



Concept note

Marine debris and micro plastics off Western Africa, based on the surveys with the RV Dr Fridtjof Nansen

IMR, Bergen, 26-30 November 2018

Background

The presence of marine debris and microplastics is considered as one of the important emerging environmental issues in the marine environment and has been receiving growing attention internationally. For this reason, a dedicated research theme (Theme 6, Marine debris and microplastics) has been included in the EAF-Nansen Programme Science Plan. A major contribution is expected to come from sampling for marine debris and microplastics with the RV *Dr Fridtjof Nansen*.

Plastics cover the size ranges with diameter from nano (< 100 nm); micro (< 5 mm); meso (<2.5 cm), macro (<1 m) and mega (> 1m). Main concerns are related to their possible impact on marine organisms, marine food chains and human health.

The RV *Dr Fridtjof Nansen* has carried surveys off West Africa since the 1980s with the main objective to monitor fishery resources status. In the past years, information on occurrence of marine debris in trawl gear has also been recorded. In 2017, in connection with the pelagic resources and ecosystem survey along the whole coast of West Africa, systematic sampling for occurrence of microplastics in surface waters was carried out using a manta trawl. Samples collected have been taken to IMR for analysis with Fourier transform infrared (FTIR) methodology that allows to distinctly identify and quantify microplastics particles in environmental samples. It should be noted that while there is growing interest in learning more about the presence of microplastics, and the possible threats they represent to the marine environment, the methodology for assessing occurrence and monitoring is still developing.

It is important now that collaboration is established to review the samples collected so far, discuss the methodology proposed for analysis of these samples and discuss relevant scientific work to be undertaken based on data and samples collected through the surveys with the RV *Dr Fridtjof Nansen*. A workshop is therefore proposed with participants from cooperating countries from West Africa and other interested partners. The workshop would also offer an opportunity to review data available in Nansis related to the occurrence of marine debris in trawl gear recorded since 2009.

The specific objectives of the workshop are as follows:

- Provide an overview of microplastic samples collected so far;
- Review methodology for analysis of samples for microplastics (between 5µm to 5 mm), including practical work;
- Provide an overview of data available on occurrence of marine debris in trawl gear (Nansis)
- Review methodology for sampling microplastics (surface, water column and bottom sediment) and agree on future sampling strategy;

- Prepare outlines for possible articles based on the samples collected off West Africa with the RV Dr Fridtjof Nansen.

Outputs:

- Counterparts aware of methods available for analysis of microplastics
- Improved survey design for future sampling
- Titles, outlines and respective responsibilities for the preparation of scientific papers.

Participation

- Resource persons with relevant background from partner institutions in Africa and in the BoB;
- International partners (IAEA, GESAMP, UNEP);
- FAO
- IMR

Draft Agenda

Monday 26 November 2018		
Day 1 Introduction and background		
09.00-09.20	<ul style="list-style-type: none"> • Welcome • Background for the meeting • Introduction of participants 	EAF-Nansen Programme Coordinator/ EAF-Nansen Programme Research Coordinator
09.20-10.30	<ul style="list-style-type: none"> • GESAMP work on microplastics • FAO's work on microplastics • IAEA's work on microplastics • UNEP • Discussion 	Peter Kershaw Tarub Bahri Heidi Savelli All
10.30-10.45	<i>Coffee break</i>	
10.45-12.30	<ul style="list-style-type: none"> • Work on microplastics at the country level (presentation by countries) 	Bjørn Einar Grøsvik (Norway) Participants
12.30-13.30	<i>Lunch</i>	
13.30-15.30	<ul style="list-style-type: none"> • Work on microplastics at the country level (cont.) 	
15.30-16.00	<i>Coffee break</i>	
16.00-17.00	<ul style="list-style-type: none"> • Microplastics and the EAF-Nansen Programme (presentation of Theme 6) • Discussion 	Bjørn Einar Grøsvik Gabriella Bianchi / Tarub Bahri
17.00	<ul style="list-style-type: none"> • <i>End day 1</i> 	
Tuesday 27 November		
Day 2: Investigation methods for microplastic and marine debris .		
09.00-10.30	<ul style="list-style-type: none"> • Guidelines for the monitoring and assessment of plastics in the ocean (GESAMP) • Discussion 	Peter Kershaw
10.30-11.00	<i>Coffee break</i>	
11.00-12.30	<ul style="list-style-type: none"> • Overview of the microplastic samples collected by the RV Dr. Fridtjof Nansen since May 2017 • Overview of data available on occurrence of marine debris in trawl gear during the Dr. Fridtjof Nansen survey operations since 2009 • Discussion on available data, methodologies and sampling protocols 	
12.30-13.30	<i>Lunch</i>	

13.30-15.30	<ul style="list-style-type: none"> • Group work on sampling protocols <ul style="list-style-type: none"> ○ Group 1: microplastics ○ Group 2: marine debris 	
15.30-16.00	<i>Coffee break</i>	
16.00-17.00	<ul style="list-style-type: none"> • Group reporting to plenary 	
17.00	<i>End of day 2</i>	
Wednesday 28 November 2018		
Day 3 Laboratory activity: analysing microplastic samples with FTIR methodology		
09.00- 10.30	<ul style="list-style-type: none"> • Introduction on the method • Discussion 	Bjørn Einar Grøsvik
10.30-10.45	<i>Coffee break</i>	
10.45-12.30	<ul style="list-style-type: none"> • Laboratory exposure (handling of microplastics samples and processing technology) 	Bjørn Einar Grøsvik
12.30-13.30	<i>Lunch</i>	
13.30-15.30	<ul style="list-style-type: none"> • Discussion on FTIR and other methodologies for microplastics 	Bjørn Einar Grøsvik
15.30-16.00	<i>Coffee break</i>	
16.00-17.00	<ul style="list-style-type: none"> • Experiences on quantifying marine debris from trawl samples and video observations 	Lene
17.00	<ul style="list-style-type: none"> • <i>End day 3</i> 	
Thursday 29 November 2018		
Day 4 Developing research projects		
09.00- 10.30	<ul style="list-style-type: none"> • Identification of main knowledge gaps • Discussion 	Tarub Bahri
10.30-10.45	<i>Coffee break</i>	
10.45-12.30	<ul style="list-style-type: none"> • Discussion on knowledge gaps that can be addressed through the sampling on board the RV DR. Fridtjof Nansen 	Bjørn Einar Grøsvik
12.30-13.30	<i>Lunch</i>	
13.30-15.30	<ul style="list-style-type: none"> • Group work to develop research proposals • Group 1: microplastics • Group 2: marine debris 	Gabriella Bianchi
15.30-16.00	<i>Coffee break</i>	
16.00-17.00	<ul style="list-style-type: none"> • Group work (cont.) 	

17.00	<ul style="list-style-type: none"> • End day 3 	
Friday 30 November 2018		
Day 5: Developing research projects		
09.00- 10.30	<ul style="list-style-type: none"> • Groups reporting to plenary on research proposals and discussion on budget, responsibilities and timeline 	Group leaders
10.30-10.45	<i>Coffee break</i>	
10.45-12.00	<ul style="list-style-type: none"> • Discussion 	
12.00-12.30	<ul style="list-style-type: none"> • Summing-up and closing 	
12.30-13.30	<i>Lunch</i>	