The Road Map of the Initiative and its Implementation

Hans-Peter Plag
Mitigation and Adaptation Research Institute (MARI)
Old Dominion University
The 2018 Workshop

Plastics in the Oceans
November 26-27, 2018, Brest, France

THE WORKSHOP  LOGISTICS  SCHEDULE  PROGRAM

Technologies for Observing and Monitoring Plastics in the Oceans

Plastics in the oceans pose a mounting existential threat to life in the oceans and on land, including human life, and technologies to observe, measure and monitor the flow of plastics into, and within, the oceans are urgently needed in support of mitigating the threat.

Goals and Scope

The event assessed the potential of science and technology to address the mounting global plastic challenge. The workshop brought together experts investigating the sources of plastics in the ocean and scientists and engineers focusing on existing and new observation technologies to detect and quantify plastics in the ocean. The outcome includes recommendations to major institutions and funding agencies for future technology initiatives.

Recognising targets for ocean plastic and related indicators, the workshop examined observation techniques and their potential for deployment. Indeed, UN Environment is interested in finding support for their efforts on developing the methodology for monitoring marine debris along with producing some test cases indicator 14.1.1 “Index of coastal懊恼isation and fixation...
The 2018 Workshop

- **40 Participants**
- **12 Countries**
- **Research**
- **Business**
- **Governmental**
- **Non-Governmental**
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Draft Roadmap
- 5 years goals
- 2 years goals
- Six Months Goals
Technologies for Observing and Monitoring Plastics in the Oceans

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I. INTRO

Plastics are integrated in a trade and use from the cloth buildings we live and work in orders are protected, the services for water, power, transportation to us, and the utilize. In 2015, an estimated were produced and of that 16 of less than 6 months [1], plastics, along with an estima...
### StayWoke: Participate, Collaborate, Understand

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The 2018 Workshop
The 2018 Workshop

StayWoke: Participate, Collaborate, Understand

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6 months. Better understanding of the plastic pollution impacts on citizens (ex. Blue Planet TV programme in the U.K.).

Submitted on 11/28/2018 06:37:45pm.

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Marine Debris Indicators: What’s Next?

An IEEE OES event
16-18 December 2019 – Brest, FRANCE

Marine debris poses a mounting threat to life in the oceans and on land, including human life, and technologies to observe, measure and monitor the flow of debris into, and within, the oceans are urgently needed in support of mitigating the threat.

Goals and Scope

The goal of the November 2018 workshop on “Technologies for Observing and Monitoring Plastics in the Oceans” was to identify future technology initiatives able to address the mounting global marine debris with particular focus on plastics in the ocean. The workshop addressed the interest of the UN Environment Program in finding support for their efforts to develop the methodology for monitoring marine debris indicators, in particular the indicator 14.1.1 “Index of coastal eutrophication and floating plastic debris density” of SDG 14 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development.” The major outcome of this workshop was a set of activities and goals for six months, two years and 5 years, which provided an initial roadmap (see Garibello et al., 2019).

Recognizing the UN targets for ocean plastic and related indicators, the second Marine Litter workshop brought together experts on observations and monitoring of marine debris and plastics with decision and policy makers in need of comprehensive information on this challenge. Focusing on targets and performance indicators, the goal was to converge towards common best practices and potential standards. Bringing in relevant stakeholders, the workshop also fostered collaborative networks to ensure that evidence-based decision and policymaking are possible.

The workshop built on the recommendations from the 2019 Workshop and aimed to achieve a comprehensive description

Participation

The workshop aimed to bring together a broad range of stakeholders from the Earth observation communities, research communities assessing the intermediate and longterm impacts of marine debris, United Nations and national agencies engaged in progress towards SDG 14, businesses that are aiming to tackle various aspects of the problem of marine debris, as well as, experts working at the interfaces between these communities with the goal to ensure that knowledge required for policy making is created, accessible and useable.

More than 50 in-person and remote participants from twelve countries represented a wide range of stakeholders from all societal sectors.
The 2019 Workshop

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WORKSHOP SUMMARY REPORT
Edited by Hans-Peter Plag

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This workshop was sponsored by:

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More than 50 in-person and remote participants from 34 countries represented a wide range of stakeholders from societal sectors.
Figure 2: Vision graphics produced at the 2019 Brest workshop. The graphics in the upper right corner was selected as the consensus one.
The 2019 Workshop

Session 7: Road Map

The participants worked collaboratively on the further development of the road map. Main focus was on the next six months. For the next six months prior to the next workshop to be held in Lisbon, Portugal, the following points were collected:

- Community building and organization:
  - How to benefit from it?
  - Identify and connect scientific communities;
  - Governance.
- Finance:
  - Donors funding;
  - Budgeting;
  - A project to commit time.
- Strategy:
  - Scoping of targets;
  - Connecting knowledge and action.
- External stakeholders:
  - Identify stakeholders;
  - Synergies;
  - Understand stakeholder needs.
- Content:
  - Monitoring;
  - Mitigation;
  - Value added;
  - Problem identification;
  - Scoping of contributions.

The action plan for the next six months prior to the third workshop to be held in June 2020 in Lisbon, Portugal.
The Road Map

Six Months Goals
- Community
- Funding
- Observation and Monitoring
- Mitigation of Plastics Presence
- Meeting Knowledge Needs & Informing Policies
- Linking Knowledge to Action

Two Years Goals
- Community
- Observation and Monitoring
- Mitigation of Plastics Presence
- Meeting Knowledge Needs & Informing Policies
- Linking Knowledge to Action

Five Years Goals
- Observation and Monitoring
- Reduction of Use and Waste
- Mitigation of Plastics Presence
- Governance

2018 2019 2020 2021 2022 2023 2024
Meeting Knowledge Needs
- Understand stakeholder needs and scope the targets
- Common goals & work alignment
- Define accurately what micro-plastics are.
- Disseminating routinely the advances (conferences etc.).

Linking Knowledge To Action
- Create a motion design about the plastic challenge or other video materials.
- The UN/Gesamp report on strategies/methods on plastic monitoring - regional seas.

Meeting Knowledge Needs
- Targets and performance indicators
- EOVs to indicators (SDGs etc).
- Sanitary impacts of micro-plastics
- Full picture of plastics life cycle and life time processes of fragmentation, biofouling, and sedimentation.

Linking Knowledge To Action
- Co-Creation of knowledge event (participatory modeling) to ensure that evidence-based decision and policy-making is possible.
- Processing platform from multi-sources "Plastic" observations
- Platform and meta data structure

- Directive (FR, EU): economic model for marine litter recycling
- Establishment of rigorous protocol to pass scientific outcome to policy (International UN Decade of Oceans).
- Global governance effort on plastics (with focus on oceans) leading to a convention.
The Road Map

Mitigating the Plastic Threat and Reducing its Presence

- Better understanding of the plastic pollution impacts on citizens (ex. Blue Planet TV program in the U.K.).
- An appropriate sorting of fishing gears in port facilities and subsequent up-cycling.

Mitigation:
- Pollution treatment - de-pollution systems (macro-plastics) fully functioning
- Develop economy for marine litter

Reduction of Plastic Use and Waste:
- Ban single use items everywhere (including cruise and cargo ships)
- Replace plastics by biodegradable items
- Develop new plastic-free designs
- Reduce plastics flow into the ocean by 50%
- Stop discarding of fishing nets
- Change of customers' practices

6 Months

2 Years

5 Years
Identify the problem
Discussion on EOVs: Are plastics an EOV?
Summary of available technologies to detect, observe and monitor micro-plastics in the ocean.
Determine data gaps.
Scoping of contributions and identify the value added

Micro-plastics monitoring in water column becomes real.
Implementation strategy for observing network
Defining some terms of reference to support long-term monitoring.
Data strategy, policy, and archive

Full plastics and micro-plastics monitoring and mitigating plastics presence
Gather all scattered survey and inventory data of micro-plastics in one database; create a plastic inventory of stocks and flows:
- 3D map; surface, water column, sea bed
- input/sources: rivers, coasts, ships
- sinks: close budget.
- trends

6 Months
2 Years
5 Years
Clarify: How do I benefit from the community?
Identify all stakeholders, explore synergies, and connect to other communities
Structure our community
Establish Steering group.
International Plastics Litter Coordination Group
  1. Monitoring: a: Indicators, b: technologies
  2. Policies
  3. Reports
Seed funding: (a) budgeting, (b) donors, (c) a project

Creating a collaborative virtual group
Organizing National Advisory Groups (stakeholders).
Procedures described and collaborative work
Sustained funding

The Road Map

Community

6 Months

2 Years
Main Gaps

Plastic Production
- What types?
- What quantities?
- Where?
- By whom?
- What resources are used?
- What impacts result from resources use and plastic production?

Society
- What uses?
- What quantities?
- Where?
- By whom?
- What use times?
- How much waste?
- Where are main stocks that will result in future waste?

Oceans
- What sources?
- What quantities?
- Where?
- What impacts?

Flows
- How much is lost during production?
- How much returns into society?
- What brings is back to society?
Main Gaps

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**Flows**
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**Degradation? Sedimentation?**
Main Gaps

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Oceans
- What sources?
- What quantities?
- Where?
- What impacts?
- Degradation?
- Sedimentation?

Flows
- Shipping
- Fisheries
- Storm surges
- Tsunamis
- Extreme precipitation
- Rain

Flows
- How much returns into society?
- What brings is back to society?
Main Gaps

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Flows
- How much is lost during production?
- How much returns into society?

Oceans
- What sources?
- What quantities?
- Where?
- What impacts?
- Residence time

Flows
- Shipping
- Fisheries
- Lakes and rivers
- Storm surges
- Tsunamis
- Extreme precipitation
- Rain

- Degradation?
- Sedimentation?