First results of an epidemiological study on oyster (Crassostrea gigas) mortality events in France during summer 2008

Miossec L (1), Allain G (1), Arzul I (1), François C (1), Garcia C (1) and Cameron AR (2)

(1) Ifremer, La Tremblade, France (2) AusVet Animal Health Services, Brisbane, Australia

Abnormal mortalities occurred in most oyster producing areas in France during the summer of 2008. The mortalities were sudden and severe (up to 100%) and mainly affected 6 to 18 month old juveniles. Only *Crassostrea gigas* species was affected. The cause of the mortality was unclear but OsHV-1 virus and bacteria belonging to Vibrionaceae family were frequently detected in affected populations.

An epidemiological study was commenced in autumn 2008 in order to identify factors associated with, and the cause (or causes) of these mortalities. This paper presents the results of the first (descriptive) part of this investigation. The objectives were to identify the affected population and to describe the pattern of mortalities in time and space. Mortality data, based on producers' declarations, were collected from the departmental Offices of Maritime Affairs (local competent authority) and the regional mollusc producer bodies. They were supplemented by data from local and national monitoring networks (REPAMO and REMORA). More than 7000 records, consisting of location, date and level of mortality, age and origin of individuals and management (transfers and handling) were collected.

The initial descriptive analysis of this data has shown that the epidemic varied between regions. In Normandy, the peak of the epidemic occurred in late June/early July; in Brittany and Pays de Loire, a first peak was observed in late May/early June, followed by a second larger peak at the end of June/early July. In the Mediterranean and in Poitou-Charentes, the epidemic built up gradually and peaked at the end of June/early July. In Aquitaine the outbreak occurred about one month later. Map-based analysis using GIS allows a more precise spatio-temporal description of the outbreak within each production area. All age classes were affected but spats (< 12 months old) had a higher level of mortality than juveniles and adults. Initial observations do not show any difference between wild-caught and hatchery-bred spat mortality.

The analysis of the index cases in each production area is being undertaken to better identify the local conditions under which mortalities occurred, and whether they were associated with management practices (transfers and handling). Hypotheses generated from this descriptive study will be tested during a later analytical study. Affected and non-affected production areas will be compared, including an analysis of identified risk factors and environmental parameters (temperature, rainfall, pollutants, toxins etc).