

18th

SESSION IOCARIBE



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Intergovernmental
Oceanographic
Commission

Sub-Commission for the Caribbean
and Adjacent Regions

Subcomisión para el Caribe y
Regiones Adyacentes

6.1.1. HARMFUL ALGAL BLOOMS (HAB/ANCA)

GUSTAVO ARENCIBIA CARBALLO (CUBA) – CHAIR
J. ERNESTO MANCERA PINEDA (COLOMBIA) – VICECHAIR
MARIBELLE VARGAS MONTERO (COSTA RICA)
CARLOS SEIXAS (PANAMÁ)
OSCAR ARMANDO AMAYA MONTERROSA (EL SALVADOR)
KARLA EVELYN PAZ CORDÓN (GUATEMALA)
ERNESTO GARCÍA MENDOZA (MÉXICO)
ZORAIDA A. ZAPATA LANTIGUA (REPÚBLICA DOMINICANA)



Brasilia, Brazil
April 23–25, 2025

PROGRESS REPORT 2023 - 2025:

During the intersessional period, the IOCARIBE-ANCA working group achieved the goals proposed in 2023.

Objectives:

- 1) Increased visibility among the different social stakeholders in the Caribbean region.
- 2) Identify and characterize the microalgae responsible for the intoxications (PSP, DSP, ASP, NSP, Ciguatera), as well as the toxins vector species in the Caribbean and adjacent areas; Strengthening of research on epiphytic toxic dinoflagellates.
- 3) Progress in initiatives on HAB early warning systems.



PROPOSED ACTIVITIES 2023-2025

| Objective | Activity |
|--|--|
| Regional training | Reactivate the current HAB introductory virtual reality course that is in the Play store |
| Collect and analyze information that helps make decisions about HABs in the Caribbean region | Update of the IOC-UNESCO ANCA-HAEDAT platform |
| Strengthen relationships with the economic sector | Conducting the Workshop: Ciguatera as a potential risk for the tourism industry |
| Increased visibility among the different social stakeholders in the Caribbean region. | The Ciguatera book is available in both Spanish and English in digital format. |





RESULTS OF OBJECTIVE 1: ACTIVITIES TO INCREASE VISIBILITY AMONG STAKEHOLDERS

| | |
|-------------------------------------|---|
| Research papers | 12 |
| Books | New edition of: LA CIGUATERA UN RIESGO POTENCIAL PARA LA SALUD HUMANA: Preguntas frecuentes. |
| Catalogues | <ul style="list-style-type: none">✓ Cyanobacteria from the Cerrón Grande Reservoir. ISBN. 978-99983-998-0-8. Year: 2024.✓ Dinoflagelados plantónicos. Pacifico de Guatemala. |
| Seminars, Congress, Courses. | 9 activities |
| Free virtual reality course of HAB. | 6 courses |
| Thesis | <ul style="list-style-type: none">1 Doctoral1 Master |

RESULTS OF OBJECTIVE 2: IDENTIFY AND CHARACTERIZE THE MICROALGAE RESPONSIBLE FOR THE INTOXICATIONS (PSP, DSP, ASP, NSP, CIGUATERA, CYANOTOXINS)

To achieve this objective, different projects, thesis, and monitoring programs, are being carried out both nationally and regionally, among others: Projects financed by the International Atomic Energy Agency (IAEA):

- ✓ RLA 7014 Latin American regional proficiency test on the determination of trace elements and radionuclides in algae, soil and spiked water.
- ✓ RLA 7020 Establishing the Caribbean Observing Network for Ocean Acidification and its impact on Harmful Algal Blooms, using nuclear and isotopic techniques.
- ✓ RLA7022 Strengthening Regional Monitoring and Response for Sustainable Marine and Coastal Environments.
- ✓ Proyecto ELS/7011-OIEA "Strengthening National Capacities for Sustainable Environmental Management in the Context of Climate Change".
- ✓ Regional Project IAEA RLA 7025: Strengthening Capacities in Marine and Coastal Management through the Application of Nuclear and Isotopic Techniques (2020-2023).
- ✓ Regional project IAEA RLA 7028: Strengthening Regional Capacities for the Application of Nuclear and Isotopic Techniques to Increase Knowledge of Stressors Affecting Sustainable Marine and Coastal Management" (2024-2027)
- ✓ Regional project IAEA RLA7026. "Assessment of Organic and Inorganic Environmental Pollution in Aquatic Ecosystems in Latin America and the Caribbean, and Its Impact on the Risk of Cyanotoxin-Producing Cyanobacteria"(2022-2025).

RESULTS OF OBJECTIVE 3: PROGRESS IN INITIATIVES ON HAB EARLY WARNING SYSTEMS

Research groups from countries that comprise the IOCARIBE-ANCA group are still working on indicators related to early warning systems.

The following developments have been made thus far:

- ✓ IRMA-Colombia
- ✓ IRCIGUA-Cuba
- ✓ SiAT-Mexico.



UN Ocean Decade – Priority Areas

Open access data and information portal

Strengthening ocean observing systems

Integrated multi-hazard warning system

Capacity building and acceleration of technology transfer and ocean literacy

COLLECT AND ANALYZE INFORMATION THAT ALLOWS MAKING DECISIONS RELATED TO HABS

Consulting objectives

- Review the current state and information gaps.
- Identify opportunities for improvement in data collection and storage.
- Perform statistical analysis on the main variables of the database.
- Prepare practical guides and practical use examples to build capacity on the utilization of the database.



Results

- Main causative agents distributed by syndrome.
- Toxins linked with most of causative agents.
- Causative agents and toxins distributed by country and geographical area (where georeferenced).
- Duration of the events and quarantines (where available).

CONCLUSIONS DERIVED FROM THE HAEDAT ANALYSIS:

ANCA registries represent less than 5% of global records.

There is a significant gap in georeferenced information.

A considerable number of countries have not uploaded data since 2018, and in some cases, since even earlier.

A mere 3.3% of records have undergone verification.

The geographic distribution of syndromes varies across the region.

In the Caribbean, the predominant syndromes are NSP, aerosolized toxins, PSP, and ciguatera.

In the Pacific, they are PSP and DSP.

Saxitoxins are widely distributed throughout the IOCARIBE region.

Brevetoxins and ciguatoxins are predominantly present in the Caribbean.

The ANCA database shows significant underreporting of ciguatera compared to the databases of health organizations in the island Caribbean.

A key goal was to expand the ANCA network to include new countries.

- ❖ This initiative successfully established focal points for **Trinidad & Tobago** and **Puerto Rico**, which is widely regarded.
- ❖ This is especially important because it helps Caribbean countries participate more.



MARINE STRESSORS RESEARCH NETWORK IN LATIN AMERICA AND THE CARIBBEAN



ARGENTINA



BELICE



BRASIL – (Português)



CHILE



COLOMBIA



COSTA RICA



CUBA



ECUADOR



EL SALVADOR



GUATEMALA



HONDURAS



MÉXICO



NICARAGUA



PANAMÁ



PERÚ



REP. DOMINICANA



URUGUAY



VENEZUELA

IOC Training Course and Identification Qualification in Harmful Marine Microalgae 2023:
4 Countries- Cuba, El Salvador, Mexico, Venezuela-
RLA7025 2025: 8 Countries- Argentina, Colombia, Jamaica, Costa Rica, Uruguay, Brasil,
Guatemala, El Salvador (RLA7028).

NEEDS IDENTIFIED IN THE ANCA

- The challenge of achieving greater participation from the region's countries remains.
- Training and outreach activities must be strengthened to achieve coordination with the tourism and public health sectors throughout the region.
- The development of data and information integration projects is essential for enhancing our capabilities.
- There is an opportunity to enhance the dissemination of IOCARIBE-ANCA activities on a global scale (Harmful Algae News - HAN).



Programa Plancton
CENIA USAC

Conferencia

Retos y estrategias en el estudio del plancton marino: florecimientos algales nocivos.

Dirigido a

- Investigadores relacionados con la temática
- Profesores y estudiantes de USAC, USAC, vinculados al tema de plancton marino y agua dulce.

Viernes 19 enero 2024 de 10:00 a 12:00 horas.

Oficina T-10 Ciudad Universitaria zona 12 USAC
Cm. anal. Sede de Conferencias

Coordinadora de la actividad: MSc. Karla Paz Cordero
Profesora Investigadora USAC
Coordinadora Programa Plancton USAC

Coconferente: Dr. Yan Yushubovskiy, Instituto de Ciencias Marinas y Pesqueras, Universidad Veracruzana (UNIVEMAR) USAC, México

"Creando un sistema oportuno de monitoreo, detección y cuantificación de microalgas nocivas y toxinas marinas para el abordaje de eventos epidemiológicos en Guatemala"



Meeting to discuss and Review of the HAIS-HAEDAT system and management of HAB Events (17/03/2024)



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**THANK YOU
MUCHAS GRACIAS
MERCI BEAUCOUP**

