

Classification of shellfish harvesting areas

Background

Bivalve molluscan shellfish are gathered from natural shellfish beds in our coastal waters. They can also be cultivated, using a variety of methods dependent on the species involved. These shellfish are a valuable source of omega-3 fatty acids and essential nutrients, such as selenium and zinc. They are considered to be very healthy foods.

Legislation to protect human health

Bivalve molluscs filter phytoplankton (natural microscopic plant cells), from the water to grow. They can also filter bacteria or viruses, some of which can be a risk to human health. However, there are rigorous controls on harvesting to protect those who consume molluscan shellfish by:

- Ensuring that shellfish sold into the supply chain meet strict food safety (health and hygiene) standards;
- Classifying harvesting areas and beds from which shellfish are gathered.

Classification of shellfish beds

Based on the numbers of *E. coli* in samples of shellfish flesh, harvesting areas are classified as:

Class A – where bivalve molluscs can be harvested for direct human consumption.

Class B – where bivalve molluscs must be:

1. Purified (cleansed of bacteria through an approved depuration unit).
2. Relayed in an approved Class A relaying area.
3. Heat treated by an approved method before they can be sold for human consumption.

Class C – where bivalve molluscs must be relayed (for a minimum of two months) to meet Class A or B, or be heat treated.

Prohibited area – area from which bivalve molluscs cannot be harvested for human consumption.

Who is involved in the classification process?

Usually, it is Local Authority EHOs or Port Health Officers who collect samples of molluscan shellfish from harvesting areas. These samples are tested for their levels of *E. coli* by the Health Protection Agency Laboratories. Results are passed to a scientific body, who then advises the regulatory authorities such as the Food Standards Agency (FSA) and Food Standards Scotland (FSS) on the appropriate classification for a shellfish bed. The regulatory authority makes the final decision on the relevant classification, normally on an annual basis.

The classifications are based on the following criteria:

Class A – an area in samples of live bivalve molluscs must not exceed, in 80% of samples collected during the review period, 230 *E. coli* per 100g of flesh and intravalvular liquid. The remaining 20% of samples must not exceed 700 *E. coli* per 100 g of flesh and intervalvular liquid.

Class B – an area where 90% of samples have less than 4,600 *E. coli* per 100g of flesh; the remaining 10% of samples must not exceed 46,000 *E. coli* per 100g of flesh.

Class C – an area where molluscs must contain less than 46,000 *E. coli* per 100g of flesh.

Prohibited area – an area where levels are higher than 46,000 *E. coli* per 100g of flesh.

(Further information on the annual classifications of shellfish harvesting areas can be found at: www.food.gov.uk/enforcement/monitoring/shellfish/shellharvestareas)

From May 2006 in England and Wales, a system of long-term classification of designated shellfish harvesting areas has also been implemented. This is a system that currently applies to Class B shellfish beds that have five years of compliance data. Under this scheme, Local Action Groups and Local Action Plans provide an immediate responsive mechanism for investigating *E. coli* sample results that exceed the regulatory levels.

(Further information on long term classification can be found at:

www.food.gov.uk/enforcement/monitoring/shellfish/shellharvestareas)

Although significant investment has been made by water companies to improve our sewage systems (Fitzgerald, 2008a; Fitzgerald, 2008b), there are very few Class A shellfish harvesting areas (currently about 2% in England and Wales).

The Water Framework Directive (WFD) requires the government to take measures to protect shellfish harvesting waters. It must first identify those waters where commercial shellfish harvesting is taking place, and then it must prevent any deterioration in water quality in these areas.

The Directive also requires that pollution reduction programmes are put in place to achieve the microbial standard. This guideline standard is equivalent to a good Class B classification. In England there are Shellfish Water Action Plans to drive standards.

What are the sources of microbiological contamination in shellfish harvesting areas?

With improved diagnostic techniques, it has become possible to identify the sources of some of the faecal contamination in our rivers, estuaries and coastal waters based on whether the contamination comes mainly from human or animal (i.e. cow and sheep) sources.

Pollution can come from point source sewage discharges or from broken and cracked sewers, septic systems, combined sewage outfalls (CSOs) and agricultural runoff – sources of diffuse pollution.

The technique available cannot pinpoint the exact sources of the pollution, but with development it may in the future. An example of a study carried out in the Ribble is described by Stapleton et al. (2008). Although this work was carried out to help inform decision-making in relation to controlling pollution to meet the requirements under the Bathing Water Directive, its relevance to reducing faecal pollution in shellfish harvesting areas should not be ignored. Such information is useful in that it can help direct efforts and resources into preventing faecal pollution reaching our coastal waters.

This is affected mainly through the Environment Agency's Shellfish Waters Pollution Reduction Plans which inform the water industry on any improvements that are needed.

For more information see:

Shellfish action plans: <https://ea.sharefile.com/d-s84c5554e50947dbb>

Link to the 2015 updated River Basin Management Plans (RBMPs):
www.gov.uk/government/collections/river-basin-management-plans-2015

Kay et al. (2008) point out that remediation of diffuse pollution from agricultural run-off will require integration by policy makers through the Common Agricultural Policy and the Water Framework Directive.

However, at the local level, some shellfish farmers have found it very beneficial in speaking to local farmers and alerting them to the need to prevent agricultural run-off from entering rivers and feeder streams.

References

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