

Cycle du plastique dans les océans, interactions avec le monde vivant et politiques de gestion

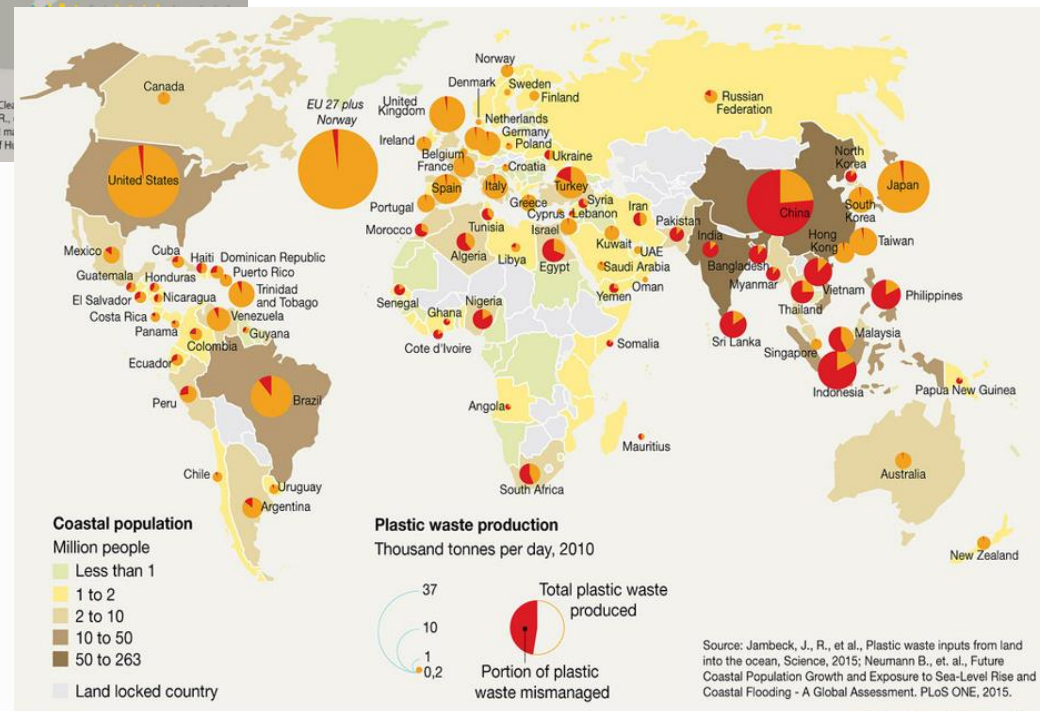
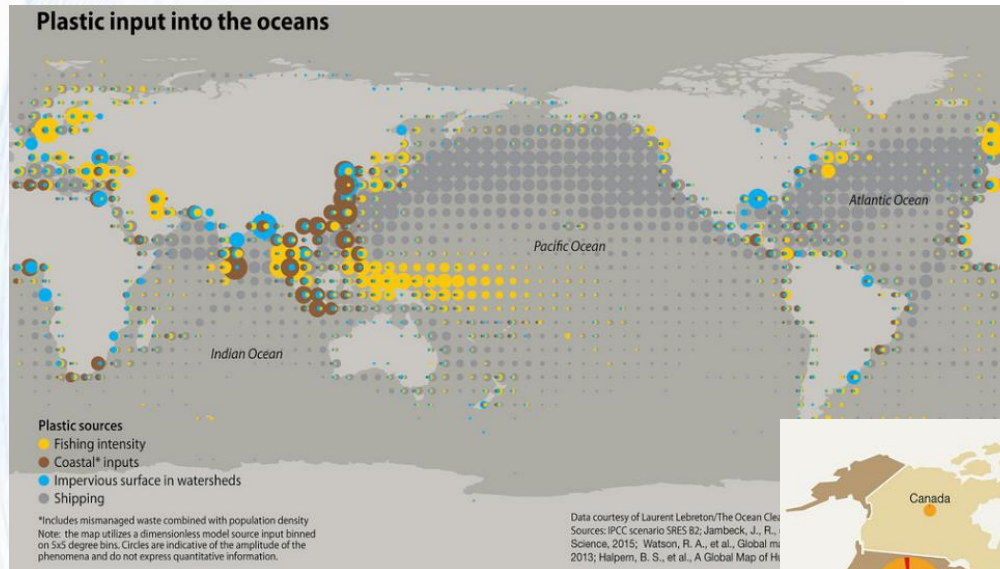


H. Glader

F. Galgani, IFREMER

Quelle situation?

Production annuelle de plastique: # 400 millions de tonnes



Quelle situation?



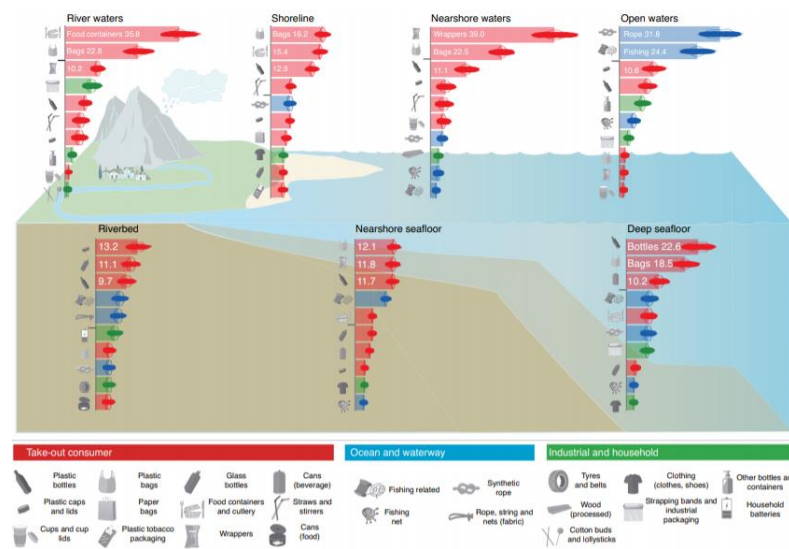
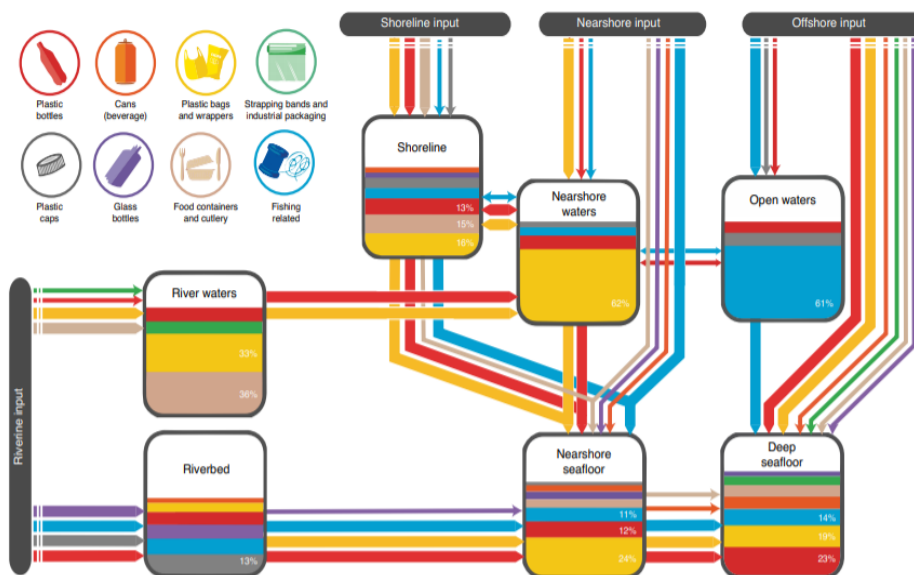
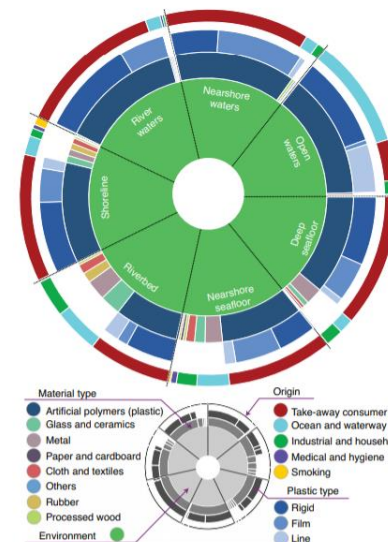
- Plus de 95% des déchets sont sur les fonds (maximum a 1,6 millions/km²)
- Les densités de microplastiques augmentent dans les sédiments marins



Une grande diversité

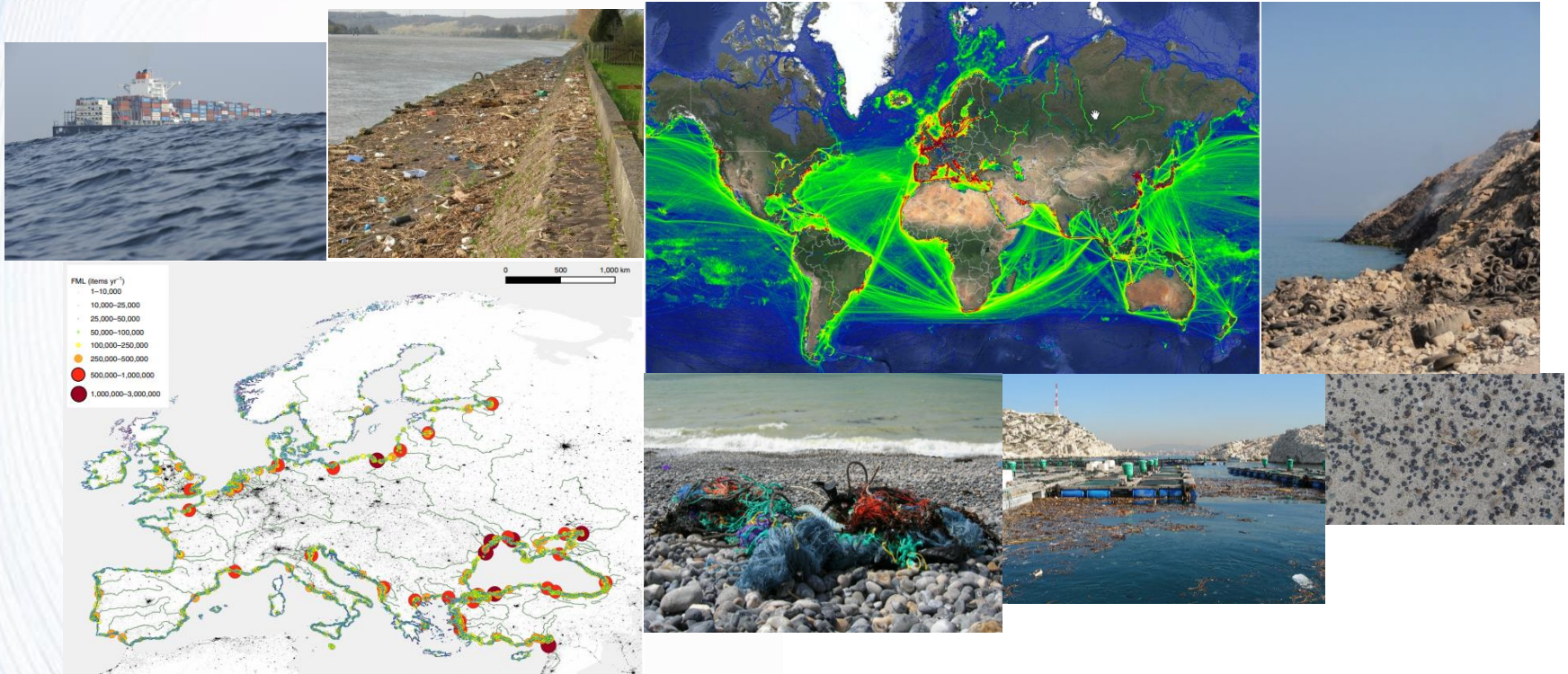
An inshore-offshore sorting system revealed from global classification of ocean litter

Carmen Morales-Caselles¹, Josué Viejo¹, Elisa Martí¹, Daniel González-Fernández¹, Hannah Pragnell-Raasch², J. Ignacio González-Gordillo¹, Enrique Montero³, Gonzalo M. Arroyo¹, Georg Hanke⁴, Vanessa S. Salvo⁵, Oihane C. Basurko⁶, Nicholas Mallos⁷, Laurent Lebreton⁸, Fidel Echevarría¹, Tim van Emmerik⁹, Carlos M. Duarte¹⁰, José A. Gálvez¹, Erik van Sebille¹¹, François Galgani¹², Carlos M. García¹, Peter S. Ross¹³, Ana Bartual¹, Christos Ioakeimidis¹⁴, Gorka Markalain¹, Atsuhiko Isobe¹⁵ and Andrés Cózar¹



- 4 types principaux (44%): sacs, bouteilles, emballages simples et alimentaires
- Les déchets plastiques issus de la pêche sont importants.

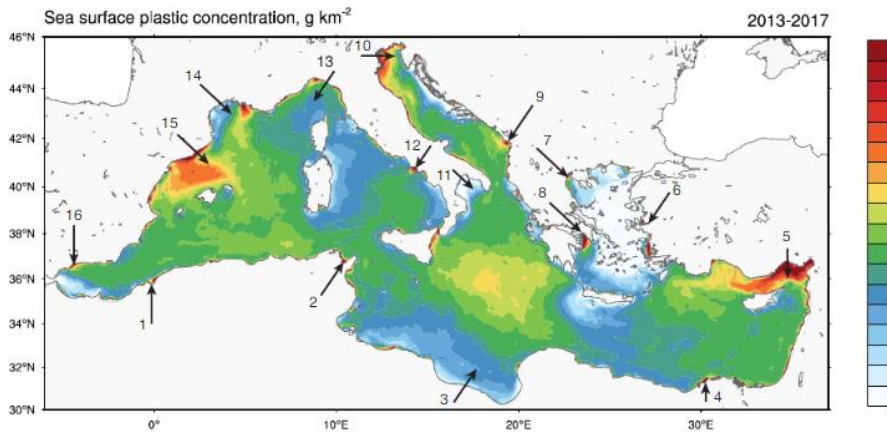
Diversité des sources



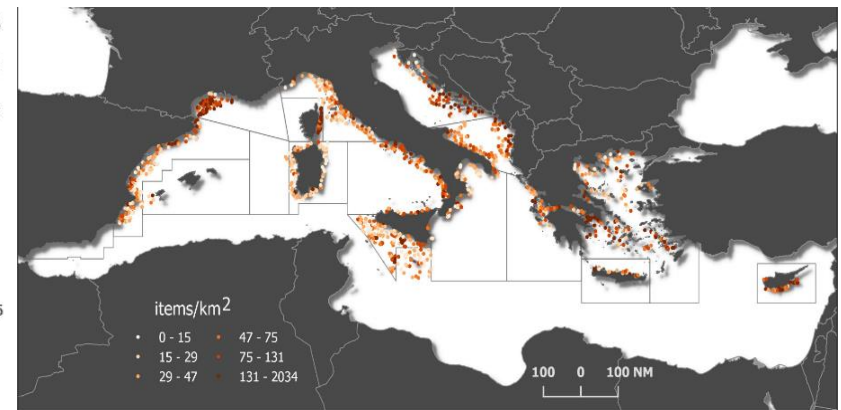
Fleuves (3500 tonnes/ an en Europe), ruissellement, transport maritime, pêche et tourisme et sources diffuses

Les apports Atmosphériques de microplastiques sont conséquents

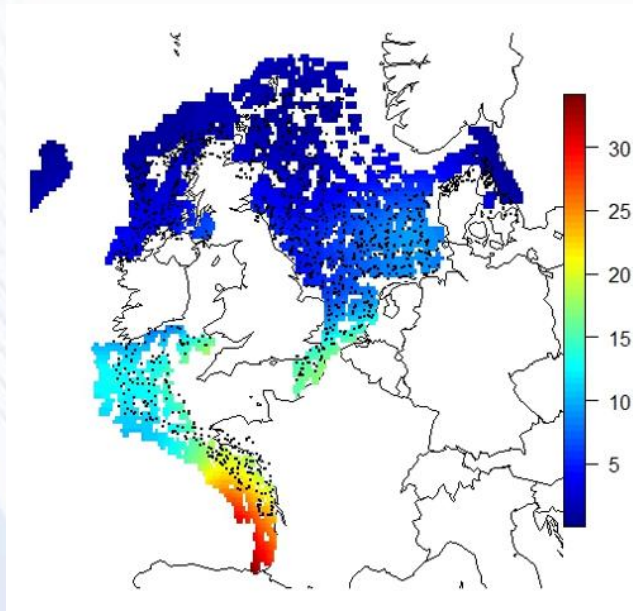
Des différences régionales?



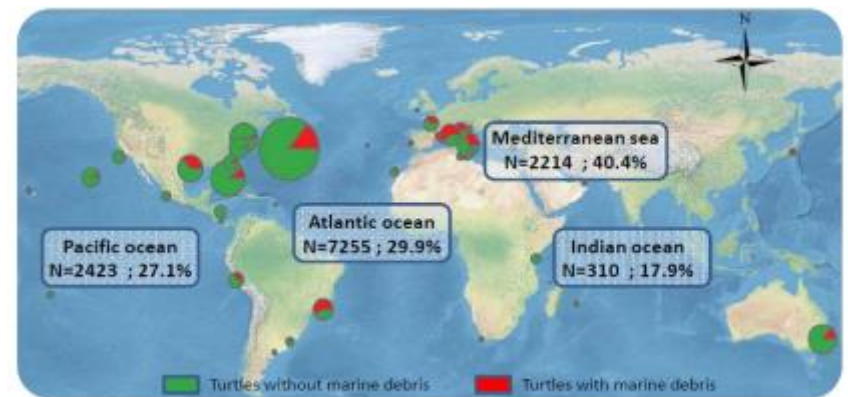
Plastiques flottants (, Liubartseva et al., 2018)



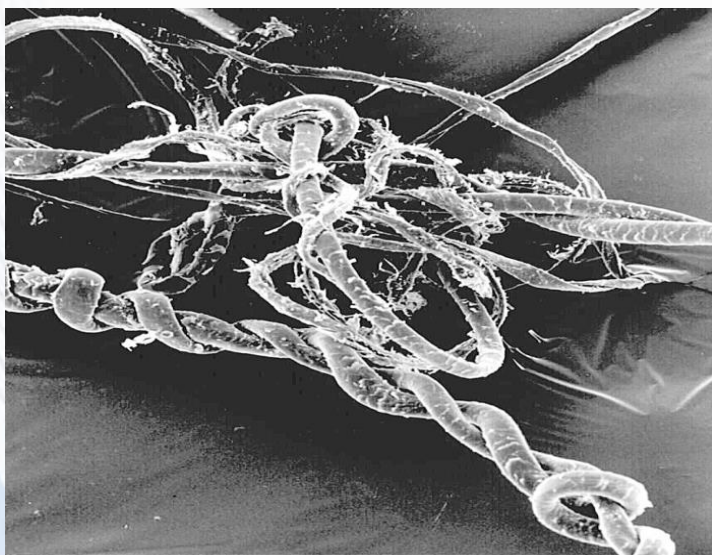
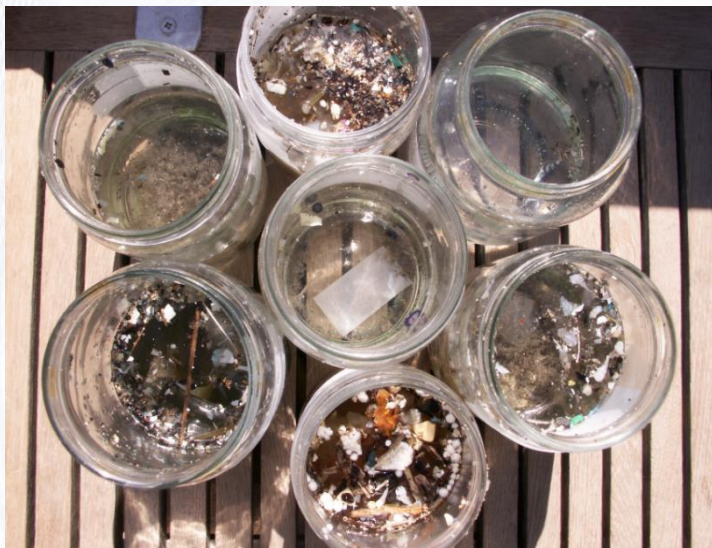
Sur les fonds (objets/ km2, projet Medits)



Sur les fonds (objets/ km2, OSPAR)

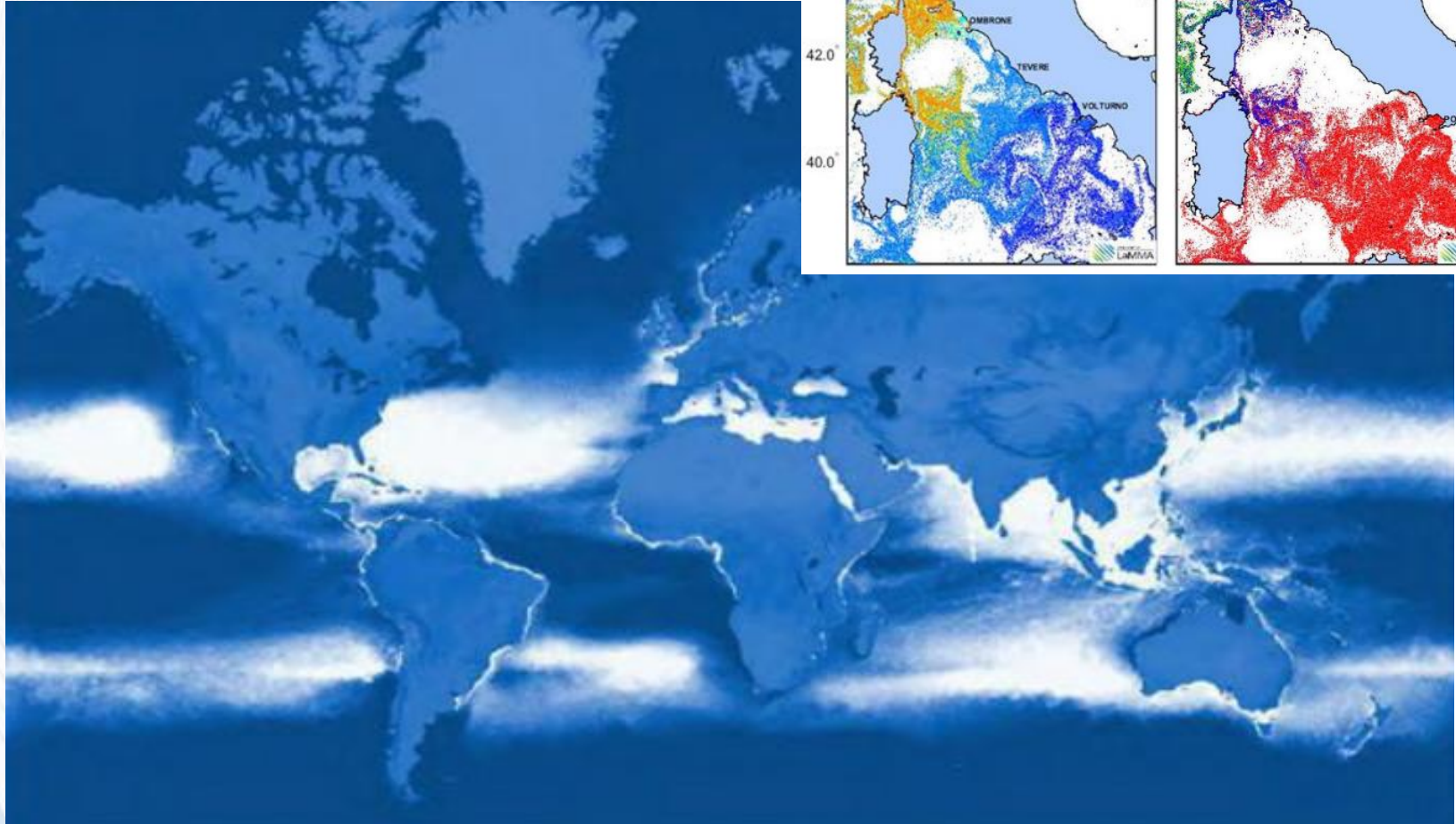


Déchets ingérés (Tortues/, Prévalence, Projet INDICIT)



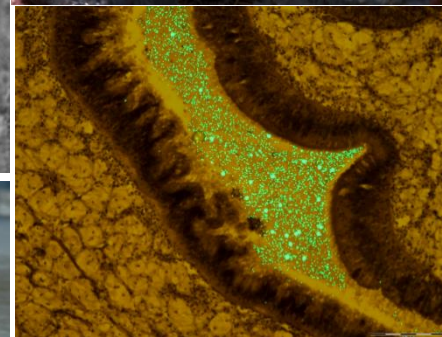
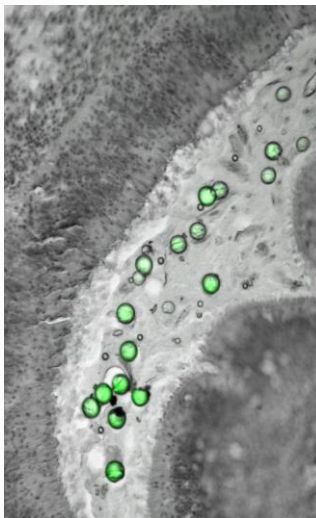
Importance des microplastiques

Distribution /modèles

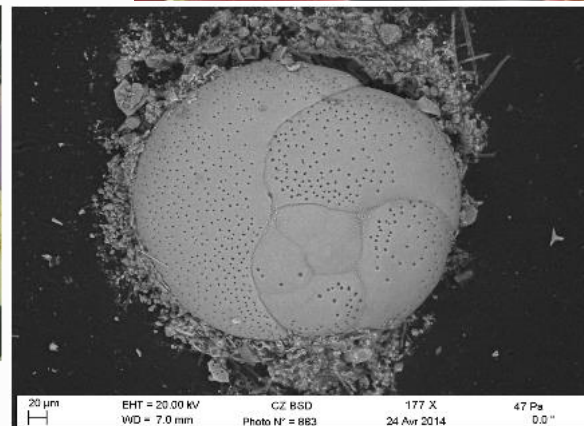
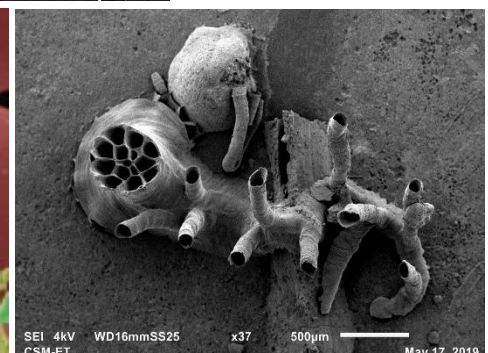
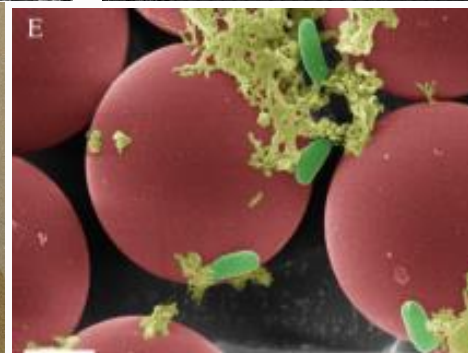
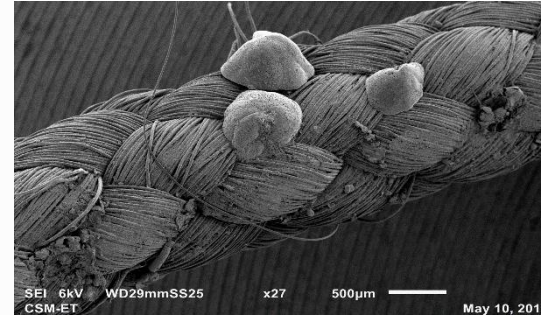


- # 24.4 trillion de particules flottantes (82 000 – 578 000 tonnes)
- Les microplastiques représentent # 10% du poids total des plastiques flottants

EMMELEMENTS, INGESTION et TRANSPORT D'ESPECES SONT LES IMPACTS LES PLUS CONSEQUENTS



LE TRANSPORT D'ESPECES



Exemples: Alexandrium, Dinophyceae, P. Lima, Martelia sp. Vibrio sp., Os-HV-1

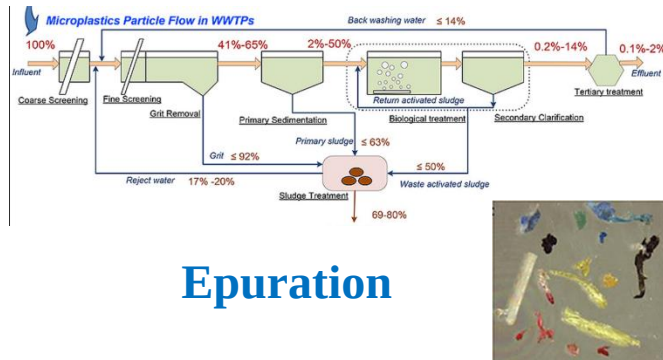
DES IMPACTS SOCIAUX-ECONOMIQUES



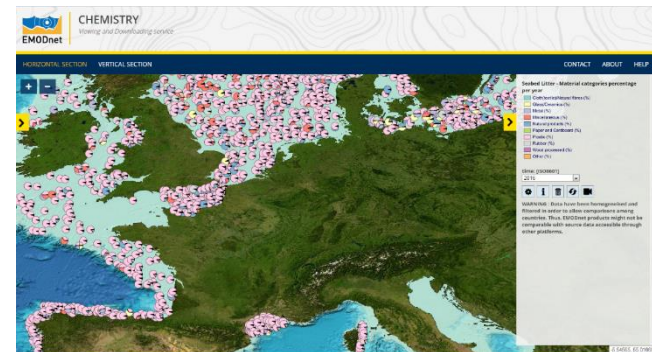
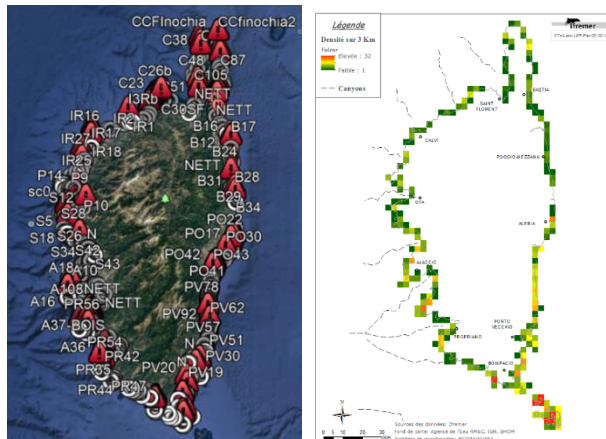
Modeles

Quels enjeux?

Drones/ satellites



Epuration



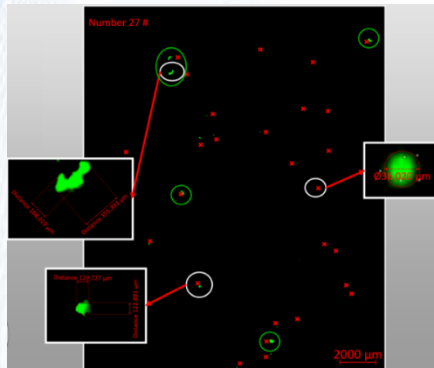
Surveillance globale

surveillance

Quels enjeux

Nouveaux Indicateurs

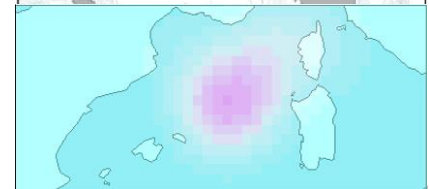
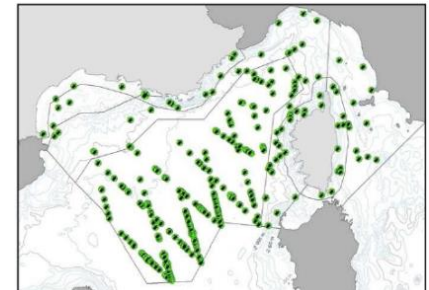
Quels risques?



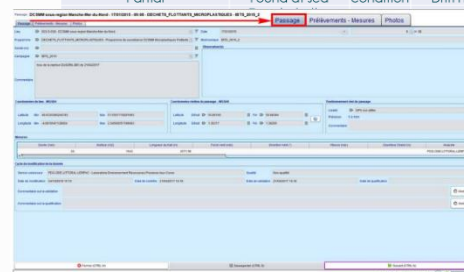
Les plus petites particules



Comprendre les effets



Conservation status or decomposition level	Discovery circumstances	Health status	By-Catch cause	Main injuries	Affected body part	Entanglement type	Litter causing entanglement	Fat reserves
Alive	Stranding	Poor condition	Straight thread	Fracture	RFF	Active	Pieces of net	Thin
Fresh	By-catch/Fisheries	Fair condition	Trawl	Amputation	LFF	Passive	Monofilament line (nylon)	Fat
Partial	Found at sea	Good condition	Drift net	Sectioning	RRF	Undetermined	Rope or pile of ropes	Normal
				Abrasion	LRF		Plastic bag	
					Neck		Raffia	
					Carapace		Other plastics	
							Multiple materials	
					Plastron		Unknown	
					Severed			



Gérer les données

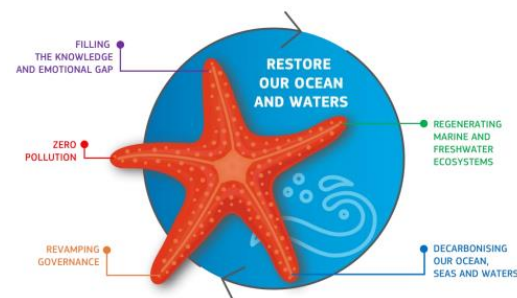
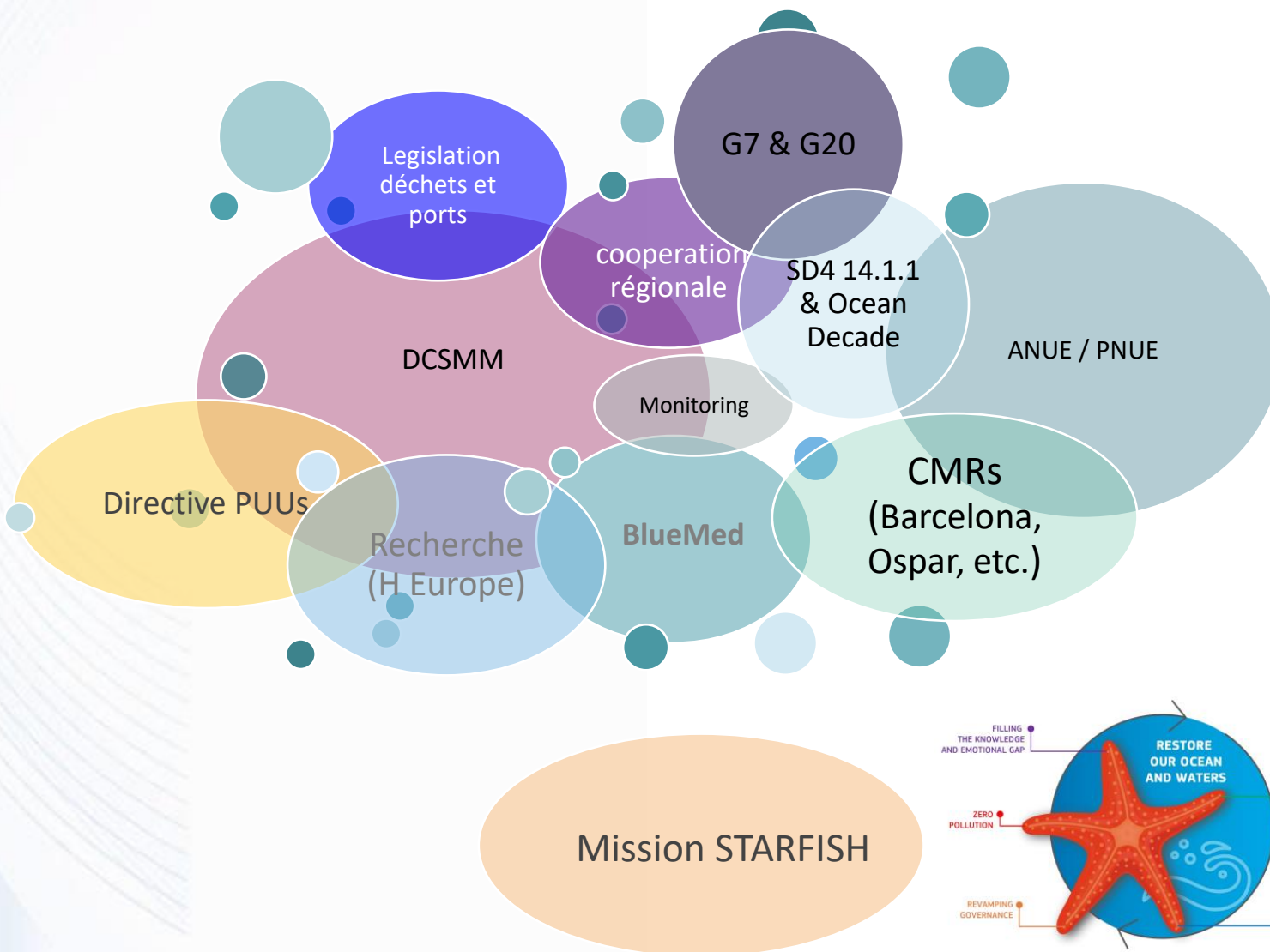


Peu de solutions



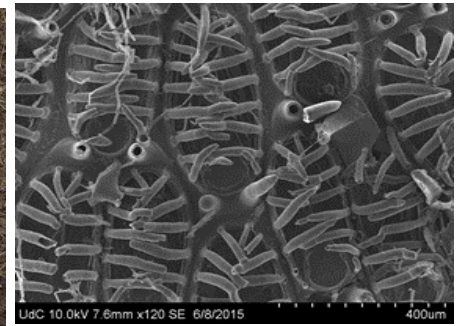
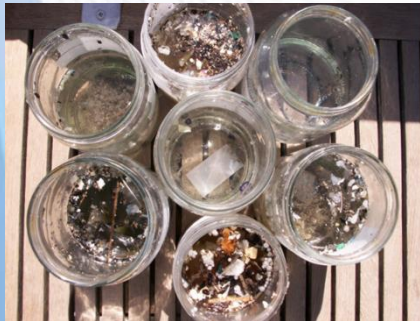
Recyclage, collecte, nouveaux matériaux, traitement, nettoyages sélectif , information, éducation, etc.

Les initiatives globales



Mythes et réalités

- Les continents de plastique n'existent pas
- Les déchets impactent les espèces mais pas de transfert trophique (inconnu pour les nanoplastiques)
- Le plastique est une voie mineure de contamination chimique
- Les interactions entre les espèces et le plastique et le transport d'espèces sont très mal connues



Merci