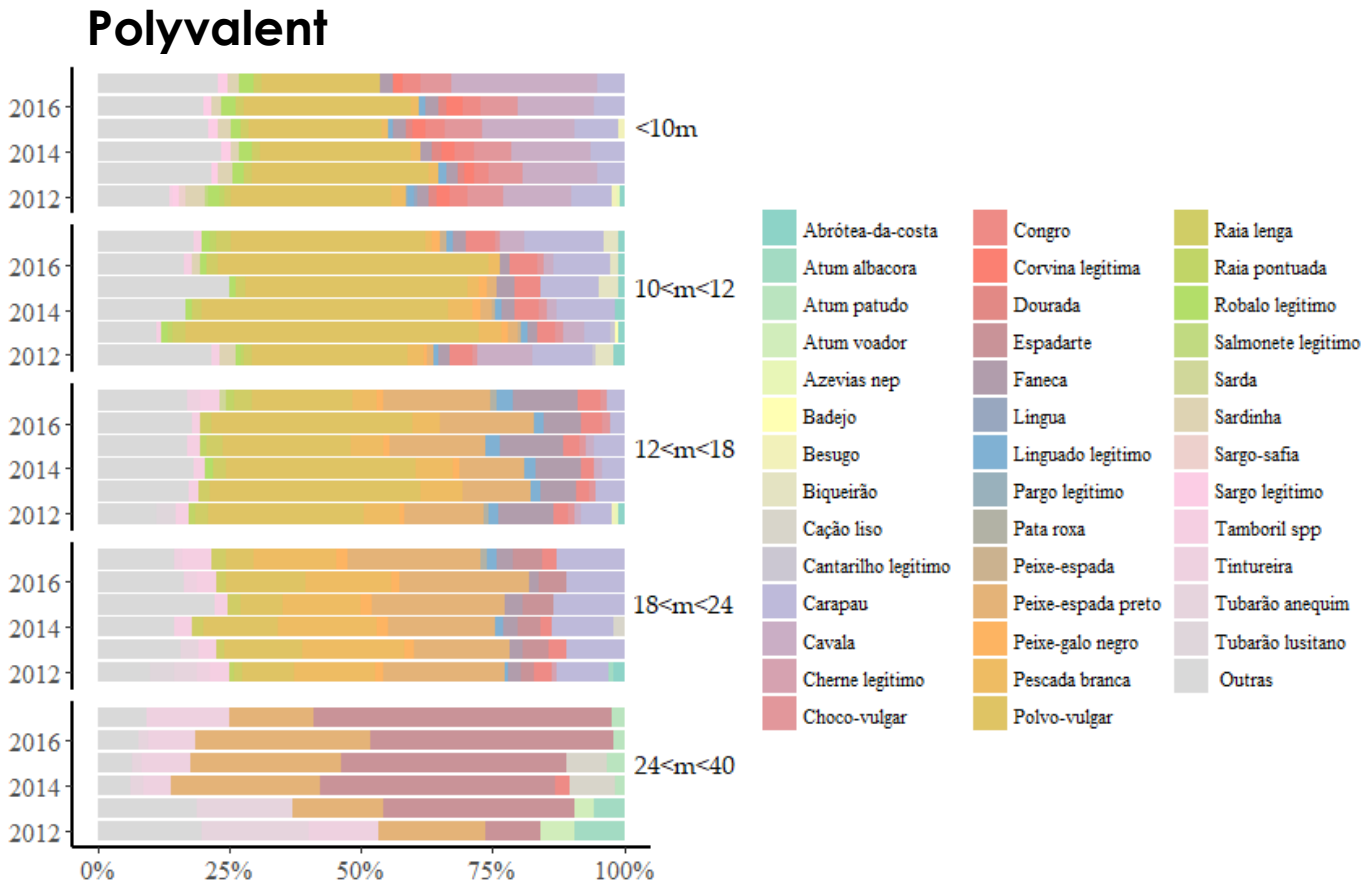
Species composition on landings by fishing fleet and by fishing segment (2012-2017) (%) – Portugal mainland



Species composition on landings by fishing fleet and by fishing segment (2012-2017) (%) – Portugal mainland



Species composition on landings by fishing fleet and by fishing segment (2012-2017)(%) – Portugal mainland



HOW TO DETERMINE GES FOR D3?

- Criteria (**D3C1**, **D3C2, D3C3**) – Comission Decision (EU) 2017/848

D3C1— Primary:
The *Fishing mortality* rate of populations of commercially-exploited species is at or below levels which can produce the maximum sustainable yield (MSY).

D3C2— Primary:
The *Spawning Stock Biomass* of populations of commercially-exploited species are above biomass levels capable of producing maximum sustainable yield.

D3C3— Primary:
The *age and size distribution* of individuals in the populations of commercially-exploited species is indicative of a healthy population.

Sources of data/information used on D3 GES assessment:
Landings data(DGRM);
PNAB-DCF (IPMA): estimated discards, Demersal Surveys (PT-IBTS) (1990-2017), Crustacean survey (1998-2016), Acoustic survey (1986-2016), species data from regular biological sampling (onboard, harbour, lab, surveys);
Bivalves survey (IPMA).

Assessment classification (Stocks assessed at ICES and ICCAT)

Criteria	Classification levels at GES*	
D3C1 *Fishing mortality rate*	$F \leq F_{pa}$ $F/F_{MSY} < F_{lim}$	$F > F_{pa}$ $F/F_{MSY} > F_{lim}$
D3C2 *Spawning Stock Biomass*	$SSB \geq MSY\ B_{trigger}$ $SSB/B_{MSY} > MSY\ B_{trigger}$	$SSB < MSY\ B_{trigger}$ $SSB/B_{MSY} < MSY\ B_{trigger}$
D3C3 *Age and size distribution*	n.d.	n.d.

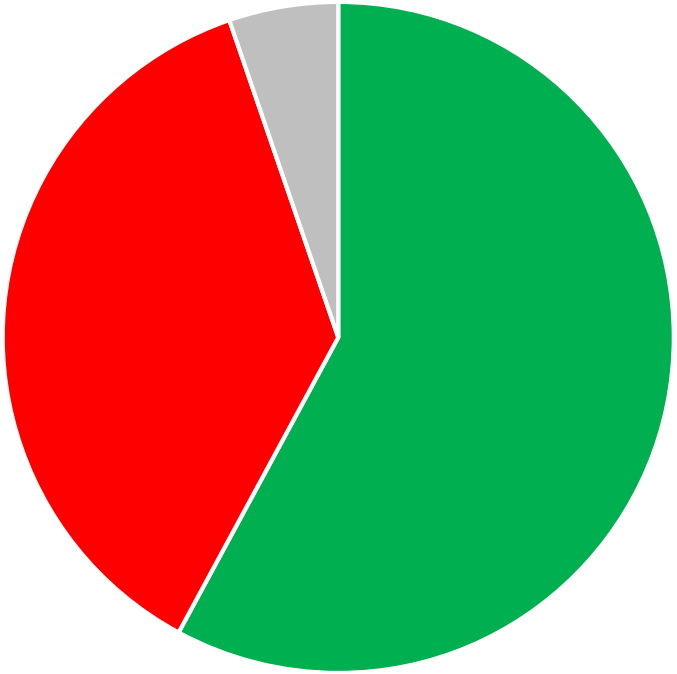
* based on biological reference levels

GES Acheived

GES Not-acheived

n.d. – not developed

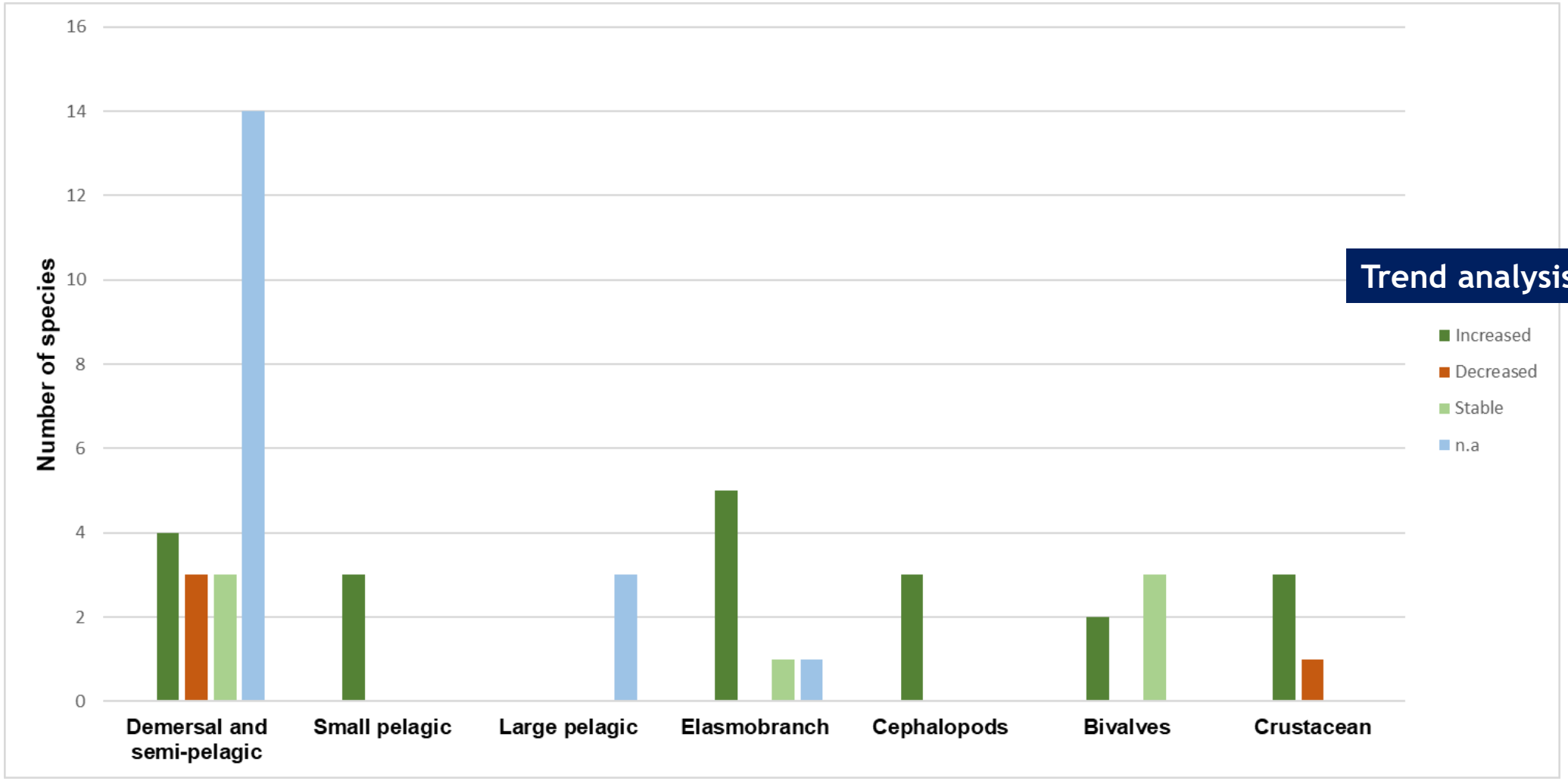
Final assessment (Stocks assessed at ICES and ICCAT – with biological reference levels defined)



GES acheived | GES not-acheived | Not assessed (?)

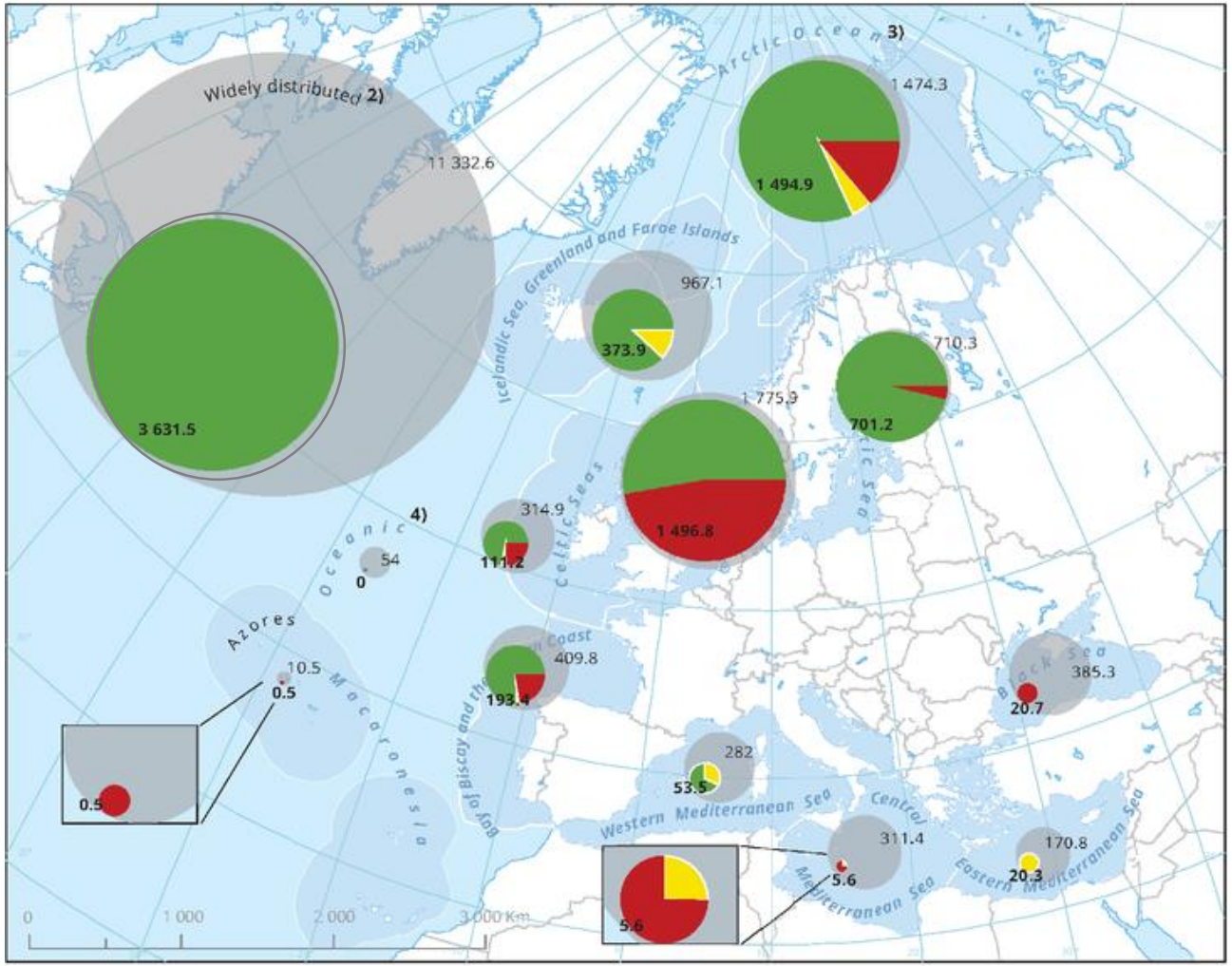
Species scientific name	FAO-spp code	D3C1	D3C2	GES
Lepidorhombus whiffiagonis	MEG	✓	✓	
Lepidorhombus boscii	LDB	✓	✓	
Merluccius merluccius	HKE	✓	✓	
Lophius piscatorius	MON	✓	✓	
Tamboril preto	ANK	✓	✓	
Lophius budegassa	HOM	✓	✓	
Scomber scombrus	MAC	✓	✓	
Sardina pilchardus	PIL	✗	✗	
Micromesistius poutassou	WHB	✓	✓	
Thunnus albacares	YFT	✓	✗	
Thunnus obesus	BET	✗	✗	
Thunnus thynnus	BFT	✓	?	
Thunnus alalunga	ALB	✓	✓	
Xiphias gladius	SWO	✓	✓	
Makaira nigrican	BUM	✗	✗	
Kajikia albida	WHM	✓	✗	
Istiophorus albicans	SAI	✗	✗	
Prionace glauca	BSH	✓	✓	
Isurus oxyrinchius	SMA	✗	✗	

Final assessment (Stocks assessed without biological reference levels defined) – Portugal mainland



n.a – not assessed

D3 – COMMERCIAL FISH/SHELFISH



Source:European Environment Agency (EEA)

Landings of commercial fish and shellfish per EU marine region, and proportion of landings for which stock assessments were conducted in 2016-2018

Landings of assessed stocks (kilotonnes)

Total landings (kilotonnes)

- Assessed stocks for which **adequate** information is available to determine GES for F and SSB [1)]
- Assessed stocks for which **insufficient** information is available to determine GES for F or SSB
- Assessed stocks for which the available information on both F and SSB is **insufficient** to determine GES

Notes:

1) "GES": Good Environmental Status
"F": Fishing mortality
"SSB": Spawning Stock Biomass

2) "Widely Distributed" includes stocks that cover more than 3 ecoregions. This includes primarily large stocks of highly migratory small pelagic species.

3) "Arctic Ocean": The mismatch is due to the fact that the landings of assessed stocks come from the assessments whereas the total landings come from the Official Catch Statistics.

4) "Oceanic" includes official catches from ICES Statistical Areas 27.10.a.1, 27.10.b, 27.12.c, 27.12.a.1, 27.14.b.1, 27.12.b, 27.6.b.1, 27.7.c.1, 27.7.k.1, 27.8.e.1, 27.8.d.1, 27.9.b.1.

This figure shows the 2017 landings of commercially exploited fish and shellfish per EU marine region (although for the Mediterranean and Black seas data refers to 2016), and the proportions of landings for which stock assessments were conducted in 2016-2018.

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DESCRIPTOR 10

Properties and quantities of marine litter do not cause harm to the coastal and marine environment

IPMA

Marine litter

10.

- Clara Lopes

MARINE LITTER

- Consists of items that have been deliberately discarded, unintentionally lost, or transported by winds and rivers, into the sea and on beaches. It mainly consists of plastics, wood, metals, glass, rubber, clothing and paper.
- Land-based sources account for up to 80% of marine litter – these include tourism, sewage and illegal or poorly managed landfills. The main sea-based sources are shipping and fishing.

HOW TO DETERMINE GES FOR D10?

- Criteria (**D10C1**, **D10C2**) – Comission Decision (EU) 2017/848

The composition, amount and spatial distribution of litter and microlitter on:

the coastline

the surface layer of the water column

the seabed

are at levels that do not cause harm to the coastal and marine environment.

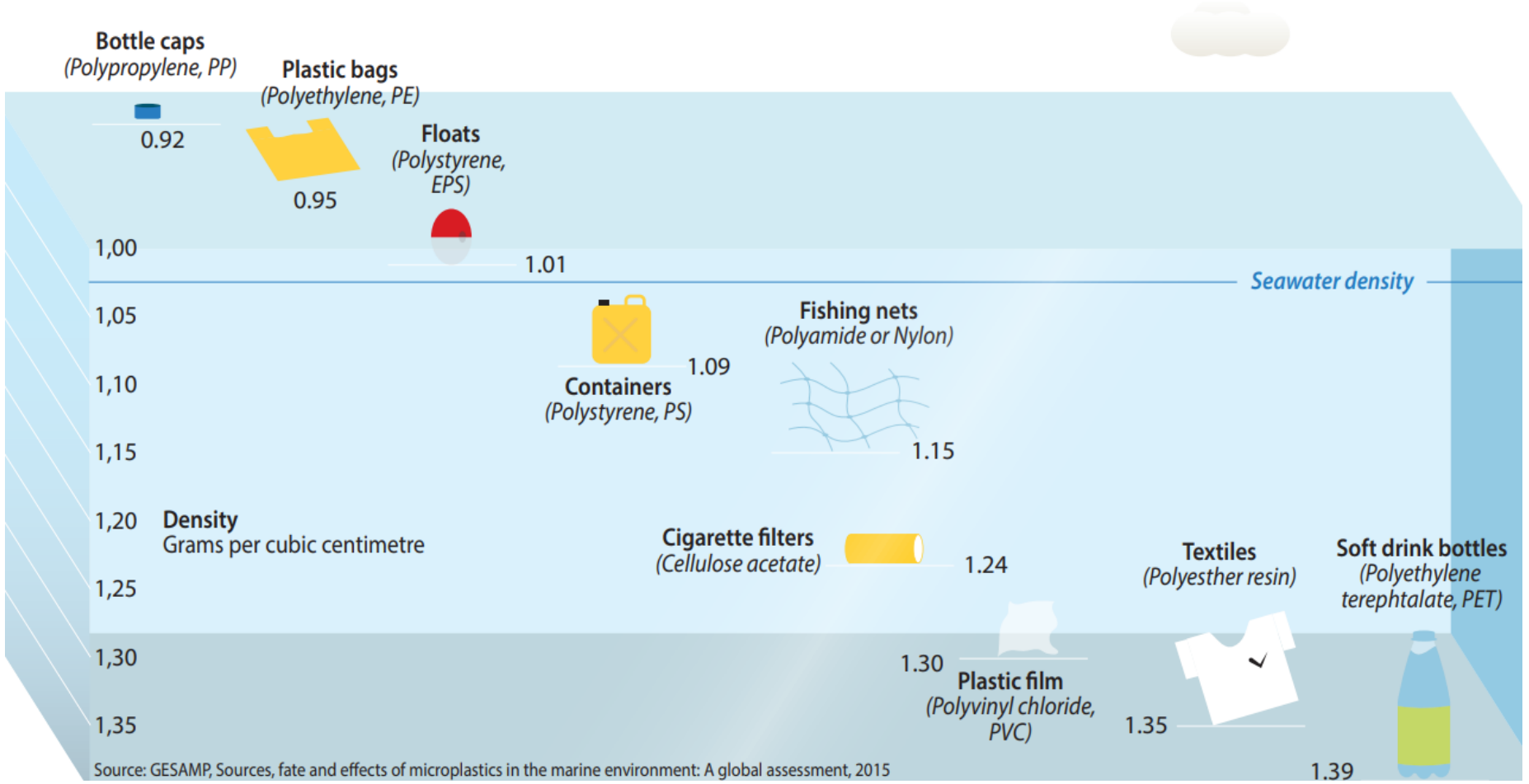
HOW TO DETERMINE GES FOR D10?

- Criteria (**D10C3**, **D10C4**) – Comission Decision (EU) 2017/848

The amount of litter and microlitter ingested by marine animals is at level that does not adversely affect the health of the species concerned.

The number of individuals of each species which are adversely affected due to litter, such as by entanglement.

WHICH PLASTICS FLOAT AND WHICH SINK IN SEAWATER?



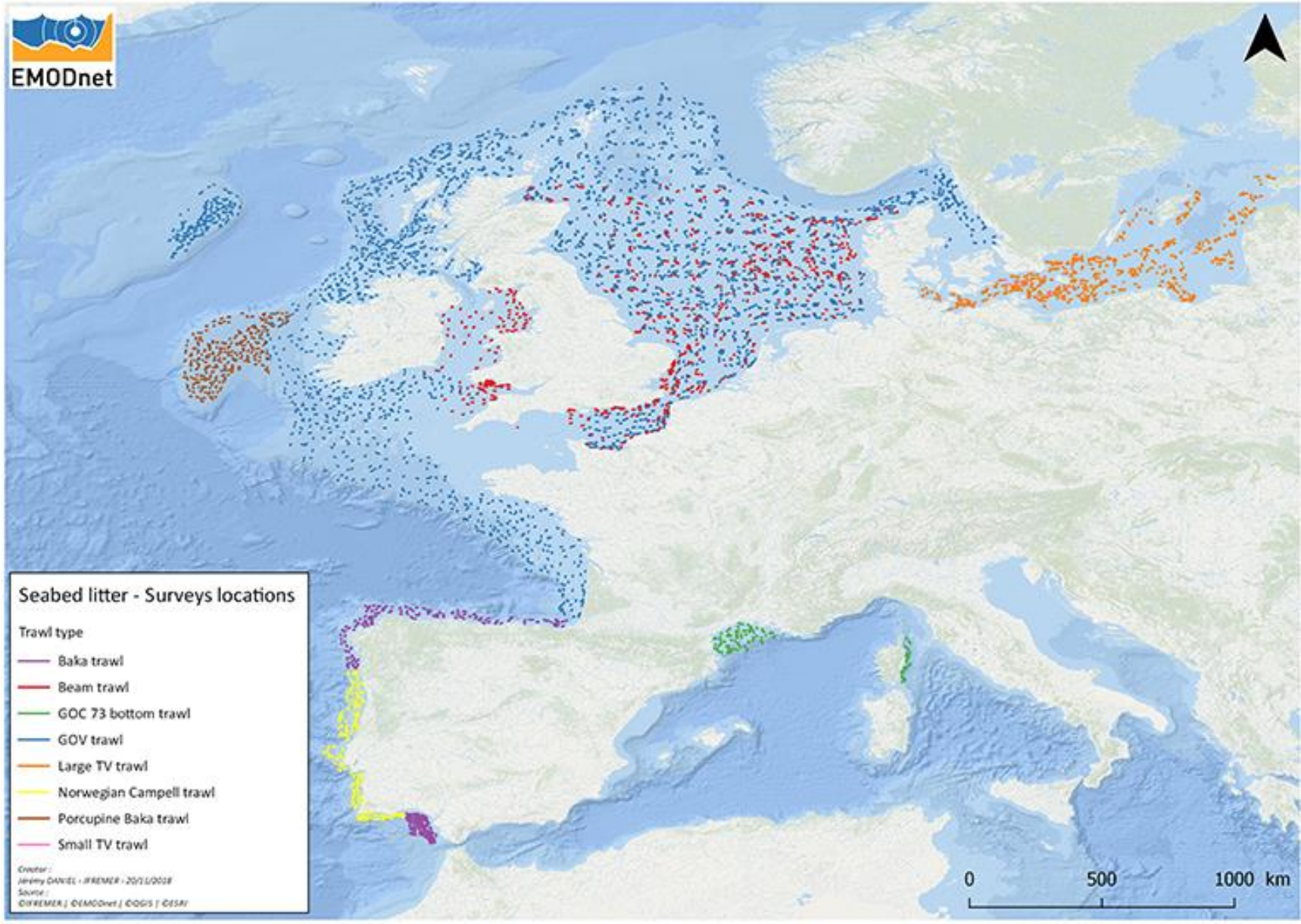
SEAFLOOR LITTER OF EUROPEAN SEAS

Monitoring Method

- OSPAR CEMP Guidelines on Litter on the Seafloor
- Guidance on Monitoring of Marine Litter in European Seas [from TG Litter]

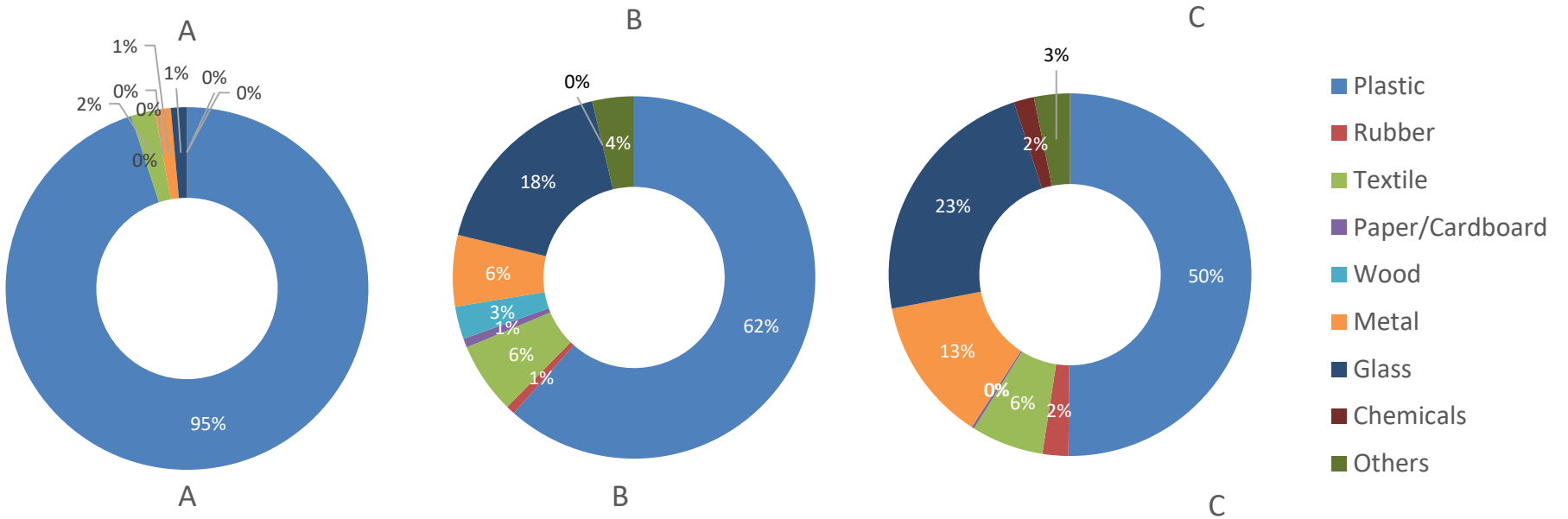
Portugal

- Seafloor litter is collected and recorded by IPMA during bottom trawls surveys along the Portuguese continental coast (PNAB-DCF)

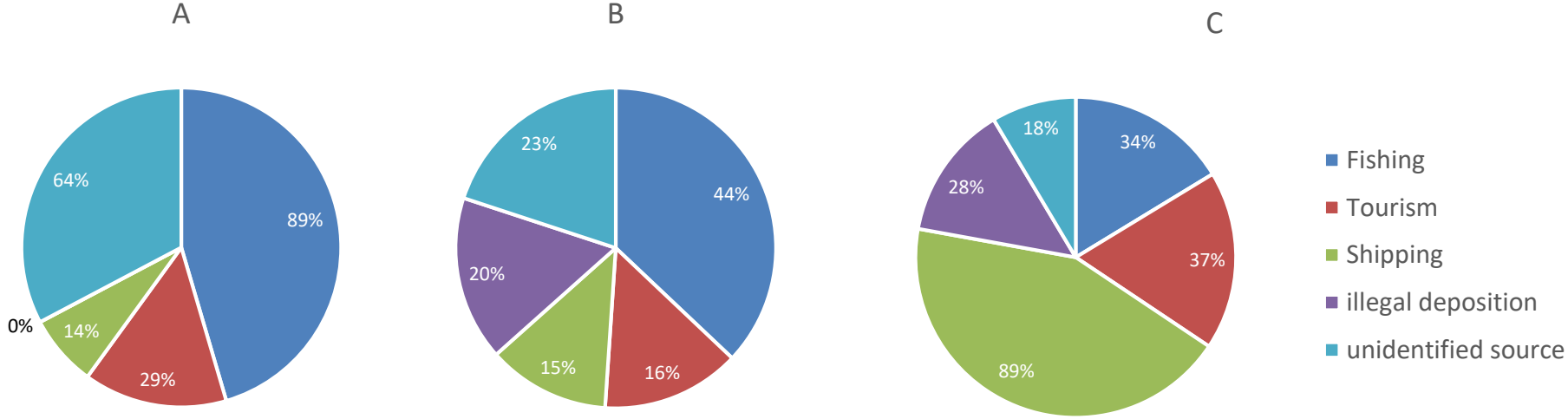


SEAFLOOR LITTER ALONG THE PORTUGUESE COAST (2013-2017)

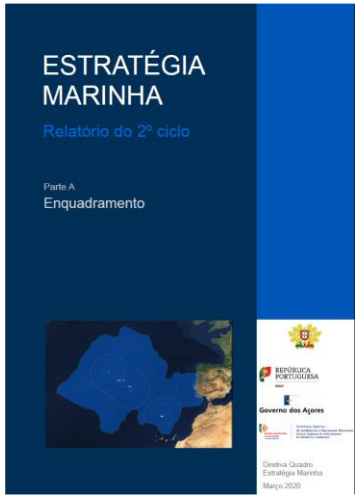
Categories

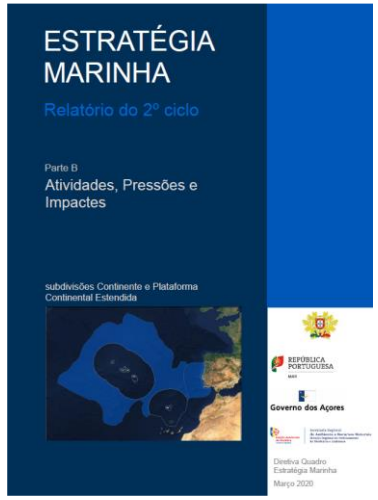


Sources



MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD) FINAL REPORT:





http://cdr.eionet.europa.eu/pt/eu/msfd_art17/2018reporting/textreport/