

# **“FATTI di plastica”**

## ***from the impacts to new solutions against marine litter***

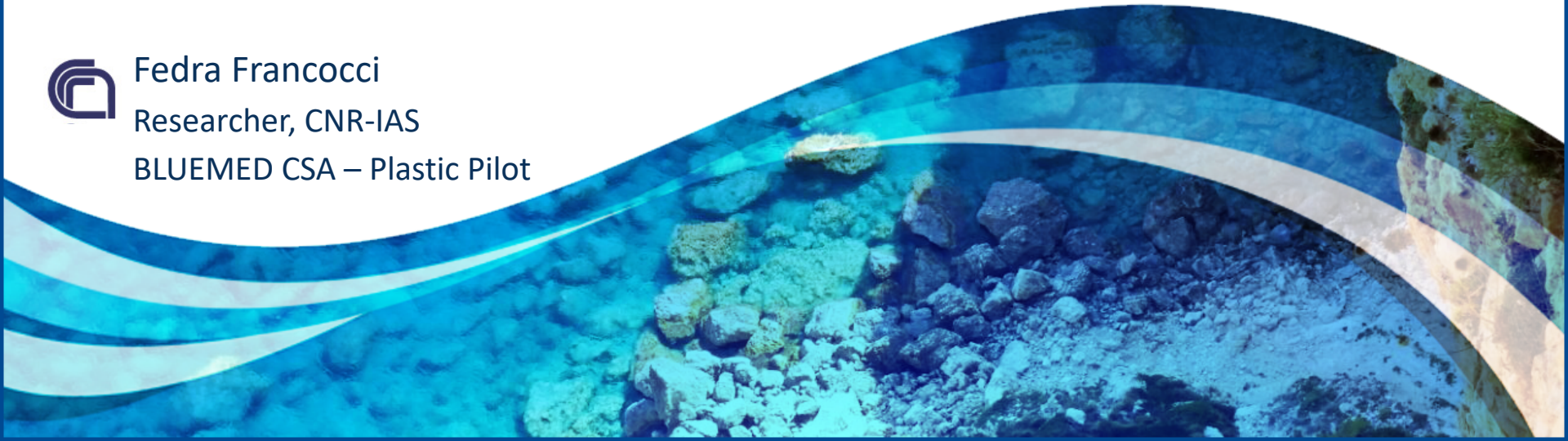
*Venice, 20 January 2020*



Fedra Francocci

Researcher, CNR-IAS

BLUEMED CSA – Plastic Pilot



# 1. Plastic production

## World and EU plastics production data

In 2018, global plastics production almost reached 360 million tonnes. In Europe, plastics production almost reached 62 million tonnes.

SOURCE: PlasticsEurope Market Research Group (PEMRG) and Conversio Market & Strategy GmbH

14

### Europe (EU28+NO/CH)

2018 **61.8**  
million tonnes

2017 **64.4**  
million tonnes

### World

2018 **359**  
million tonnes

2017 **348**  
million tonnes



Includes Thermoplastics, Polyurethanes, Thermosets, Elastomers, Adhesives, Coatings and Sealants and PP-Fibers. Not included: PET-fibers, PA-fibers and Polyacryl-fibers.



## 2. Plastic production/use

### Plastics demand by segment 2018

Distribution of European (EU28+NO/CH) plastics converters demand by segment in 2018. Packaging and Building & Construction by far represent the largest end-use markets. The third biggest end-use market is the Automotive Industry.

SOURCE: PlasticsEurope Market Research Group (PEMRG) and Conversio Market & Strategy GmbH

20

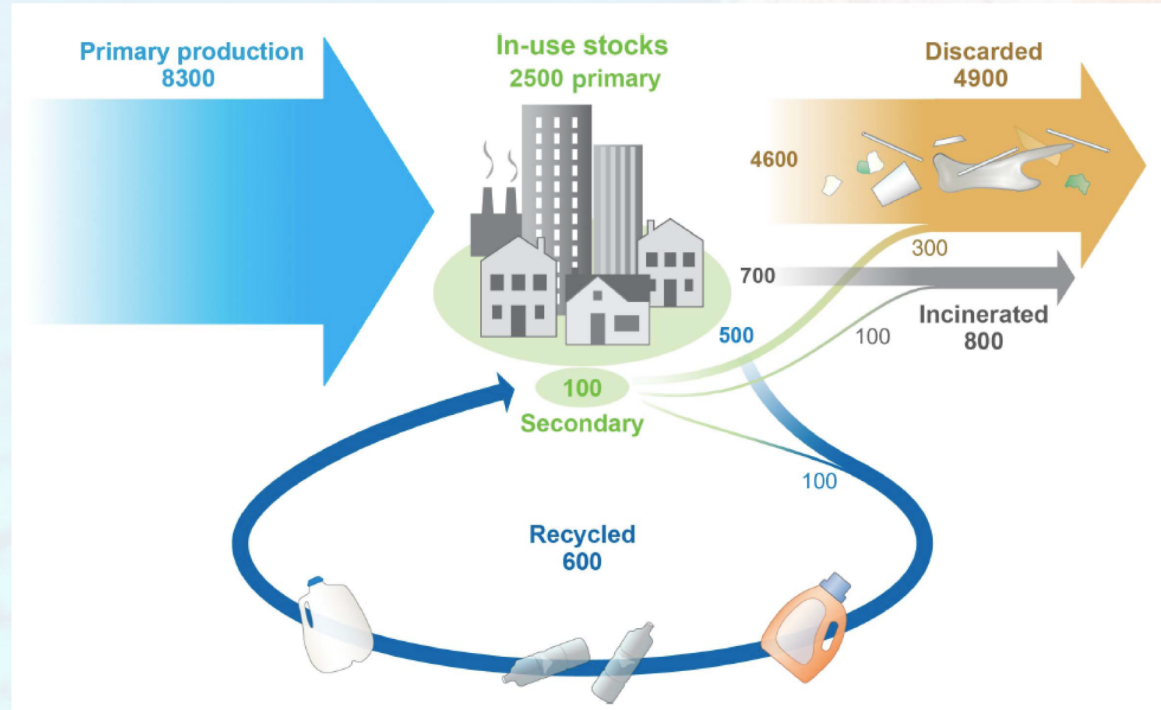


**51.2 M t**  
Total European plastics  
converters demand

# 65 years of plastics: only 30% of plastic ever produced is currently in use

## 3. Plastic use

Global production, use, and fate of polymer resins, synthetic fibres, and additives (1950 to 2015; in million metric tons)

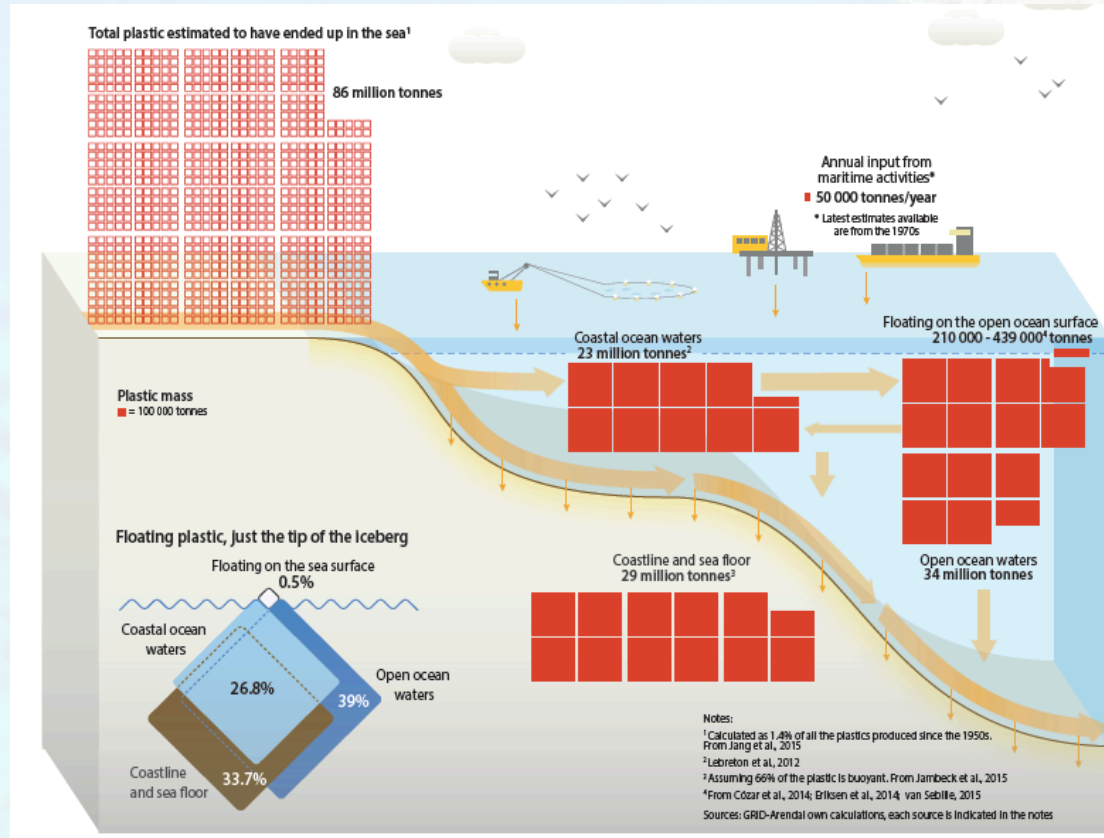


Geyer, Jambeck, Law Sci. Adv. 2017



# Plastic in the Oceans

## 4. Plastic accumulation



UNEP and GRID-Arendal, 2016. Marine Litter Vital Graphics.





# The IMPACT: Ecological Impact, Bioaccumulation, Ingestion, Entanglement, Ecotoxicology

## 5. Impact

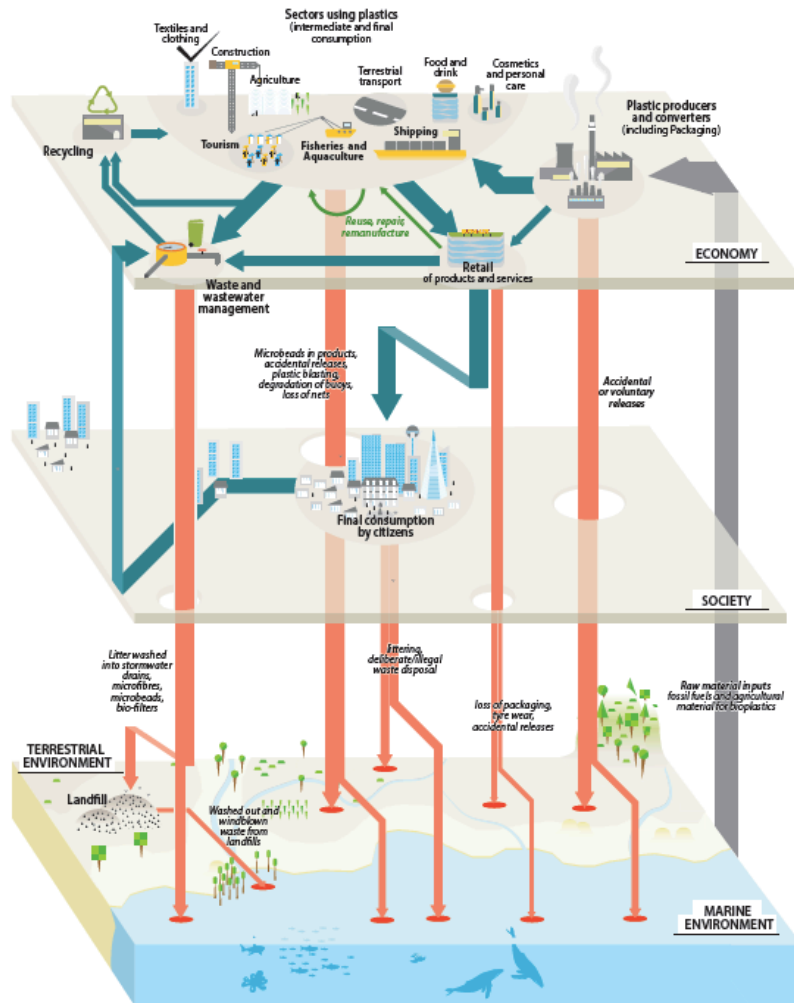
Ghost fishing:  
100.000 Mammals  
1.000.000 Marine birds  
Every year



**GHOST**

TECHNIQUES TO REDUCE THE IMPACT OF GHOST FISHING GEARS  
AND TO IMPROVE BIODIVERSITY IN NORTH ADRIATIC COASTAL AREAS

# From Source to Sink



economy

- Productions
- Processing
- Waste management
- Transport

society

- Consumers
- etc

environment

- Landfills
- Rivers
- etc





**FATTI  
di PLASTICA**

CASA DELL'ARCHITETTURA  
ACQUARIO ROMANO

**5 Giugno 2018**

**FATTI di PLASTICA**

MARTEDÌ 5 GIUGNO 2018

Ore 9:30 - 18:30

CASA DELL'ARCHITETTURA. Acquario Romano.  
Piazza Manfredo Fanti, 47 - Roma.

@ EVENTO.FATTIDIPLASTICA@CNR.IT | # FATTIDIPLASTICA

ORGANIZZATO DA



Consiglio Nazionale delle Ricerche



IN COLLABORAZIONE CON  
ORDINE DEGLI  
ARCHITETTI  
PIANIFICATORI  
PAESAGGISTI E CONSERVATORI  
DI ROMA E PROVINCIA

# Format for Communication and Dissemination

➤ Stakeholders



➤ Civil Society



➤ Education







# Format for Communication and Dissemination

## Systemic Approach

- Marine Litter Impacts
- Plastic trends in the circular economy
- Good practices and Governance, from policy and industrial stakeholders
- Civil society and Innovation
- Circular Design

Circular Bioeconomy

Rivers Contract



# Sustainable and Circular Bioeconomy

“The bioeconomy covers all sectors and systems that rely on biological resources (terrestrial and marine) ... to produce food, feed, bio-based products, energy and services..” (*Europe’s bioeconomy Strategy, European Commission, 2018*)

- Preserve nature, and restore healthy ecosystems
- Create 1 million new green jobs by 2030, in particular in rural and coastal areas
- Turn waste from farming, cities, food & forests into new added values products
- Provide additional income for farmers, foresters and fishermen
- Replace fossil material with renewable alternatives
- Increase the carbon sink capacity of soil, forest and ocean
- **Develop new biodegradable products, including bio-based plastic substitutes**





Europe's bioeconomy  
Strategy, European Commission, 2018

<b>Bioeconomy specific</b>	➤ Commission communication 'Innovating for sustainable growth: a bioeconomy for Europe' (EC 2012a)
----------------------------	----------------------------------------------------------------------------------------------------

<b>Agriculture</b>	➤ Commission communications: legislative proposals on the common
--------------------	------------------------------------------------------------------

### Sectors mainly using biomass

<b>Environmental protection and Climate Change</b>	➤ EU Action Plan for Nature, People and the Environment (COM(2017)0198 final)
	➤ EU Biodiversity Strategy (COM/2011/0244 final)
	➤ EU Strategy on adaptation to climate change (COM/2013/0216 final)

<b>Regional policies — Smart specialisation</b>	<ul style="list-style-type: none"> <li>➤ Commission communication 'Regional policy contributing to smart growth in Europe 2020' (EC 2010g)</li> <li>➤ Commission communication 'Strengthening Innovation in Europe's Regions: Strategies for resilient, inclusive and sustainable growth (EC 2017)</li> </ul>
-------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>Research innovation</b>	<b>and</b>	➤ Commission communication 'Europe 2020 flagship initiative – Innovation union' (EC 2010a)
<b>Industrial policy</b>		➤ Commission Communication 'Investing in a smart, innovative and sustainable Industry- A renewed EU Industrial Policy Strategy' (COM/2017/0479 final)

Europe's bioeconomy  
Strategy, European Commission, 2018

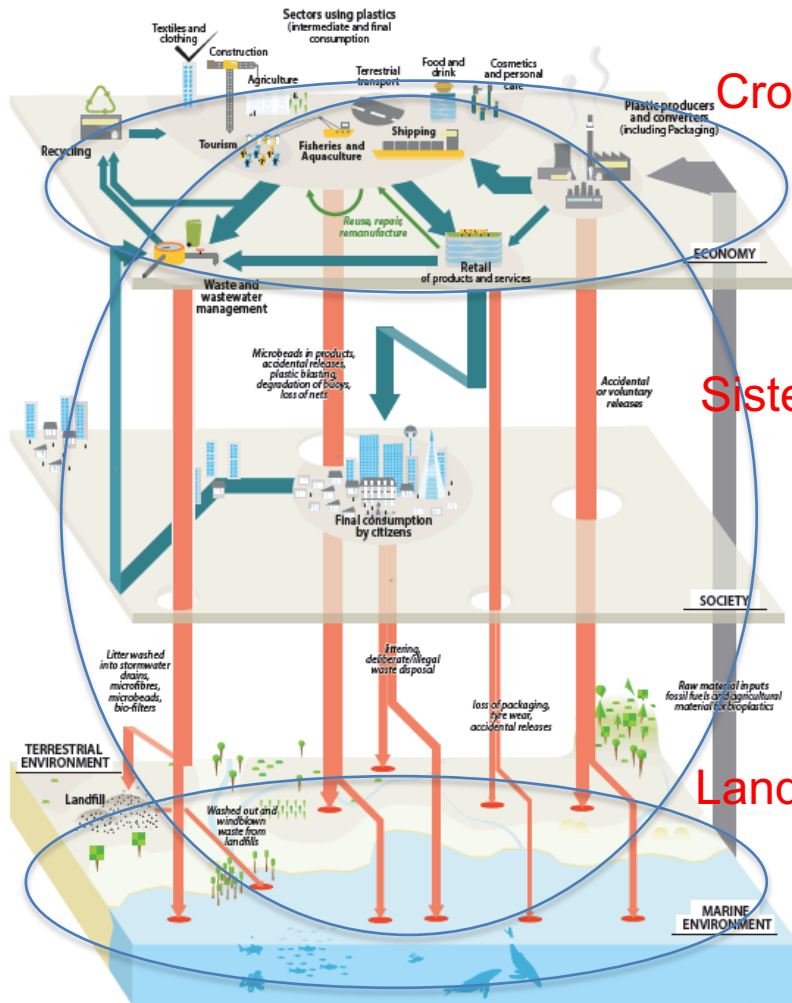


# From Source to Sink

Cross-sectors

Sistemic

Land-sea



economy

society

environment

- Productions
- Processing
- Waste management
- Transport

- Consumers
- etc

- Landfills
- Rivers
- etc

Bioeconomy

**FATTI  
di PLASTICA.**

CASA DELL'ARCHITETTURA  
ACQUARIO ROMANO

**5 Giugno 2018**

**FATTI di PLASTICA**

MARTEDÌ 5 GIUGNO 2018

Ore 9:30 - 18:30

CASA DELL'ARCHITETTURA. Acquario Romano.  
Piazza Manfredo Fanti, 47 - Roma.

@ EVENTO.FATTIDIPLASTICA@CNR.IT | # FATTIDIPLASTICA

ORGANIZZATO DA



Consiglio Nazionale delle Ricerche



IN COLLABORAZIONE CON  
ORDINE DEGLI  
ARCHITETTI  
PIANIFICATORI  
PAESAGGISTI E CONSERVATORI  
DI ROMA E PROVINCIA

PinkHack ProjectSprint “Plastic Free Beach”

**PINK  
HACK**



ROME

**Maker Faire®**

THE EUROPEAN EDITION

**ECOMONDO**

THE GREEN TECHNOLOGY EXPO



# FATTI di plastica - Bioeconomy

- Stakeholders engagement (3 exhibition, 5 workshops)
- Promote sustainable solutions through innovatation (1 business competition)
- Stimulate collaborative projects and business ideas (public-private partnership)
- Education



The collage illustrates the project's activities. On the left, a man speaks into a microphone at an exhibition. Next to him, a woman examines a display for 'marGnet' (www.marGnet.eu), which features a large sculpture of tangled plastic and text about mapping and recycling litter. To the right, a man works on a laptop in a workshop, with a woman looking on. Below this, a hand-drawn diagram shows a water filtration system with a pump, a filter, and a 'SEA BIN' for collecting plastic. At the bottom right, a group of people are engaged in a workshop discussion.

- # FATTI di plastica - Bioeconomy
- Stakeholders engagement (3 exhibition, 5 workshops)
  - Promote sustainable solutions through innovatation (1 business competition)
  - Stimulate collaborative projects and business ideas (public-private partnership)
  - Education
- 
- The collage illustrates the project's activities: stakeholder engagement at an exhibition, design workshops, and educational materials. The 'marGnet' booth highlights the mapping and recycling of litter and ghost nets. The 'Roma Design Experience' workshop shows participants working on a laptop. The hand-drawn diagrams depict a water pump system for a sea bin and a fish bank made of plastic waste.



# FATTI di plastica - Bioeconomy

- Stakeholders engagement (3 exhibition, 5 workshops)
- Promote sustainable solutions through innovatation (1 business competition)
- Stimulate collaborative projects and business ideas (public-private partnership)
- Education



The collage consists of several images related to the FATTI di plastica - Bioeconomy project:

- Top Left:** A man in a light blue shirt is speaking into a large microphone, likely giving a presentation or interview at an exhibition.
- Top Center:** A woman with curly hair is looking at a poster titled "marGnet" with the website "www.margnet.eu". The poster features a large, tangled, root-like structure and text about "Mapping and recycling of litter and Ghost nets" and "The 'marGnet' project".
- Top Right:** A man in a dark suit is leaning over a table, working on a laptop. A woman is standing next to him, looking at the screen. This is a workshop session.
- Bottom Left:** A hand-drawn diagram showing a blue container labeled "POMPA ACQUA" (Water Pump) connected to a blue bucket labeled "CESTINO" (Bin). The bucket is labeled "SEA BIN". The diagram illustrates a system for collecting litter from the sea.
- Bottom Center:** A hand-drawn diagram showing a cross-section of a container with a pump mechanism. It includes labels like "MATERIA" (Material), "Liquidi" (Liquids), "Solidi" (Solids), "Pompa" (Pump), and "Bacchetta" (Stick). It also mentions "Bacchetta" (Stick) and "Bacchetta" (Stick) in Italian.
- Bottom Right:** A group of people are sitting around a table, engaged in a discussion or workshop. A woman is gesturing while speaking.



# FATTI di plastica - Bioeconomy

- Stakeholders engagement (3 exhibition, 5 workshops)
- Promote sustainable solutions through innovatation (1 business competition)
- Stimulate collaborative projects and business ideas (public-private partnership)
- Education



The collage illustrates the project's activities: stakeholder engagement at an exhibition, design workshops, and educational materials. The 'marGnet' booth highlights the mapping and recycling of litter and ghost nets. The 'Roma Design Experience' workshop shows participants working on a laptop. The hand-drawn diagrams depict a water pump system for a sea bin and a material processing flowchart.



# FATTI di plastica - Bioeconomy

- Stakeholders engagement (3 exhibition, 5 workshops)
- Promote sustainable solutions through innovatation (1 business competition)
- Stimulate collaborative projects and business ideas (public-private partnership)
- Education



The collage consists of several images illustrating the project's activities:

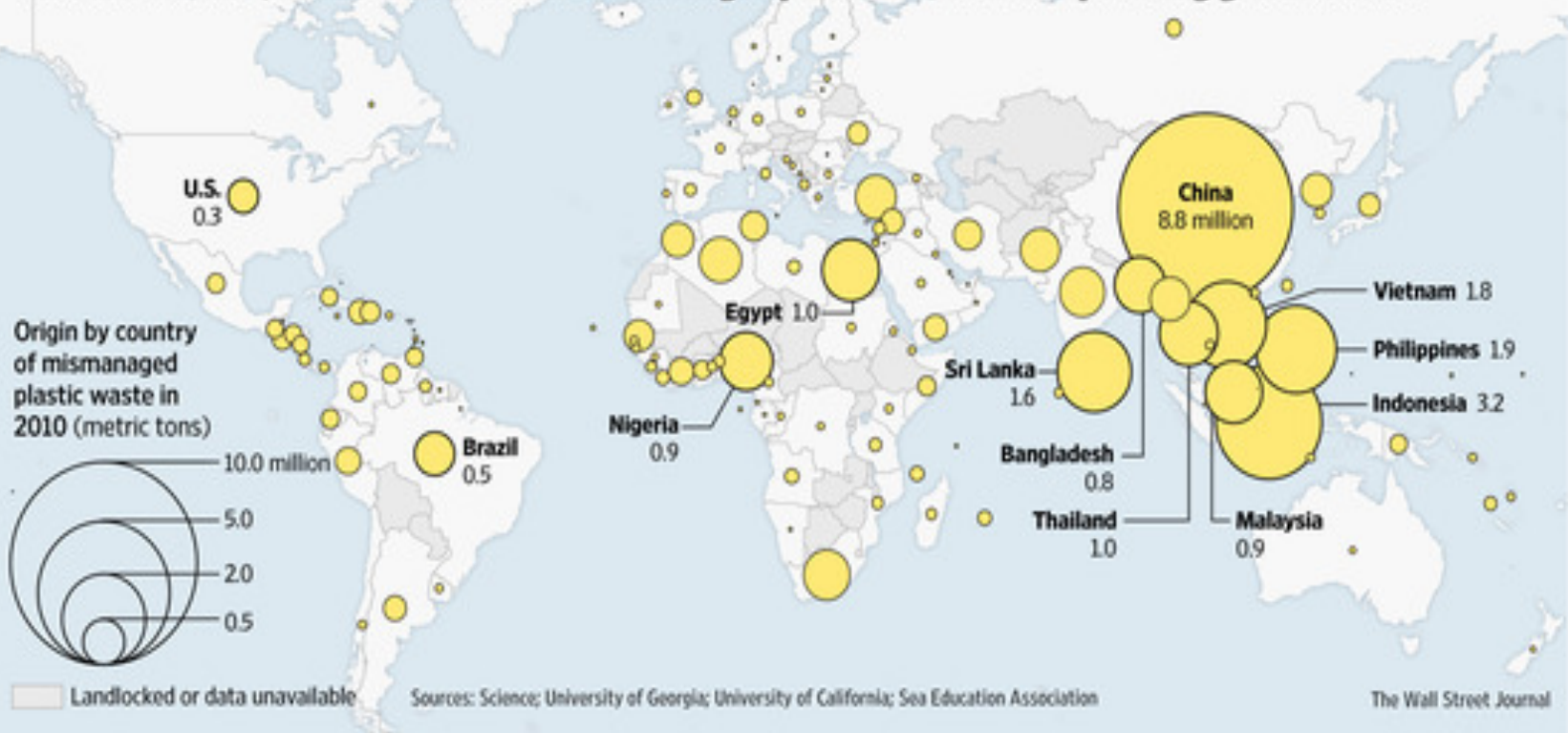
- Exhibition:** A man is speaking into a microphone, likely presenting at an exhibition. In the background, a woman is looking at a poster for 'marGnet' (www.margnet.eu) titled 'Mapping and recycling of litter and Ghost nets. The "marGnet" project'. The poster also lists 'Aims of the project: REDUCE, DETECT, RECYCLE' and includes a map of the Mediterranean Sea.
- Workshop:** A man is working on a laptop in a workshop setting. The caption below reads 'Workshop CNR - Officine di Cartigliano, revisione del concept progettuale'.
- Diagram:** A hand-drawn diagram showing a 'POMPA ACQUA' (Water Pump) connected to a 'CESTINO' (Basket) and a 'SEA BIN'. The diagram illustrates the process of collecting litter from the sea.
- Workshop:** A group of people are gathered around a table, discussing and working on prototypes. The caption below reads 'Workshop CNR - Officine di Cartigliano, revisione prototipi'.





# 90% of plastics comes from 10 main rivers

**Ocean Detritus** | Much of the world's mismanaged plastic waste ends up fouling global waters



# The marine litter occurrence in the MED

DENSELY POPULATED AREA

WITH **INTENSE HUMAN ACTIVITY**

+ 208-760kg/year per capita of solid urban waste  
produced by 150 million people

**OVER 200 MILLION TOURISTS**

+40% marine litter  
during summer

INADEQUATE

**WASTE POLICIES**

Out of the 27 million tonnes/year  
of plastic waste produced  
only a third is recycled

THE MEDITERRANEAN

**"PLASTIC TRAP"**

DEBRIS CARRIED TO SEA

BY **POLLUTED RIVERS**





# Rivers Contract

*Innovative models of local governance for integrated basin / sub-basin management*

RC are a form of negotiated planning that:

- helps to involve social actors
- improve people's knowledge of current territorial conditions and the effects of human activities;
- increase social awareness;
- include society in the identification and implementation of solutions;
- encourage innovative changes in planning objectives and urban and architectural design, starting with the legal and planning framework of an Action Plan.

Starting from the '80 s, RA were experimentally tested in Belgium and France and currently widespread also in Italy.







Sviluppo sostenibile e rapporti internazionali » Politiche di coesione 2014-2020 » CReAMO PA – Competenze e reti per l'integrazione ambientale e per il miglioramento delle organizzazioni della PA » L6 Rafforzamento della Politica integrata delle risorse idriche » WP2 Gestione integrata e partecipata dei bacini/sottobacini idrografici » Galleria fotografica L6 WP2 » Osservatorio Nazionale dei Contratti di Fiume "La partecipazione pubblica nella gestione dei corpi idrici" - Roma 9 aprile 2019

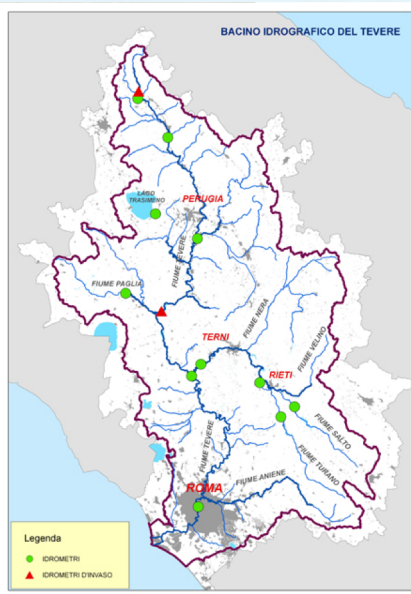
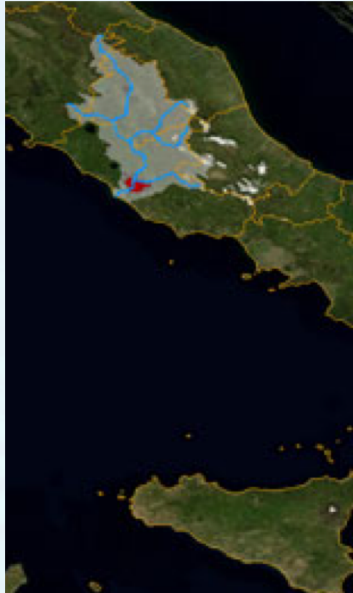
## OSSERVATORIO NAZIONALE DEI CONTRATTI DI FIUME "LA PARTECIPAZIONE PUBBLICA NELLA GESTIONE DEI CORPI IDRICI" - ROMA 9 APRILE 2019



# ACTIVITIES:

Tiber - basin

Education



Civil society





## Workshop

“building the 3 years action plan for Tiber”

Participants: Municipalities/Region

Research, associations, private (?)



**PLASTIC monitoring and collection  
in THE ACTION PLAN with dedicated project/finding etc**







River TIBER



REGIONE  
LAZIO

CONTRATTI  
DI FIUME



1 Month  
500kg of litter

Regione Lazio  
COREPLA  
CASTALIA



