Case Study

AQUABIO MONITORS WATER QUALITY IN THE GULF OF THAILAND FOLLOWING THE LAUNCH OF FOUR MEASURING UNITS IN SWIMMING, INDUSTRIAL AND FISHING AREAS

CHALLENGE

The Gulf of Thailand is located in the Pacific Ocean and bathes the coasts of Malaysia, Cambodia, Vietnam, and Thailand. It has an area of 320,000 km² and one of its main characteristics is its shallow depth, between 45 and 80 meters.

This causes water circulation to be slow. In addition, the Chao Phraya and Mekong rivers contribute low salinity and a high richness of sediments to the waters. For decades, the Gulf of Thailand has had **recurring problems of microbiological contamination** in its waters.

The main reasons are: the intense fishing activity, which includes the intensive exploitation of fish farms; the economic dynamism of the industrial ports and the large number of container loading and unloading operations; and the fact that it is home to some of the most crowded tourist and leisure areas in Thailand.

In addition, population pressure has increased exponentially: there are currently 100,000 people living around the bay, a figure well above the approximately 1,500 who lived there in 1970.

The Thai authorities have set out to obtain as much information as possible **about the actual state of water pollution.**

ADASA'S SOLUTION

Adasa has completed the project to **supply and install four aquaBio B503 continuous microbiological water quality measurement and monitoring devices in Thailand.**

In this first phase, the laboratories at the Sriracha Fisheries Research Station have been used as ground support for the preparation of reagents and the collection of control samples. The second phase will take place on the **beaches of Phuket**.

The initiative has included the commissioning of the equipment, which **was manufactured at Adasa's facilities in El Prat de Llobregat**, and the training of operators.

Specifically, the aquaBio devices have been installed in the **fishing area of Pattaya, at KLN Seaport, and in the tourist areas** of Pattaya Pier and Saen Suk.

Unlike other devices, the aquaBio continuous water meter:

1. **Does not require adaptation** of results and provides results comparable to laboratory standards.
2. **Quantifies results in MPN/100ml** based on ISO 9308-2.
3. **Handles a sample volume of 100 ml** as specified by the standard.
4. **Does not require dilution** except with seawater, which is managed automatically.
5. **With accurate dosages facilitated** by a CCD camera and ETV ISO 14034 verification, aquaBio guarantees reliable and accurate results for informed decision-making.
6. **It provides results so that continuous** information on the microbiological quality of the water can be obtained, detecting the end of a contamination episode much earlier than the laboratory.
7. **It has different and flexible** sampling options, including episode sampling that tracks the recovery from the contamination alert as soon as adequate quality is restored.

Adasa has manufactured and installed four aquaBio units in Thailand Bay and has trained local technicians on their operation at the Sriracha Fisheries Research Station laboratories.

RESULT

This project enables Thai authorities to **prevent the presence of microbiological contaminants** that could affect consumer health in the Gulf of Thailand on the shores of Chon Buri province.

From now on, these coastal regions will benefit from **constant monitoring and automatic, autonomous, and continuous detection of *E. coli* (Escherichia coli)**, a key indicator for determining water quality and possible uses, total coliforms, and enterococci.

The **benefits obtained** by those responsible for the facilities include:

1. **Early warnings for the protection** of fish farms and marine farms.
2. **Data collection for the design** and definition of the real needs of the purification infrastructure in the monitored areas.
3. **Daily information** on microbiological contamination.
4. **Safety for bathers,** avoiding public health and sanitation management problems.
5. **Anticipation of beach openings** during episodes of contamination due to discharges from combined sewer systems (CSS).
6. **Provision of alerts** in the event of malfunction of the water regeneration plant.
7. **Reduction of economic** losses by avoiding prolonged beach closures.

Installation of an aquaBio for collecting comparison samples.

CLIENT

The project is promoted by the Ministry of Natural Resources and Environment and led in its implementation by staff from the Faculty of Fisheries at Kasetsart University.

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