

CleanAtlantic

Tackling marine litter in the Atlantic Area

Nuevas herramientas para monitorizar la basura marina

Dr. Jesús Gago. IEO





La basura marina es una importante amenaza para el medio marino

(Playa de Ladeira, Bayona)

Un informe global indica que la **sexta extinción masiva** de especies está en marcha





Las fuentes pueden ser tanto terrestres como marinas (pesca, transporte marítimo, etc)

La “zapatería” de la playa

Mare Plasticum,
W. Trettnak,
arsciencia ©



World Oceans day 2018

Preventing [plastic pollution](#) and encouraging solutions for a healthy ocean.





IMPACTOS ECONÓMICOS



OCEANS OF PLASTICS

IMPACTO MACROPLÁSTICOS

Los plásticos, cuando llegan al mar, tardan mucho en degradarse, o no se degradan. Debido a la mala gestión de estos residuos, unos **8 millones de toneladas de plásticos** acaban en los mares y océanos cada año.

Llamamos **plásticos macroscópicos** a aquellos visibles y apreciables, con un tamaño **mayor a los 5 mm de diámetro**. El impacto que pueden producir sobre los organismos marinos es muy grave.

Los impactos principales son:

- Enmalle
- Estrangulamiento
- Asfixia
- Ingestión
- Bioacumulación de sustancias químicas asociadas
- Transporte de especies invasoras
- Degradación de hábitats
- Impactos económicos



CAMPUS DO MAR



FUNDACIÓN ESPAÑOLA
PARA LA CIENCIA
Y LA TECNOLOGÍA

Con la colaboración de la Fundación Española para la Ciencia y la Tecnología - Ministerio de Economía, Industria y Competitividad





Seabed Litter List of Categories & items

A: Plastic	B: Metals		
A1. Bottle	B1. Cans (food)		
A2. Sheet	B2. Cans (beverage)		
A3. Bag	B3. Fishing related		
A4. Caps/ lids	B4. Drums		
A5. Fishing line (monofilament)	B5. appliances		
A6. Fishing line (entangled)	B6. car parts		
A7. Synthetic rope	B7. cables		
A8. Fishing net	B8. other		
A9. Cable ties			
A10. Strapping band			
A11. crates and containers			
A12. diapers			
A13. towel/tampon			
A14. other			
C: Rubber	D: Glass/ Ceramics	E: Natural products	F: Miscellaneous
C1. Boots	D1. Jar	E1. Wood (processed)	F1. Clothing/ rags
C2. Balloons	D2. Bottle	E2. Rope	F2. Shoes
C3. bobbins (fishing)	D3. piece	E3. Paper/ cardboard	F3. other
C4. tyre	D4. other	E4. pallets	
C5. Glove		E5. other	
C6. other			

Related size category

A: <5*5 cm= 25 cm²
 B: <10*10 cm= 100 cm²
 C: <20*20 cm= 400 cm²
 D: <50*50 cm= 2500 cm²
 E: <100*100 cm= 10000 cm²= 1 m²
 F: >100*100 cm = 10000 cm²= 1 m²

IBTS protocol
6 categories
39 sub categories

MEDITS protocol
7 categories
27 sub categories

CRUISE/CAMPAIGN:	DATE:	HAUL:	RESPONSIBLE:
LITTER_CATEGORY	Number	Weight	OBSERVATIONS
L0 No litter			
L1a. Plastic bags			
L1b. Plastic bottles			
L1c. Plastic food wrappers			
L1d. Plastic sheets			
L1e. Hard plastic objects			
L1f. Fishing nets (polymers)			
L1g. Fishing lines (polymers)			
L1h. Other synthetic fishing related			
L1i. Synthetic ropes/strapping bands			
L1j. Others plastic			
L1 TOTAL PLASTIC			
L2a. Tyres			
L2b. Other rubber (gloves, floats, etc.)			
L2 TOTAL RUBBER			
L3a. Beverage cans (metal)			
L3b. Other food cans/wrappers			
L3c. Middle size containers (paint, etc.)			
L3d. Large metallic objects			
L3e. Cables			
L3f. Fishing related (hooks, spears, etc.)			
L3g. remnant from the war			
L3 TOTAL METAL			
L4a. Glass/ceramic bottles			
L4b. Pieces of glass			
L4c. Ceramic jars			
L4d. Large objects			
L4 TOTAL GLASS/ CERAMIC			
L5a. Clothing (other than polymers)			
L5b. Large pieces (carpets, etc.)			
L5c. Natural fishing ropes			
L5d. Sanitaries (non polymers)			
L5 TOTAL TEXTILES / NATURAL FIBERS			
L6 TOTAL Wood processed			
L7 TOTAL Paper and cardboard			
L8 TOTAL Other			
L9 TOTAL UNSPECIFIED			
TOTAL LITTER			
TOTAL FISHING GEARS (L1 f to i; L3f, L5c)			
START POSITIONS :			
END POSITIONS			

**PLÁSTICOS
DUN SÓ
USO**

**LIXO
DE PRAIA**

Os 10 máis frecuentes en praias europeas*



Pallas e axitadores



Envases de comida



Bastonciños dos oídos



Vasos e as súas tapas



Cabichas



Bolsas



Toallinas húmidas



Tapóns e tapas



Botellas



Cubertos

* Adaptado de: Anna Maria Addamo, Perrine Laroche, Georg Hanke, Top Marine Beach Litter Items in Europe. EUR 29249 EN, Publications Office of the European Union, Luxembourg, 2017.

Adaptation of fisheries observer working protocol



ESTADILLO BASURAS

Codificación: Mares

Nº Lanzas

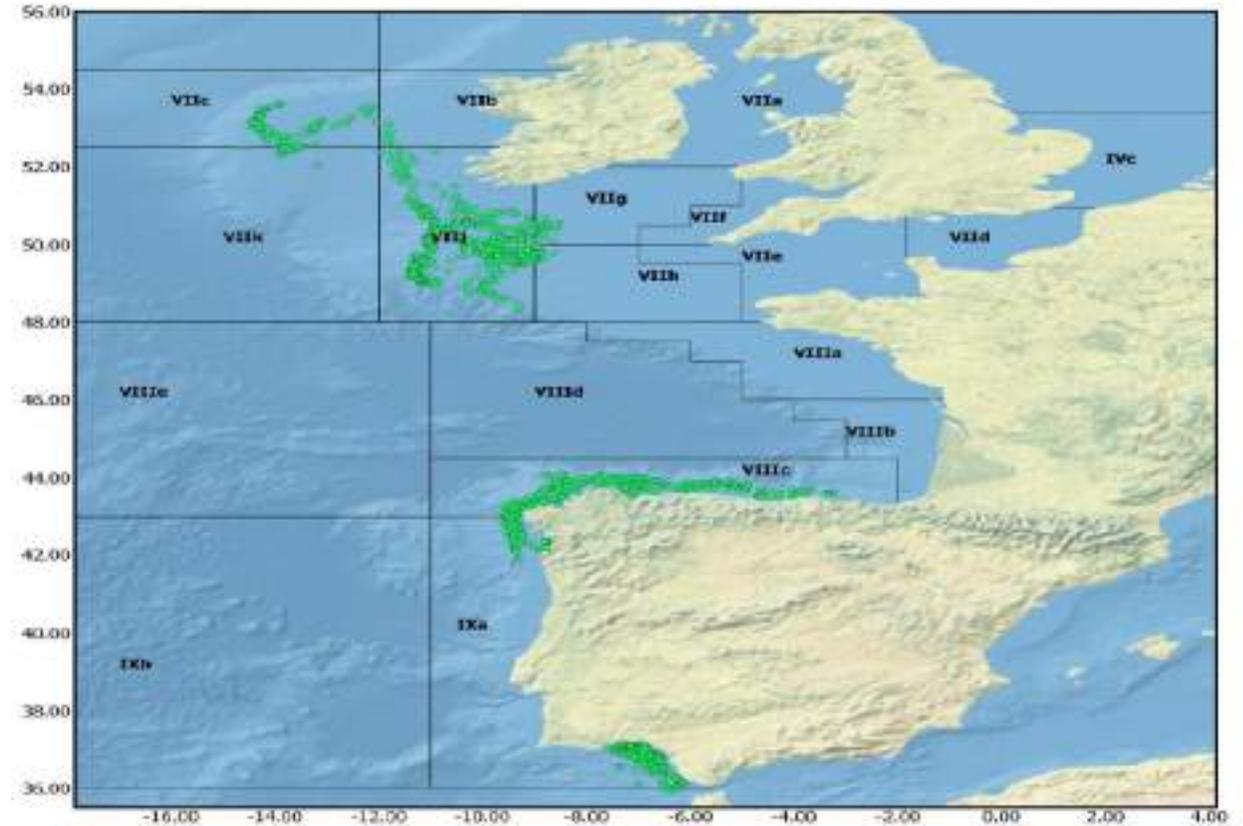
Fecha

Código	Tipo	Artículo	Cantidad	Tamaño
A	Plástico			
A.1		Botella		B D T A
A.2		Lámina		
A.3		Soles		
A.4		Tapón		
A.5		Línea de pesca (monofilamento)		
A.6		Línea de pesca (trenzada)		
A.7		Cabo sintético		
A.8		Red de pesca		
A.9		Brida		
A.10		Cinta de embalaje		
A.11		Cajas y contenedores		
A.12		Pañal		
A.13		Compresión		
A.14		Otro		
B	Metal			
B.1		Latas (Comida)		
B.2		Latas (Bebida)		
B.3		Relacionado con la pesca		
B.4		Bidones		
B.5		Aparatos/electrodomésticos		
B.6		Partes de coches		
B.7		Cables		
B.8		Otro		
C	Goma			
C.1		Botas		
C.2		Globos/Bayas		
C.3		Bebinas (pesca)		
C.4		Neumáticos		
C.5		Guantes		
C.6		Otro		
D	Vidrio/Cerámica			
D.1		Tarro		
D.2		Botella		
D.3		Trozo		
D.4		Otro		
E	Producto Natural			
E.1		Madera (procesada)		
E.2		Cuerdas		
E.3		Papel/cartón		
E.4		Pele		
E.5		Otro		
F	Variado			
F.1		Reparatijos		
F.2		Zapatos		
F.3		Otro		

Tamaño

A	<5*5 cm = 25 cm ²
B	= 10*10 cm = 100 cm ²
C	<20*20 cm = 400 cm ²
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F	>100*100 cm = 10 000 cm ² = 1 m ²

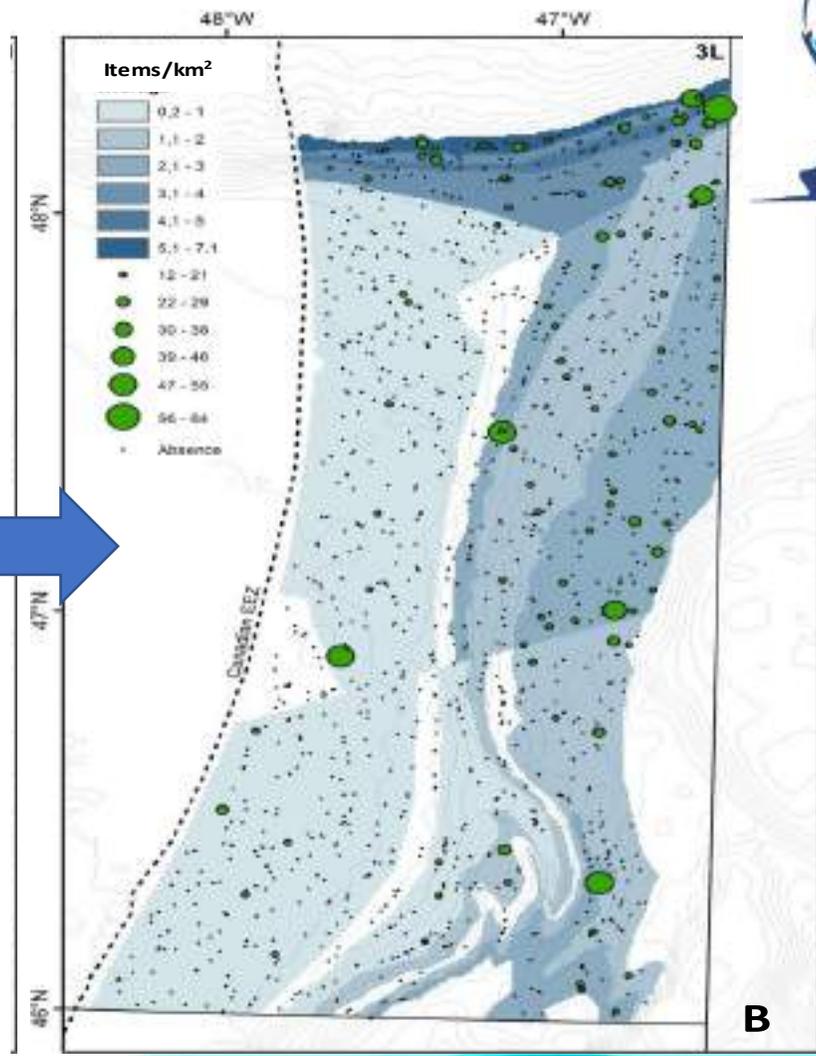
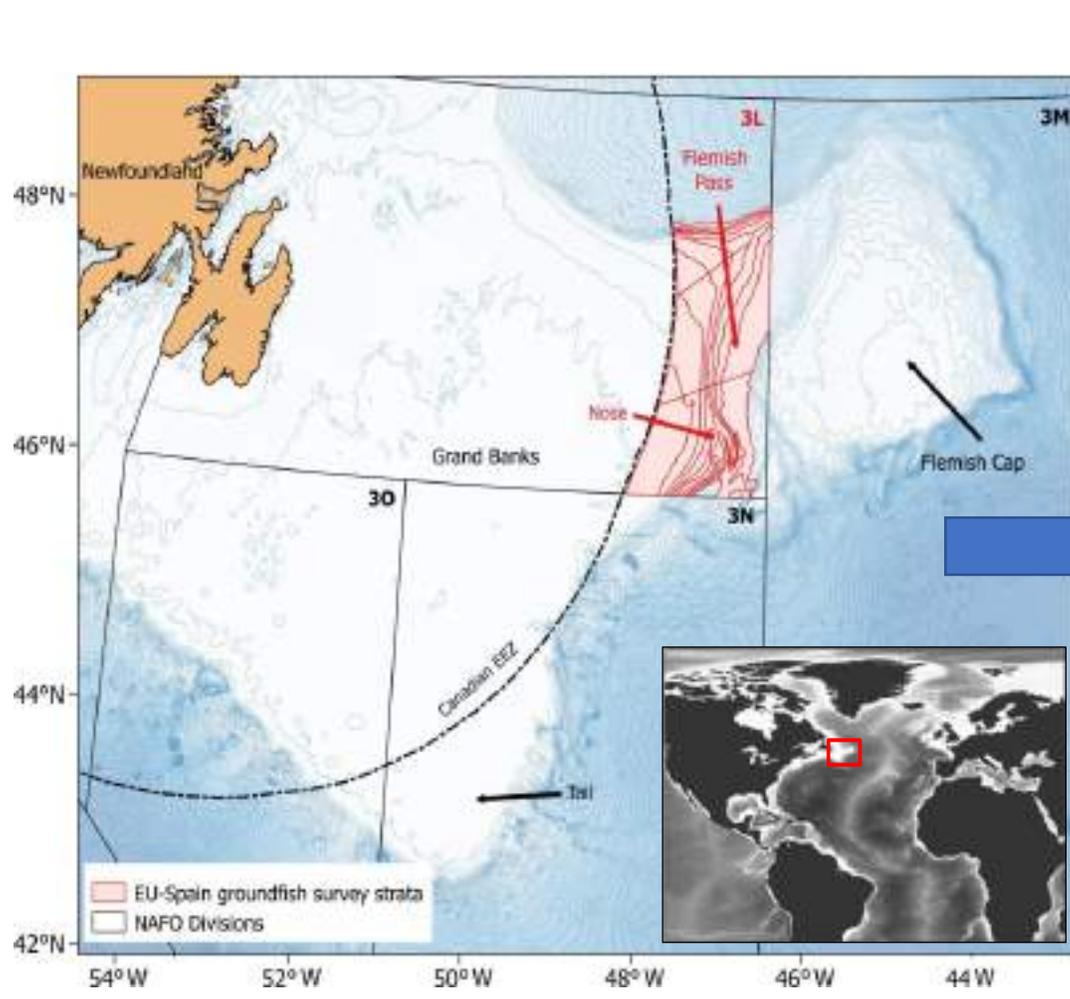
Observaciones:



Map 1. Spanish ICES trawl fisheries.

Total haul with observer on board during 2017





Trabajo desarrollado en colaboración con equipo de pesquerías lejanas del IEO-Vigo, en el marco del proyecto ATLAS (H2020) y CLEANATLANTIC

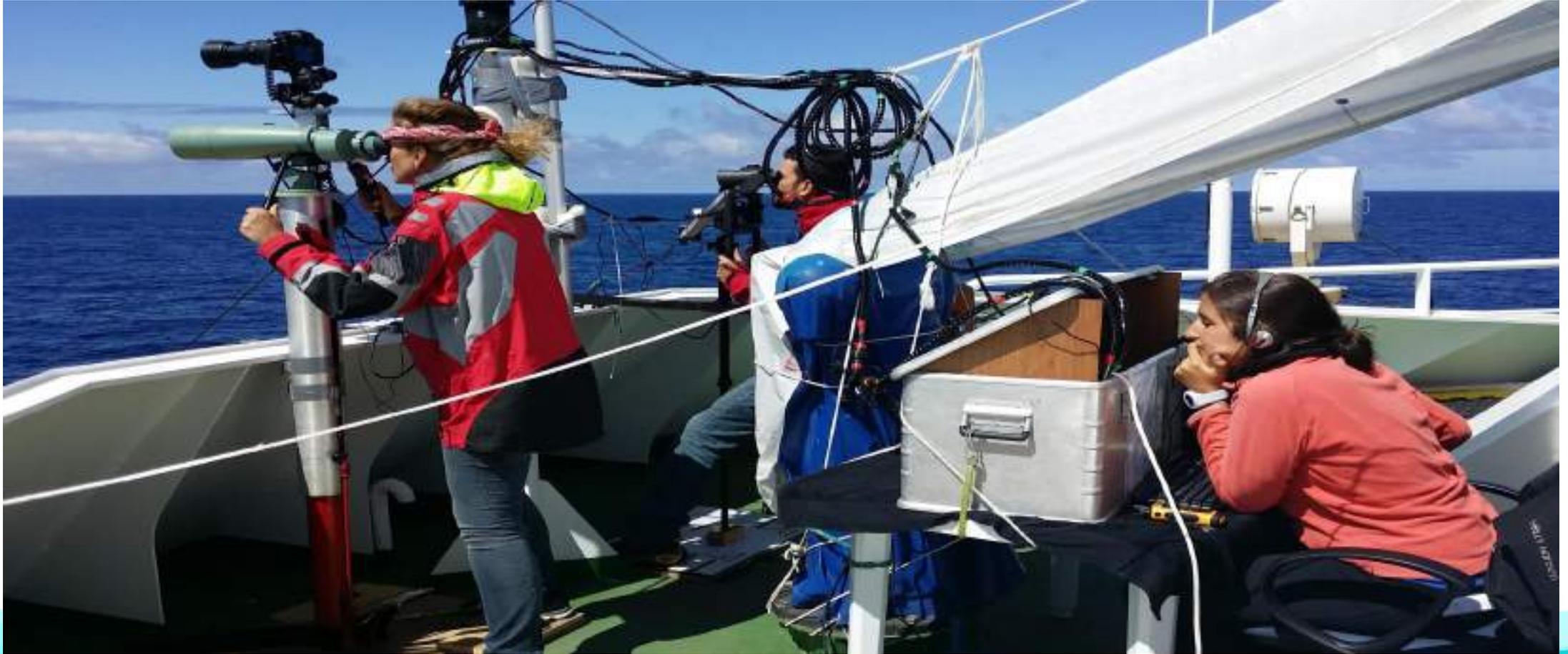


Top Predator Floating litter sampling protocol improvement

- Adaptation of the sampling protocol to make easy data comparison with other sampling methods.

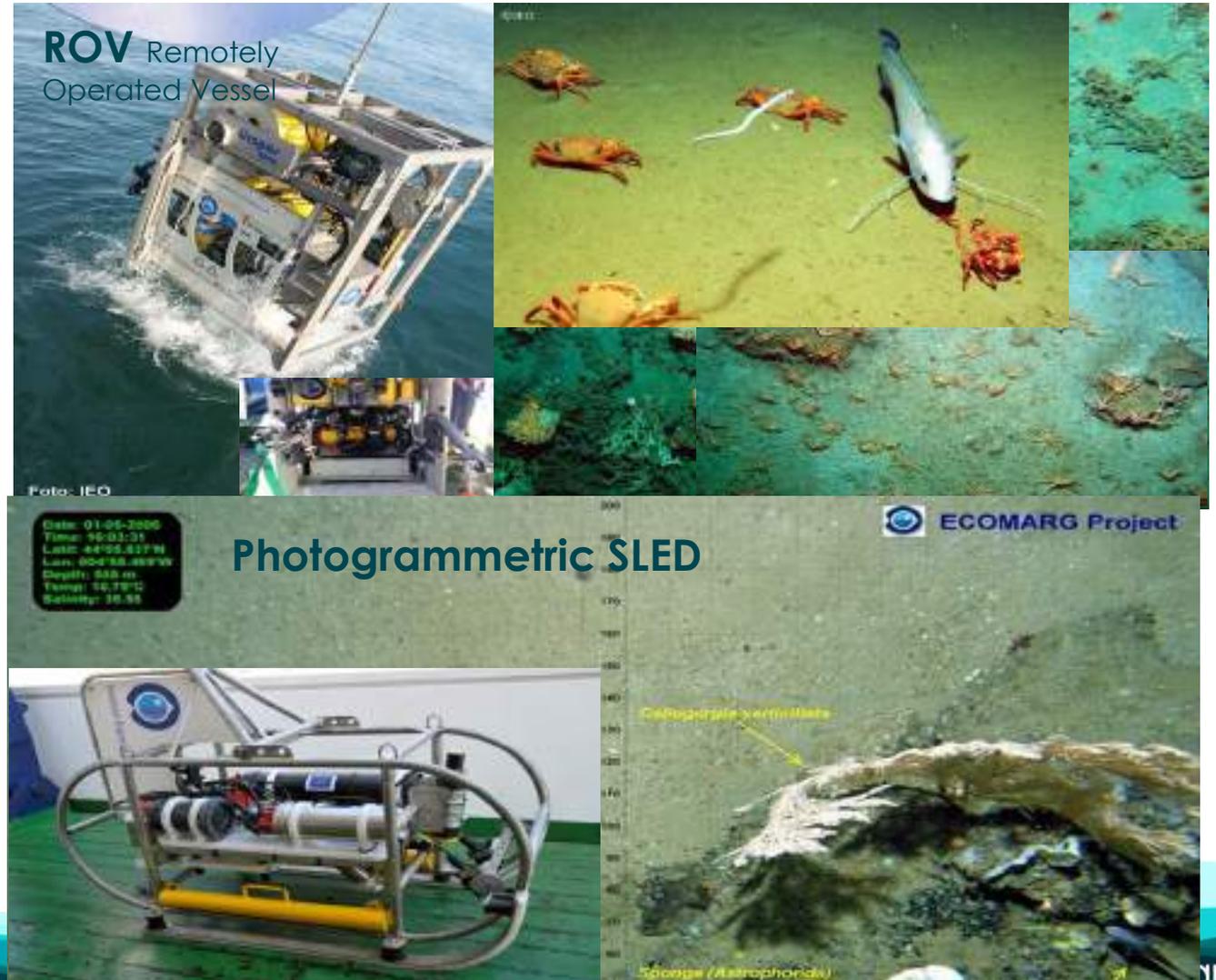


Top Predator Floating litter sampling protocol improvement



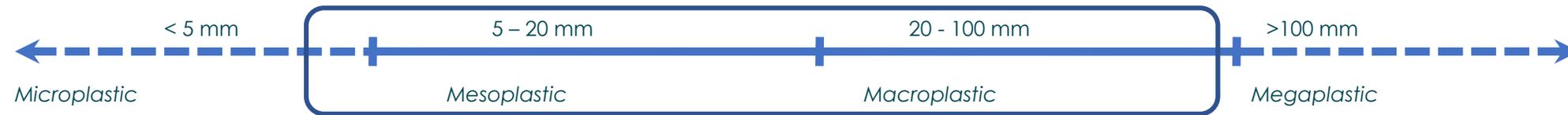
ROV and Photogrammetric SLED

- To revisit the databases to monitoring sea bed litter.
- Data processing and analysis.
- Comparison with other sea bed litter sampling methods.

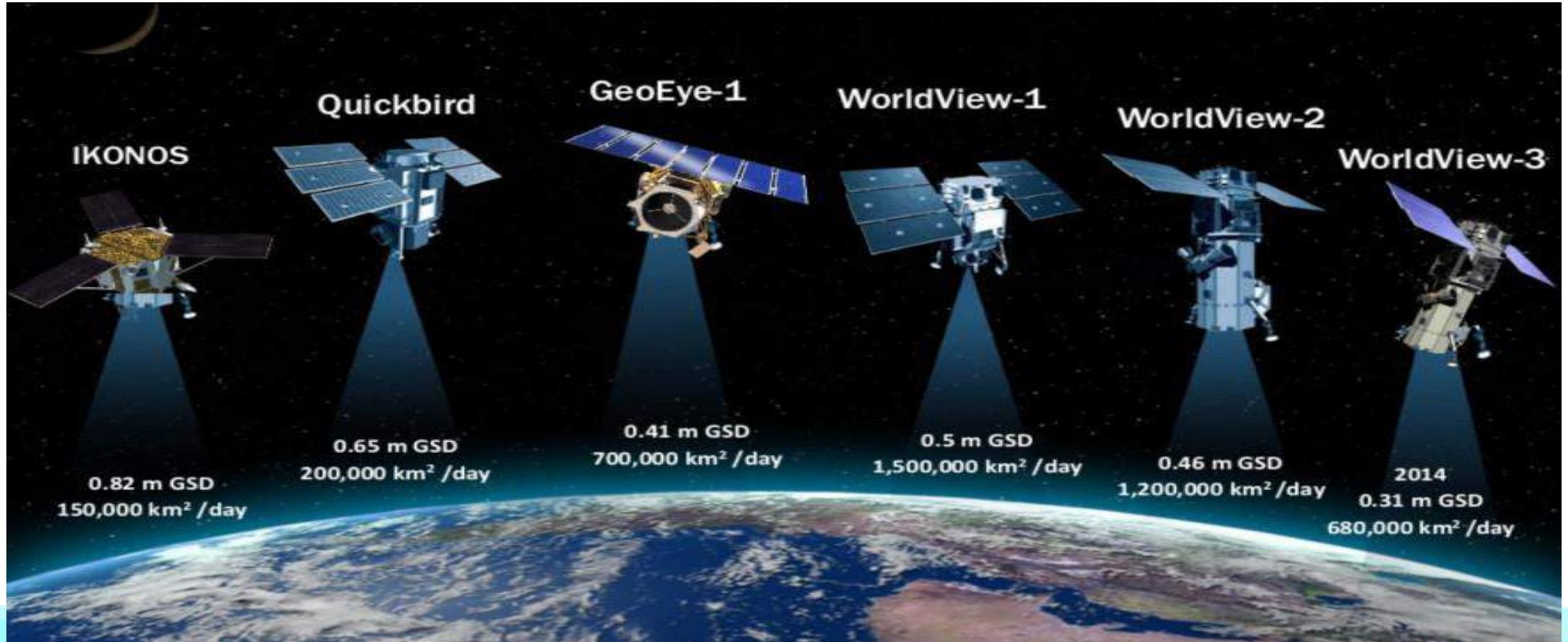


Meso & micro plastic floating litter monitoring during fisheries surveys (IEO&IFREMER)

- Manta trawl net, mesh size = 300 μ m, width size = 60 cm
- 2 samples / day
- Speed boat = 3 knots ; duration : 20 mn ; sea conditions < 4

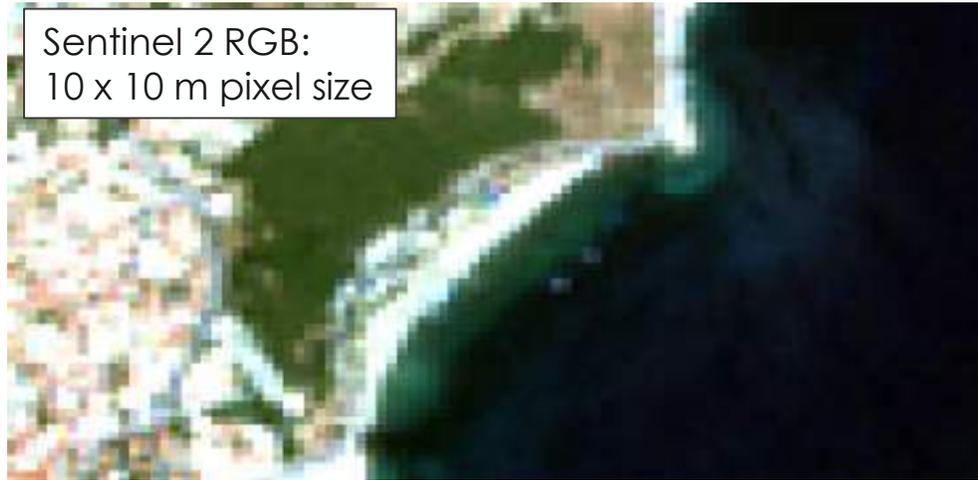


Satellites (commercial satellite DigitalGlobe)



Assessing feasibility of satellites in monitoring plastic litter- tested sites:

1. Mytiline (Greece)



VS



Bottom picture adapted from:
<https://mrsg.aegean.gr/?content=&nav=55>

Assessing feasibility of satellites in monitoring plastic litter- tested sites:

2. Eden project (UK) - ethylene tetrafluoroethylene

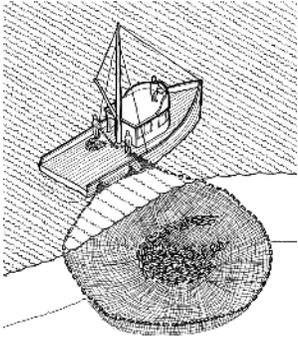


Assessing feasibility of satellites in monitoring plastic litter- tested sites:

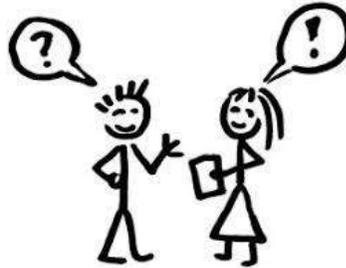
2. Thilafushi landfill (Maldives)



Raising awareness and citizen science



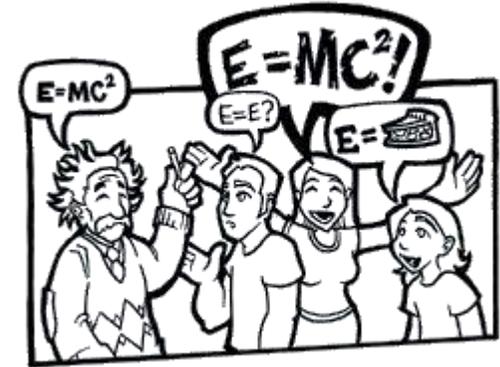
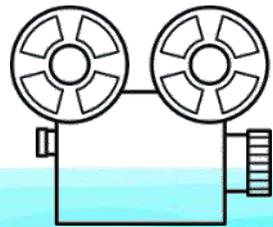
Fishing for litter action.
informative sessions about
marine litter impact.



Citizen-science activity with local students:

Students will classify the litter fished and complete the standardized templates to report the type and amount of litter.

Reporting with a video covering the whole process, made as a practical experience for a team of students at a local school of image and communication.



Presentation to the local community and long-term action commitments

Encouraging organizations to continue this action.

The Citizen Decalogue for fighting marine litter will be presented, and all participants encouraged to adopt it.

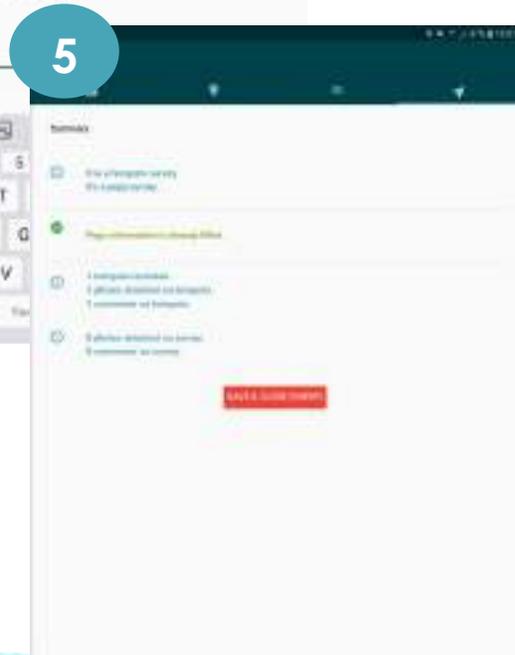
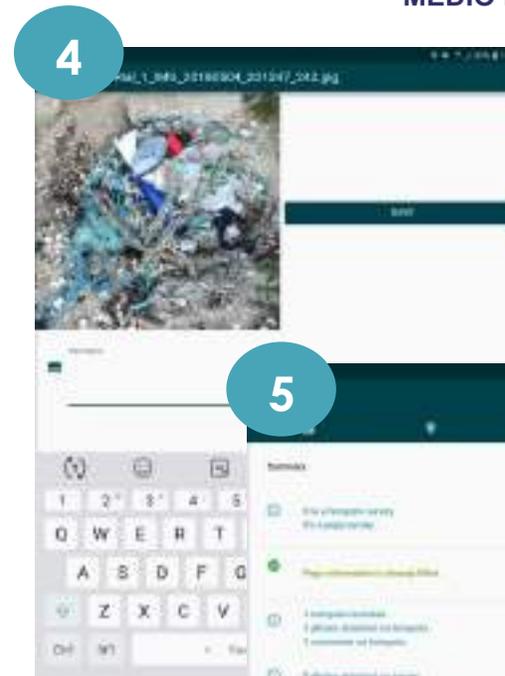
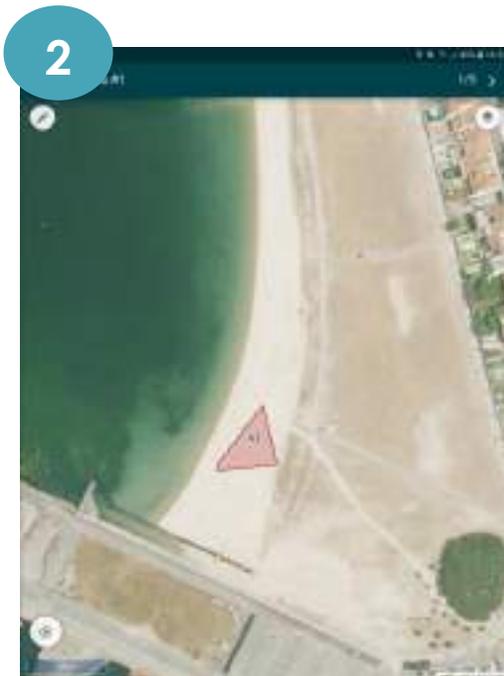
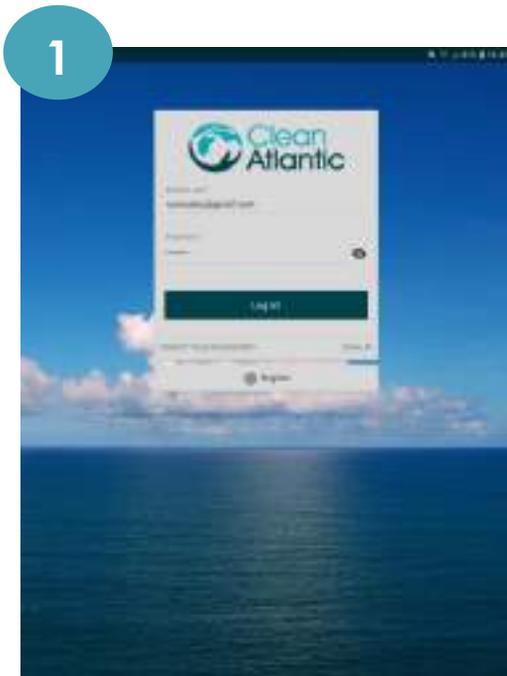
INTECMAR is developing an APP to monitor marine litter hotspots

APP Mobile: The app allows the survey of hotspots along the coastline

- To be used by restricted users (password)
- Flexible in its scale of surveys (Segments of the shoreline predefined)
- Geolocated information
- Collected data stored in a postGIS DB
- Possibility of adding photos and comments
- Compatible with Android 5.x devices or higher



Digitization of the methodology (Tablets, Smartphone)



Drones

- ARDITI: Field tests and protocol for dedicated surveys finalized. Analysis protocol in development. Preliminary findings:
 - Large vessels are problematic for large drone deployment. More success with smaller drones.
 - Small vessels are no issue for drone operations; require with good condition, low sun and a target range of ML size vs monitored area.



Field testing. ARDITI

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GRAZAS;
OBRIGADO;
MERCI;



THANK YOU!

