

Abstract

SPECIAL EVENTS:

Technical and Policy Workshop
on Sustainable Nutrient
Management in Support of the
Asian Platform of Global
Partnership on Nutrient
Management

Global Perspective on Applied Research on Nutrient Management – Nutrient Loading and Harmful Algal Blooms: Research Advances and Tools for Management in Asian Waters

Elisa Berdalet

Vice Director
Institut de Ciències del Mar (CSIC)
Passeig Marítim de la Barceloneta
Barcelona, Catalonia, Spain



Enrichment of seawater by nutrients favor increased growth, primary production and biomass of photosynthetic organisms (micro and macroalgae), which produce oxygen and constitute the base of marine food webs. Thus, the appropriate nutrient supply plays a fundamental role in providing seafood and other goods for the human benefit. However, excess nutrients, or unbalanced nitrogen to phosphorus (including inorganic and organic forms) and/or silicate ratios, can facilitate the selective proliferation of certain taxa. The excessive biomass accumulation of such organisms, which can also produce biotoxins, causes negative impacts in the environment (usually through hypoxia) and human health and wellbeing. These events are known as harmful algal blooms (HABs).

In the last decades, scientific research has made progresses in the understanding on how nutrient supply interacting with other physico-chemical and biological and ecological processes favor HABs occurrence. The gained knowledge has helped to design policy strategies that have been proven useful in certain areas to minimize the impacts of HABs.

This presentation will summarize the main HAB events that affect Asian marine ecosystems, with negative impacts on human health and economy. It will discuss the main factors that modulate their occurrence, with special emphasis on the role of nutrient supply. In this context, possible strategies for nutrient management will also be presented, along with the available scientific and technical tools to monitor and forecast the occurrence of HAB events. Altogether, management and scientific efforts can contribute to the sustained use of the natural resources of the seas for the benefit of the human communities that inhabit the Asian coastal areas.



THE EAST ASIAN SEAS CONGRESS 2015
16-21 November 2015 • Danang, Vietnam

Global Targets
Local Benefits

Setting the Sustainable Development Agenda for
the Seas of East Asia beyond 2015

About Elisa Berdalet:

Born: 21/9/1963
Married, two kids

The year, institution, and subject of highest degree:
1991, University of Barcelona (UB), PhD in Biology

Current position title and name of my current institution:
Tenured scientist, Vice-director
Institut de Ciències del Mar de Barcelona (Consejo Superior de Investigaciones Científicas, Spain); For abbreviation purposes: ICM-CSIC

Main research focus areas:
microalgal physiology and ecology, harmful algal blooms

Brief description:
Elisa Berdalet was a member and vice-chair of the GEOHAB Scientific Steering Committee. She obtained her PhD in Biology from the University of Barcelona (UB) in 1991. She conducts her research at the Institute of Marine Sciences (Spanish Highest Research Council, CSIC) in Barcelona, acting also as Deputy Director. She is involved in Master and Doctorate programmes.

Along her career, her global objective has been to understand how physico-chemical processes from small to meso spatio-temporal scales as well as ecological interactions modulate the structure, dynamics and physiology of microplankton. Her studies have provided evidences of the direct effects of small-scale turbulence on the ecophysiology of phytoplankton, especially on dinoflagellates (nutrient incorporation, reproduction, encystment, toxin and DMSP production, predator-prey interactions and parasitic infection). She has also developed biochemical tools for the characterisation of the physiological state of microplankton (bacteria, phyto and zooplankton) and participated in biogeochemical studies.

Her main investigation is addressed to the comprehension of the dynamics of harmful algal blooms, integrating field studies and ecophysiological research in the laboratory. At present, she is studying the blooms of the benthic toxic dinoflagellate *Ostreopsis* and their impacts on human health.

More information:
<http://gom.icm.cat/en/who-are-we>
<http://gom.icm.csic.es/en/who-are-we>