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.
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


Series of short papers (2015):

- Plastics in Cosmetics – is our personal care polluting the environment? (2015)
- Biodegradable plastic (2015), Microplastic and food safety, 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/](http://get.beatthemicrobead.org/)
  - **77 NGO’s from 33 countries** - App in **9** languages
  - **59 industrial companies promised to phase out microplastics**
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
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: MOOC
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.
Existing Citizen Science Platforms

- Web Platform: Australian Marine Debris Database, Dive Against Debris, Marine Debris Database, Ghost gear App (under development), etc.
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)
Art Exhibition
Interactive Microplastics Station
Innovation Station
Solutions Kitchen
Visible Recycling
Presentations & Events

Marine Litter Exhibit Proposal
May 2016
JOIN US!

Thank you for your attention

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