



## ***CSC Seminar: "Microplastics in the Caribbean: Sources, Impacts and Monitoring Methodologies"***

Date: Monday, October 31<sup>st</sup> - Friday, November 4<sup>th</sup>, 2022

Time: 10:00 -14:30 hours (-4 GMT)

Platform: WebEx

### **Introduction**

The Association of Caribbean States (ACS) in collaboration with the Institute of Marine Affairs (IMA), the United Nations Environment Programme (UNEP) through the Cartagena Convention Secretariat, the Mexican Agency for International Development Cooperation (AMEXCID), the Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV), and the Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC- Caribbean) will launch a Caribbean Sea Commission (CSC) course titled: "Microplastics in the Caribbean: Sources, Impacts and Monitoring Methodologies". This course will be held virtually from Monday October 31<sup>st</sup>, to Friday November 4<sup>th</sup>, 2022.

The Greater Caribbean Region (GCR) is an area of 3 million km<sup>2</sup> and has 37 countries. It is home to 10% of the world's population. The GCR is one of the regions with the greatest biodiversity, and has the second largest coral reef on Earth. 11% of the fishing catch is captured in the Caribbean and it is an international tourist destination and the most dependent region on Tourism.

It is important to remember that humanity is facing a triple environmental crisis: rising temperatures and sea levels; the sixth mass extinction of species and loss of habitats; and pollution in every corner of the world.

Countries in the GCR are heavily dependent on the ocean for socio economic prosperity and human well-being. Sectors like tourism, fisheries and maritime transportation depend directly on the ocean and its resources. Unfortunately, the GCR is also one of the most vulnerable regions to external threats including climate change, pollution and biodiversity loss. Plastic pollution from land and marine-based sources is of particular concern with the Caribbean Sea reported as being the second most plastic-polluted sea in the world.

Other reports have suggested that Caribbean islands are the largest per capita plastic polluters in the world, with land-based activities generating between 70-85% of the litter that ends up in the Caribbean Sea. Countries such as Trinidad and Tobago, Antigua and Barbuda, St. Kitts and Nevis, Guyana, Barbados, Saint Lucia, Bahamas, Grenada, Anguilla and Aruba generate more plastic waste than the weight of 20,000 space shuttles.

The impacts of solid waste that reaches the oceans poses biological, ecological, physical and chemical threats to the environment and the biodiversity harbored there. It is estimated that the amount of plastic waste flowing into aquatic ecosystems will triple by 2040. Given the importance of oceans for regulating climate and generating most of the oxygen we breathe, supporting key economic sectors and sustaining coastal and marine biodiversity, the increasing plastic pollution is predicted to have serious negative socio-economic impacts.

In light of these circumstances, it is essential to transform Caribbean economies and societies to make them more inclusive, just and more connected to nature. Societies must work together to address threats and pressures while striving for long term sustainability and human well-being.

Several actions have been taken recently to address the problem of plastic pollution in particular. These include: An assessment of regulatory responses to reduce marine pollution from single-use plastics and polystyrene; Introduction of legislative policies that include fines and penalties for non-compliance by 11 Caribbean countries; Convening of several capacity building and awareness raising programs and forums about marine litter and plastics pollution targeting a broad range of stakeholders participation, as well as implementation of extensive public education campaigns on solid waste and plastic pollution and development of a range of knowledge management products. The UN Environment Assembly recently approved 14 resolutions to curb pollution, protect and restore nature worldwide, in the particular case of plastic pollution is the resolution 'End Plastic Pollution: Towards an internationally legally binding instrument'.

Given the transboundary nature of this issue, there is a need to go beyond individual national efforts and harmonize regional and international approaches to prevent, control and reduce plastic pollution in the Caribbean Sea. Additionally, it is necessary to assess the sources, impacts and necessary responses to address the issue of microplastics. According to the U.S. National Oceanic and Atmospheric Administration (NOAA), microplastics are small fragments of plastic (less than 5 mm in length) that can cause pollution by entering natural ecosystems. They can originate from numerous waste sources, including cosmetics, clothing, food packaging, and industrial manufacturing processes. Due to the slow degradation of plastics, microplastics of a toxic nature have a high probability of being ingested by living organisms, that when entering each organism they gradually accumulate in body tissues as toxic substances and consequently along the food chain.

Several regional mechanisms for cooperation already exist including the Land-Based Sources of Marine Pollution (LBS) Protocol of the Cartagena Convention and the Caribbean Regional Marine Litter Node (hosted by the Gulf and Caribbean Fisheries Institute and the Cartagena Convention Secretariat) as well as several regional strategies and action plans including: (i) Regional Action Plan on Marine Litter, (ii) Regional Marine Litter Strategy (iii) Regional Action Plan on Solid Waste,

(iv) Harmonized approach to Marine Litter Monitoring; (v) Action Plan for Harmonized Marine Litter Monitoring in the Wider Caribbean region.

Collectively, these frameworks and mechanisms can form the basis for a more focused attention on the issue of microplastics by facilitating collaboration to train regional stakeholders in **data acquisition (sampling techniques and laboratory processing), data analysis and interpretation, and on policy interventions.**

### **General Objective:**

Disseminate knowledge on the major sources and impacts of plastics pollution of the Caribbean Sea, with a specific focus on the current status of pollution by microplastics. Elaborate on the sampling methodologies for microplastics in different substrates, and the identification, quantification and analysis techniques for microplastics in water, sediment, animal and plant biota, and on beaches. Work collectively to identify practical solutions to control, reduce and/or prevent plastics pollution while improving understanding of the state of microplastics pollution of the Caribbean Sea.

### **Objectives:**

- Highlight the importance of the Caribbean Sea for the socio-economic development of the Wider Caribbean Region including the value of its coastal and marine ecosystems and the threats they are facing with a focus on solid waste and plastics
- Understand the existing Governance structure for managing the use of the Caribbean's coastal and marine resources and the protection of the Caribbean Sea
- Review the national, regional and global governance responses to plastic pollution; including Policies, Legislation and Regulations about single-use plastics, solid waste, marine litter and plastics management, use of waste as a resource and the circular economy, and the new global plastics agreement under development
- Understand how the existing consumption and production patterns are directly associated with increased **solid waste and chemical pollution** and in particular of plastics and microplastics.
- Learn the methodology to determine the level of microplastics in water, sediments and marine organisms
- Analyze the use of biomarkers as an expression of microplastic contamination

### **Specific information:**

Duration: 1 week. 4 Hours per day with 15 minutes refreshment break, 20 hours in total.

### **Target Audience**

Policy and Decision makers

Scientists/ Academia

Environment Ministries/ Regulators

Waste Management Authorities

Interested Private Sector Entities- Manufacturing sector/ Key Industry Stakeholders.

CSOs with interest in reducing microplastics pollution.

Students in general

**Languages**

English, French and Spanish

**Organizers**

CINVESTAV

AMEXCID

ACS

UNEP

IMA

BCRC-Caribbean

**ASSOCIATION OF CARIBBEAN STATES (ACS)  
CARIBBEAN SEA COMMISSION (CSC)  
SEMINAR: "MICROPLASTICS IN THE CARIBBEAN: SOURCES,  
IMPACTS AND MONITORING METHODOLOGIES"  
(Virtual Seminar)**

ACS Secretariat – Port of Spain 31<sup>st</sup> October 2022 – 4<sup>th</sup> November 2022

**DRAFT ANNOTATED AGENDA**

<b>Time</b>	<b>Day 1 - The large marine ecosystems of the Wider Caribbean and their importance for tourism, fisheries and new blue economy opportunities</b>	<b>Day 2 - Microplastics in the Caribbean Sea - State of Knowledge</b>	<b>Day 3 - Microplastics contamination in different environments</b>	<b>Day 4 - Human Health impacts and remediation</b>	<b>Day 5 - Governance Frameworks, Policies and legal responses/Best practices to address plastic pollution</b>
10:00-11:00	Opening Ceremony by organizing institutions	Marine Litter - Aleke Stöfen O'Brien	Microplastics in Beaches - Nelson Rangel Buitrago	Microplastic Research at the U.S. Environmental Protection Agency – Dr. Kay Ho	Best Practices - legislation to address Microplastics pollution in the Caribbean Sea – Mexican Senator Beatriz Paredes
	Ecosystems in the Caribbean – Dr. Anjani Ganase			An overview of the effects of nanoplastics in fish - Mariana Teles Pereira	Best practices at landfills (including leachate treatment) and present the case study based on our project at the Beetham Landfill - BCRC
11:00-12:00	Mangroves micro ecosystems - Oliver Gros	Overview of Microplastics with non-invasive methods in marine species in the Caribbean - Dalila Aldana Aranda	Impacts of microplastics in mangrove/sensitive ecosystems - Wendy Nelson	Bioremediation - Amelia Ferres	Best Practices re: policies, legislation to address microplastics pollution in the Caribbean Sea - Christopher Corbin
<b>12:00-12:30</b>	<b>Refreshment Break</b>				

12:30-13:30	The Caribbean and Tourism (All-inclusive/cruises) - Tenisha Brown-Williams	Microplastics status in the Caribbean - La Daana Kanhai	Microplastics in fishes - Hector eyes	Circular Economy - Cristina Cortinas	Discussion & Conclusions - ACS
		Microplastics in the Amazon - Caribbean Basin - Martinelli Filho	Presence of Microplastics in fishes and water - Dr. Clare Morral		
13:30-14:30	Caribbean and Sustainable tourism (low environment impact) -	Microplastics pollution in water, sediments - Luisa Espinosa	Nanoplastics - Pierre-Yves Pascal	Surveys of perception of plastics and state of cleanliness of beaches - Alethia Vazquez Morillas	Installation of the Marine Pollution Network by microplastics in the Caribbean