

IAEA

The International Atomic Energy Agency (IAEA) is the leading international center for scientific and technical cooperation in the nuclear field. The Agency works for the peaceful use of nuclear science and technology, thereby contributing to international peace and security and to the achievement of the United Nations Sustainable Development Goals (SDGs), including the "SDG 14: Life below water".



ARCAL

ARCAL is an Agreement between most IAEA Member States in the Latin America and the Caribbean region for technical and economic cooperation to promote the use of nuclear techniques for peace and development. It provides a framework for Member State collaboration with the support of the IAEA and other international sources of cooperation.



REMARCO

**Marine - Coastal Stressors
Research Network in Latin America
and the Caribbean**

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REMARCO.LAC



REMARCO is a voluntary, non-profit, research and south south collaboration network that uses nuclear and isotopic techniques to address environmental problems of marine-coastal ecosystems in Latin America and the Caribbean.

It relies on the use of harmonized methods and the interdisciplinary and integrated work of scientists and communicators from its member countries to achieve the effective transfer of scientific research results to contribute to evidence based decision making and to the achievement of the Sustainable Development Goals (SDGs).

REMARCO works in following areas:

- Chemical pollution
- Microplastic pollution
- Eutrophication
- Harmful algal blooms
- Ocean acidification



+ 100 scientists



18 countries

Pollution



Deterioration of water quality, detrimental effects on living resources, danger to human health, damage to natural landscapes and obstacles to the development of economic activities are all consequences of pollution of the marine environment. This pollution is the result of human activities that introduce substances -such as domestic and industrial wastewater-, and energy -such as heat, lighting and noise- into the sea.

The Network uses nuclear and isotopic techniques to study coastal zone pollution processes, reconstruct their historical trends and identify their sources, to propose solutions and to measure the effectiveness of management policies.

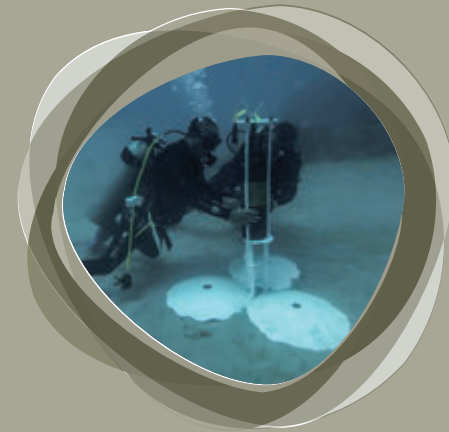
Harmful algal blooms (HABs)



HABs are a natural phenomenon generated by the growth of certain microalgae that produce a harmful effect and can cause severe intoxication and even death of aquatic organisms and humans, due to the consumption of fishery products. The frequency of HABs has increased globally in recent years and affects ecosystems, the safety of fishery resources, public health and the economy of coastal areas.

The scientists of the Network, through a coastal monitoring system, identify and quantify microalgae and their toxins with advanced and standardized methodologies. These results contribute to risk assessment and early warning to prevent adverse effects on ecosystems and humans.

Ocean acidification



The sea is becoming more acidic as it absorbs 30 % of carbon dioxide (CO₂) produced by human activities. This phenomenon, called ocean acidification, reduces biodiversity, ecosystem services and limits the availability and quality of food from the seas.

Network scientists apply nuclear, isotopic and conventional techniques to study the carbon cycle and ocean acidification in order to predict its impact on marine and coastal ecosystems.

The REMARCO Observatory on Coastal Acidification is committed to reporting indicator 14.3.1 of the SDGs, through a network of monitoring stations in Latin America and the Caribbean, which will establish a historical trend of pH in the region and contribute to global baselines and projections. The information gathered is intended to support public policies aimed at mitigating and adapting to climate change.

Eutrophication



Eutrophication is a process that occurs in coastal and inland bodies of water due to excessive nutrient loading, derived mainly from anthropogenic activities, causing the growth of plants, algae and phytoplankton, which can lead to deoxygenation and loss of essential habitats for aquatic organisms.

The Network is making efforts to implement harmonized methodologies to evaluate the trophic state of coastal ecosystems in the region.

This information is useful and necessary for decision makers to generate public policies and integrated management plans aimed at mitigating the effects of nutrient overloading, preserving water quality, protecting biodiversity and the coastal resources that sustain the region's economy.

Microplastics



Microplastics are one of the most alarming, complex and difficult to manage emerging pollutants. They are plastic particles smaller than five millimeters, either manufactured in that size, or as a result of the fragmentation of plastic waste, of industrial and domestic origin, that reaches the oceans. They are incorporated into various levels of the food chain, from plankton to whales, and reach humans through the consumption of fish products.

Network scientists, using advanced nuclear and conventional techniques, quantify and characterize marine pollution by microplastics in water, sediments, and biota of the coastal zone, to improve knowledge on the magnitude, distribution, and effects of microplastics, in support of decision making to mitigate their impacts.