



Global Monitoring System for ML – concept development



Global Programme of Action for the Protection of the Marine Environment

- The GPA is an intergovernmental programme to prevent the degradation of the marine environment from land-based activities.
- The GPA now hosts and serves as Secretariat for the Global Partnership on Marine Litter (GPML), which was launched at Rio+20, June 2012
 - Seeks to protect human health and the environment by the reduction and management of marine litter
- Multi-Stakeholder Partnership (IGOs, Governments, NGOs, Private sector, Academia)
- UNEP's Role: Convening power & Coordinate with relevant initiatives



Frameworks & MEAs– ML relevant

- IMO- MARPOL 73/78 Annex V (garbage from ships) / London Convention and Protocol on Dumping;
- FAO Code of Conduct for Responsible Fisheries
- Regional Seas Conventions and Action Plans;
- Basel Convention;
- CBD, CMS, IWC
- UNCLOS – ICP 17 – Marine debris plastics and microplastics
- G7 Action Plan on ML, OECD, EU, Ocean Conservancy, etc.



UNEA Resolution 1/6

Marine Plastic Debris and Microplastics:

- Encourages Governments, intergovernmental organizations, industry and others to **cooperate with the Global Partnership on Marine Litter**
- Requests UNEP to provide **support to the development of marine litter action plans** upon request by countries
- Request UNEP ED to **present a study on marine plastic debris & microplastics to UNEA-2**

Implementation: Action plans/nodes/networks

- **ML Action Plans:**

- **Regional:** Mediterranean (2014), Caribbean (2014), Northwest Pacific (2008), (OSPAR (2014), HELCOM (2015)) – pipeline: e.g. ROPME, SACEP, SPREP, COBSEA,
- **National:** Nigeria
- **Municipal:** Panama, Peru, Ecuador, Chile, Colombia, Brazil (draft Niteroi)

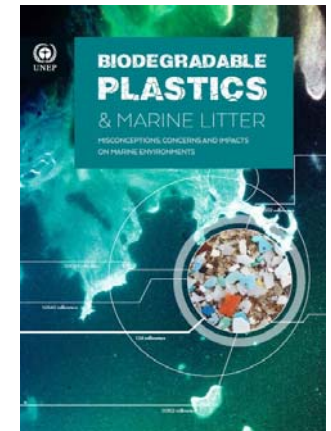
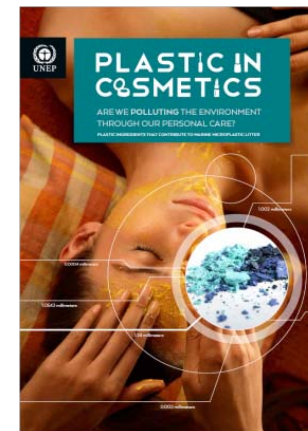


Implementation: General

- Valuing Plastic publication (2014) – Trucost & Plastic Disclosure Project

Series of short papers (2015):

- Plastics in Cosmetics – is our personal care polluting the environment?(2015)
- Biodegradable plastic (2015), Microplastic and foodsafety, etc.



Implementation: Phase out microbeads

- 4360 tonnes of microplastic beads
(2012 in EU plus Norway and Switzerland)
- Internationalization of the “Beat the microbead” initiative (PSF and NF)
 - Promotes a phase out of microbeads by industry. <http://get.beatthemicrobead.org/>
 - **77** NGO’s from **33** countries - App in **9** languages
 - **59** industrial companies promised to phase out microplastics



Implementation: Study – UNEA 2 (GESAMP WG 40)

- Main sources and categories of plastics and microplastics;
- Physical/chemical models to simulate the **behaviour of plastics/microplastics in the ocean** to improve current assessment technologies.
- Occurrence/effects of microplastics in **commercial fish /shellfish species**.
- **Scales of accumulation** of plastics and accompanying chemicals and effects of nano-scale plastics on marine organisms
- **Risk of physical and chemical effects** of ingested microplastics on marine organisms.
- Significance of plastics and microplastics as a **vector for organisms**, facilitating the spread of non-indigenous (alien) species.





Implementation: Scientific assessment – UNEA 2

- Modelling and monitoring incl. regional comparisons (hotspots) (CSIRO)
- Socio-economic component (IEEP).
Costs of non-action and action
- Best Available Technologies (ACC)
- Best Environmental Practices (BEPs)
- Advisory Group established
8-10 December, Nairobi

Implementation: MOOC

Massive Open Online Course on Marine Litter

Leadership Track:

8 hours of learning consist of 2 blocks (4 hrs each)

Expert Track:

32 additional hours consisting of 6 blocks (4 hrs each)

6500 students enrolled



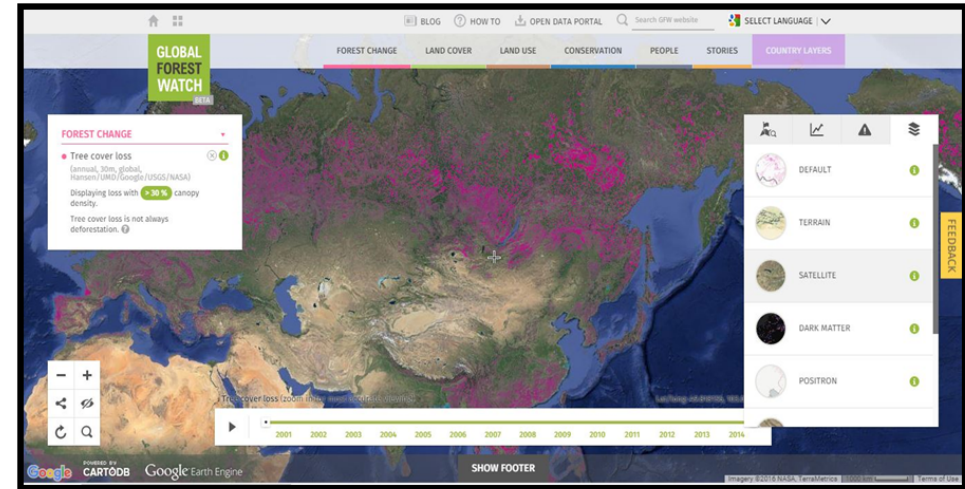
Implementation: Future Activities

- Global Campaign on Marine Litter
- Innovation Challenge for Universities/private sector (2016/17)
 - Engineering (redesign, prevention)
 - Communication (raise awareness/engage)
 - Prediction/recovery (modelling, hotspots)
- Plastics management strategy SIDS
- Global Monitoring Platform for ML



Example: Global Forest Watch

- Developed by World Resources Institute (WRI)
- <http://www.globalforestwatch.org/>
- Free online forest monitoring and alert system
 - High resolution satellite images
 - Interactive Online Map
 - Mobile App
 - Crowdsourcing and Open data



Source: Global Forest Watch

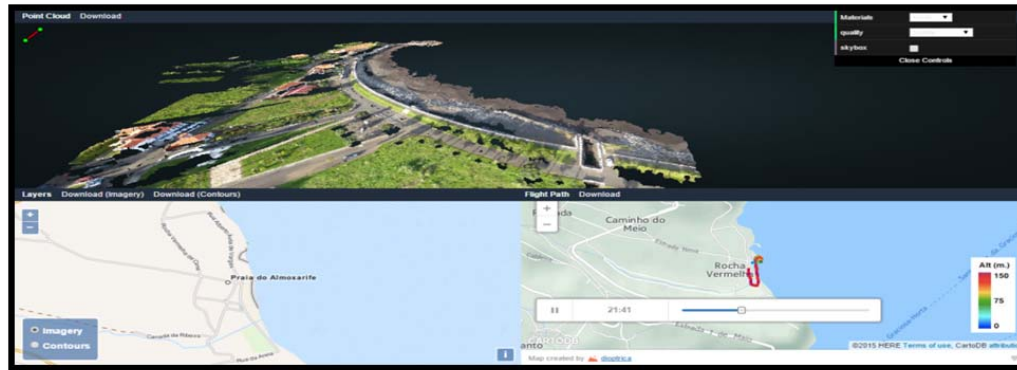


Global Monitoring System for Marine Litter

- Develop a Global Monitoring System for Marine litter within the framework of GPML to include:
- A web portal platform
- Mobile Apps (for citizen science)
- Network of partners

Example: Race for Water Odyssey

- senseFly eBee Drone
 - Absolute accuracy down to 3cm
 - GSD down to 1.5cm/pixel
 - Low cost(10K USD)
 - Produce geo-referenced 2D orthomosaic and 3D models with reflectance maps
- Identification of macro plastics on shorelines and assess damages in the environment. (Duke & Oregon State University)



Source: Race for Water Odyssey



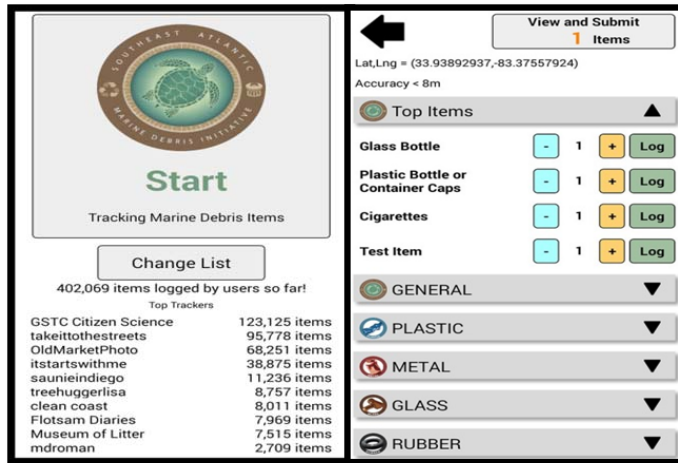


Citizen Science

- Users can report or upload marine debris data to the platform through mobile/web portal.
- Data: litter categories, quantities, GPS, photos(optional), etc.
- Outreach platform to increase public awareness
- Associate with social media platforms

Existing Citizen Science Platforms

Mobile Apps : Marine Debris Tracker (NOAA & UoG), Marine LitterWatch (EEA), Global Alert (ORA), Thrash Hunters (PSF & Microsoft), etc.



Marine Debris Tracker



Marine LitterWatch

Existing Citizen Science Platforms

- Web Platform: Australian Marine Debris Database, Dive Against Debris, Marine Debris Database, Ghost gear App(under development),etc.



Dive Against Debris



Marine Debris Database



Potential Partners

Government Agencies: *EU, NOAA, etc.*

Academia & NGOs: *Ocean Conservancy, Conservation Drones, etc.*

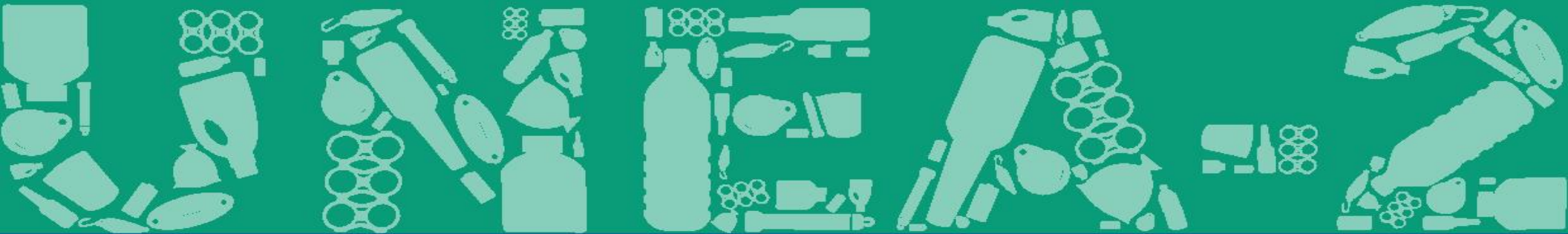
Companies: *ESRI, Google, senseFly, DJI, etc.*

Citizen Science Platforms:
Zooniverse, Marine Debris Tracker, Marine LitterWatch, etc.

Any Other Thoughts?



- The Second session of the United Nations Environment Assembly, 23-27 May 2016
- High-Level Segment taking place from 26 to 27 May 2016.
- Study on Marine Plastic Debris and Microplastics
 - Technical report + Summary
 - Policy relevant recommendations
 - → recommendations marine litter
- UNEP-Live: facilitate the exchange and sharing of latest data, information, assessments and knowledge amongst member countries, research networks, communities of practice, indigenous peoples and society (keep environment/emerging issues under review)



Interactive
Microplastics Station

Solutions
Kitchen

Art
Exhibition

Marine Litter Exhibit Proposal

May 2016

Visible
Recycling

Innovation
Station

Presentations
& Events



JOIN US!

Thank you for your attention



www.unep.org/gpa/gpml
www.marinelitternetwork.org

