

# Remi

created in 1989

## microbiology monitoring network for molluscan shellfish production areas

The coastal environment is subject to multiple sources of contamination: urban wastewater, malfunctioning of collective or individual purification systems, discharge of pollutants from industry, contaminated runoff from agriculture areas. Bivalve mollusks are filter feeders, they concentrate the microorganisms naturally or accidentally present in the surrounding sea water.



The presence of potentially pathogenic bacteria or viruses in coastal waters (*Salmonella*, *Vibrio parahaemolyticus*, *Vibrio cholerae*, hépatitis A virus) may constitute a risk for molluscan shellfish consumers (gastro-enteritis, viral hepatitis).

**REMI network aims at monitoring the microbiological quality of molluscan shellfish production areas classified\* by the national competent authority.**

\* Classification and monitoring of production areas are based on EC Regulation 854/2004, French department order of 21/05/1999, Rural Code articles R. 231-35 to 59  
More information on [www.ifremer/envill/Remi](http://www.ifremer/envill/Remi)

Based on *Escherichia coli* counts in live molluscan shellfish, the REMI network is designed to:

- assess microbiological contamination levels and survey their evolutions;
- detect and survey contamination outbreaks

### *Escherichia coli* : a bacteria and a faecal contamination indicator

*Escherichia coli* is a common bacteria of the **human and warm blood animal digestive system**. They are considered as faecal contamination indicators of production areas.



*E. Coli* in electronic microscopy (F.Sauvager)

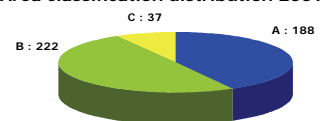
A high *E. coli* contamination found in molluscan shellfish meat is indicative of the **likely presence of pathogenic bacteria** such as salmonella or viruses such as HAV.

### *Production area classification : an administrative decision of the prefect*

4 classes are defined :

- Class A area** : live bivalve molluscs may be collected for direct human consumption
- Class B area** : placed on the market only after treatment in a purification centre
- Class C area** : placed on the market only after relaying over a long period
- Class D area** : farming and harvesting of molluscan shellfish forbidden

Area classification distribution 2009



NB : Class D areas are not monitored by REMI

### *Network implementation*

347 sampling points (2009) surveyed by 8 Ifremer laboratories,

- sampling frequency: monthly or bimonthly,
- area microbiological quality determination and verifying classification,
- in case of contamination outbreak, sampling frequency is raised to a weekly basis; Ifremer informs the competent authority, which takes appropriate measures to protect consumer health.

Remi sampling points 2009



The REMI network benefits from advances in analytical methodology developed by the National Reference Laboratory for molluscan shellfish microbiology based in Nantes Ifremer centre (rapid tests) and from research works on micro-organism survival and contamination mechanisms.