

Strengthening Capacity to Identify Harmful Algal Blooms

The challenge...

Harmful algal blooms (HABs) occur when microscopic algae accumulate in the ocean, negatively affecting other organisms through natural toxins or mechanical damage. The dangerous neurotoxins emitted by HABs can cause paralytic shellfish poisoning (PSP) or ciguatera fish poisoning in humans if they enter the food chain.

Fish and seafood constitute a large part of the staple diet in many IAEA Member States, and HABs can pose a serious threat to public health and safety. The IAEA can help Member States to identify algal blooms quickly and accurately before they enter the food chain, using a nuclear technique called receptor binding assay (RBA).

The project...

Twenty-four Member States of the IAEA have received technical assistance to address the need for monitoring and early warning of seafood toxicity. Member States that had already benefitted from IAEA technical cooperation projects in this field worked with countries with less experience, transferring and sharing their knowledge.

The interregional project provided coordinated support to Member States for a cost-effective marine biotoxin management programme through the use of RBA for efficient and widespread testing for PSP toxins by regulatory authorities.

The impact...

The project helped to ensure that participating countries can quickly detect and assess HABs. With this information, national authorities can adjust their fishing policies to protect marine organisms and wildlife, and to prevent dangerous neurotoxins entering the food chain.

On the conclusion of the project, a manual on *Detection of Harmful Algal Toxins Using the Radioligand Receptor Binding Assay* was published, and the RBA method was adopted as an AOAC International First Action Official Method for the determination of paralytic shellfish poisoning toxins.

Capacity building in monitoring harmful algal toxins using the RBA method, and joint efforts to ensure the sustained availability and suitability of radiolabelled and other custom reagents, were facilitated by the collaboration forged through a practical agreement signed between the Agency and the National Oceanic and Atmospheric Administration (NOAA).



Customers buy fish unaffected by recent HABs.