

How is this work carried out?

Samples of farmed finfish are collected at the time of harvest by an officer authorised under the Animal Remedies Act, 1993. Samples are maintained under a strict chain of custody. Archive subsamples are retained at the MI and are available for testing by reference laboratories in the event of a disputed result.

The samples are analysed using a variety of modern analytical techniques, including: High Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), Atomic Absorption Spectrometry (AAS), Cold Vapour Atomic Fluorescence (CVAF), LC coupled with tandem Mass Spectrometry detection (LCMSMS), Four Plate Test and the Elisa Test.

Directive 96/23 requires that following initial "screening" tests on samples, positive test results are confirmed using appropriate test methodology and according to EU guidelines.

Who are these results reported to?

The results of this programme are submitted annually to the Department of the Marine and Natural Resources (DoMNR), DoAFRD and the Food Safety Authority of Ireland (FSAI). It is the responsibility of the DoAFRD to coordinate the results for all farmed animals and products and to submit the results to the EU prior to the 31st March of the year subsequent to the calendar monitoring year. This report is also released into the public domain. The individual test results for specific aquaculture sites are also reported to the companies who supplied samples. The Marine Institute also proposes to publish occasional overview reports.

More detailed information on this topic, as well as similar leaflets on other issues, are also available

Monitoring Programme for Contaminants in Fish and Shellfish
(Information Leaflet available)

Monitoring Nutrient Levels and Trends in Irish Coastal Waters

Monitoring Contaminants in Sediments

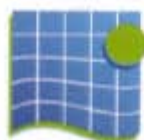
See also www.marine.ie/frc/environ/

Marine Biotoxins in Shellfish and Toxic Phytoplankton
(Information Leaflets available)

See also www.marine.ie/frc/toxins/

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Marine Institute
Foras na Mara

MONITORING THE MARINE ENVIRONMENT

Marine Institute's Monitoring Programme for Veterinary Residues & Environmental Contaminants in Farmed Finfish



Information Leaflet



Marine Institute
Foras na Mara

*Marine Environment &
Health Services Division*

Surveillance monitoring of residues in aquaculture

What is the residue programme?

European Union (EU) Directive 96/23 of the 29th April 1996 requires member states to monitor certain substances and residues thereof in live animals and animal products in EU member countries. The Department of Agriculture, Food and Rural Development (DoAFRD) co-ordinate the programme in Ireland. This programme involves many food groups such as bovine, pigs sheep, goats, horses, poultry, aquaculture, milk, eggs, rabbit, game and honey. The Marine Institute (MI) through the Department of Marine and Natural Resources, (DoMNR) is charged with the responsibility of monitoring farmed finfish in the Republic of Ireland.

What are residues?

As defined by Directive 96/23 a "residue" shall mean "a residue of substances having a pharmacological action, of their metabolites and of other substances transmitted to animal products and likely to be harmful to human health" This includes banned and authorised substances such as steroids, therapeutic treatments and environmental contaminants.

What are the objectives of the residue monitoring programme?

- * To ensure that Irish farmed finfish are fit for human consumption and do not contain unauthorised substances or substances exceeding their Maximum Residue Limit (MRL)
- * To provide a body of data to assure that Irish farmed finfish is of a high quality. This is particularly important for supporting the export market.
- * To promote good practice in aquaculture.



Atlantic Salmon
Salmo salar

What species are analysed?

Implementation of the programme is in line with detailed requirements of Directive 96/23. Any species of farmed finfish that is produced in greater quantity than 100 tonnes in any one year is subject to analysis under the Residue programme.

In the first three years of the programme this involved three farmed species: salmon, freshwater trout and sea reared trout. Other species that will be included in the future, depending on production levels are arctic char, eel and turbot.



Rainbow Trout
Oncorhynchus mykiss

What substances are analysed for?

As specifically required by Directive 96/23, a wide range of substances are tested for. These are specified in the Irish national plan and may be reviewed annually. The compounds can be classed into three general groups:

Group A

Unauthorised Substances

These include substances having an hormonal, thyrostatic action or anabolic effect such as Stilbene, Corticosteroids, Beta-agonists and Chloramphenicol.

Group B

Therapeutic Treatments *

Therapeutic treatments for sealice or fish diseases which include

SEALICE TREATMENTS-

Cypermethrin, Emamectin Benzoate, Teflubenzuron, Diflubenzuron and Ivermectin

INFECTION AND DISEASES-

Tetracyclines, Nitrofurans, Sulphonamide Groups, Quinolones and Malachite Green

Environmental Contaminants

Polychlorinated biphenyls (PCBs), chlorinated pesticides and heavy metals such as mercury, cadmium and lead.

**Some of these substances do not have an MRL*

What is an MRL?

Authorised compounds have Maximum Residue Limits (MRL) prescribed by the EU. This is the maximum concentration allowable in the edible portion of the animal at the time of harvest. Generally, MRLs will not be exceeded if withdrawal periods are adhered to; i.e. the animal is not slaughtered for a set period of time after treatment. Unauthorised substances have no MRL and should not be detected.