

Biotoxin and phytoplankton monitoring

The risks of marine biotoxins and phytoplankton that infect shellfish and what food businesses can do about them.

Marine biotoxins are poisonous substances which can accumulate in the tissues of live bivalve molluscs. This can be as a result of feeding on biotoxin producing phytoplankton.

There are currently three groups of regulated biotoxins for shellfish which can cause

- paralytic shellfish poisoning (PSP)
- amnesic shellfish poisoning (ASP)
- diarrhetic shellfish poisoning (DSP) caused by lipophilic toxins

The process of monitoring marine biotoxins identifies if there is an increased risk of shellfish becoming contaminated.

It allows businesses to take appropriate steps to ensure the shellfish they are placing on the market are safe to eat.

When biotoxins in shellfish are detected over the legal limit we and your Local Authority take action to ensure the affected areas are closed for harvesting.

Risks of marine biotoxins

These species are filter feeders or feed exclusively on filter feeders. This means they are more likely to pick up and accumulate biotoxins or bacterial contaminants.

Eating shellfish contaminated with these biotoxins can lead to serious illness which means that these species can only be commercially harvested from approved production areas. These areas are monitored to ensure they meet the biotoxin and microbiological criteria..

Biotoxin levels

The maximum permitted levels of biotoxins in shellfish are

- PSP at 800 micrograms/kilogram of saxitoxin (STX)
- ASP at 20 milligrams/kilogram of domoic acid (DA)

DSP is caused by a group of Lipophilic toxins and the levels are

- OA/DTXs/ Pectenotoxins (PTXs) at 160 micrograms of Okadaic acid equivalents/kilogram
- Yessotoxins (YTXs) at 3.75 milligram of yessotoxin equivalent/kilogram
- Azaspiracids (AZAs) at 160 micrograms of azaspiracid equivalents/kilogram
- DSP applicable for species not tested by LC-MS - DSP toxins must not be present

Northern Ireland

[View Protocol for sampling and transport of shellfish as PDF](#) (313.5 KB)

Biotoxin test kits for industry

This guide includes information on toxin kits available for FBOs and advice on how to carry out End-Product Testing (EPT).

[View End product testing for shellfish biotoxins as PDF](#) (297.05 KB)

Northern Ireland

[View Shellfish end product test Northern Ireland as PDF](#) (470.7 KB)

Phytoplankton monitoring

Some phytoplankton are toxin producing algae.

Water samples are collected from selected sites within classified shellfish growing areas and analysed for various species of phytoplankton including:

- Alexandrium
- Dinophysis
- Pseudo-nitzschia

Monitoring for phytoplankton provides an early warning of toxic events. It can also help you make decisions on additional monitoring activities.

Northern Ireland

[View Protocol for sampling and transport of water samples for Northern Ireland as PDF](#) (141.99 KB)

Harvesting in high concentrations of Phytoplankton

You need to take the necessary precautions if you want to harvest areas with alert level conditions.

The alert level Phytoplankton concentration for each species is:

- Alexandrium (Saxitoxin), it is greater than or equal to 40 cells/litre of Alexandrium - Responsible for PSP
- Dinophysis (Okadaic Acid), it is greater than or equal to 100 cells/litre of Dinophysis, and by historical data – Responsible for DSP
- Pseudo-nitzschia (Domoic Acid), it is greater than or equal to 150,000 cells/litre of Pseudo-nitzschia, and historical data – Responsible for ASP

Biotoxin and phytoplankton results

Northern Ireland

[View Shellfish and water sample submission form for Northern Ireland as PDF](#) (44.61 KB)

[2020 biotoxin and phytoplankton results for England and Wales](#)

[2020 biotoxin results for Northern Ireland](#)

[2020 phytoplankton results for Northern Ireland](#)

[Biotoxin sampling schedules for Northern Ireland](#)

[Phytoplankton sampling schedules for Northern Ireland](#)

Scallop (Pectinidae) monitoring

Under EC Regulation 853/2004, scallops can be harvested from unclassified areas. Harvesting of wild scallops can be permitted if the controls in Regulation 853/2004 are followed and ensure that the end product is safe to consume.

Closures

For details of any temporary closure notices and warning notices, please contact your Local Authority Environmental Health Officer for advice.

Not having any information doesn't mean the area is free of biotoxins. It is the responsibility of FBOs to ensure that their products comply with all relevant requirements. This includes checking that biotoxins are below the regulated levels.

Live updates

Summary of current closures in place in for Biotoxins in England and Wales.

England and Wales

[View Biotoxin closure summary as PDF](#) (10.79 KB)

French shellfish results

It is important that you are aware of biotoxin results for all areas that you harvest from to make sure the product is safe. This includes French waters.

You need to be aware of the [phytoplankton and flesh results and alerts from French production areas](#).

Once opened the red markers show areas where results have breached phytoplankton trigger levels or flesh action limits.

We recommend that the website is opened using Google Chrome to take advantage of the translation function that is available.