Department of the Environment
**Marine Division**

Pollution Reduction Programme

# Longfield Bank & Balls Point (Lough Foyle)

May 2015

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## 1.0 Introduction

Pollution Reduction Programmes were established under Article 5 of the Shellfish Waters Directive (2006/113/EC) which stated that all member states should establish programmes in order to reduce pollution in designated shellfish waters.

As the Shellfish Waters Directive was repealed and subsumed into the Water Framework Directive, the Pollution Reduction Programmes will be reviewed in 2018 which is in line with the midterm of the second River Basin Cycle under Water Framework Directive.

## 2.0 Description of catchment

Lough Foyle is a 186km$^2$ shallow estuarine sea lough located along the northern coast between Co Donegal and Co Londonderry. It lies within the Burn Dennet & Foyle catchment which is in the North Western River Basin District and covers an area of approximately 491km$^2$. The lough exhibits extensive intertidal and subtidal areas of mud flats and sand flats, which are intersected by tidal channels. The main inputs to the lough are the River Foyle, River Roe and their tributaries. The River Foyle below Strabane becomes more slow-flowing and is transitional due to the influence of Lough Foyle. The primary fish species within Burn Dennet & Foyle includes Atlantic Salmon, Sea Trout, resident Brown Trout, Sea Lamprey, River/Brook Lamprey and European Eel. Grey Mullet and European Smelt are present within the tidal River Foyle. Londonderry is the main city and Strabane is the largest town in the area.

The main pollution sources in Lough Foyle come from direct sewage discharges into the lough and into the Rivers Foyle, Faughan and Roe and from non-point sources related to agricultural land use in the wider Foyle area. The largest discharges by volume come from Culmore WWTW and Limavady WWTW.

The 2010 Sanitary Survey

www.food.gov.uk/sites/default/files/multimedia/pdfs/loughfoyle.pdf

reported that within the catchment area the majority of the land is given over to improved grassland. Both Longfield Bank and Balls Point in Lough Foyle were designated under the Shellfish Waters Directive in 1999. The FSA in NI's Representative Monitoring Points (RMPs) were realigned in 2010 to give a more comprehensive representation of the shellfish beds within both the Longfield Bank

and Balls Point designations. The result was the identification of Production Areas 3 & 4.

## 3.0 Objectives for Shellfish Water Protected Areas

The Shellfish Waters Directive was subsumed into the Water Framework Directive (2000/60/EC) in December 2013. Since then all shellfish waters are protected under the Water Framework Directive (WFD) and are hereafter referred to as Shellfish Water Protected Areas. All Shellfish Water Protected Areas must be managed to ensure that they meet their objectives under WFD and meet at least Class B status under the EU Hygiene Regulations, whilst making progress towards the WFD guideline standard. The Food Standards Agency in NI is responsible for the implementation of Classification and monitoring programmes for shellfish for the protection of public health.

### 3.1 Water Framework Directive status and Shellfish Classification

Comprehensive monitoring programmes are in place to assess the status of Shellfish Water Protected Areas under the WFD and Classification under the EU Hygiene Regulations. A suite of determinands are assessed to determine ecological status and the overall objective under WFD. The Shellfish Water Protected Area lies entirely within Lough Foyle water body.

Table 1 shows the current WFD ecological status and future objectives for Lough Foyle water body. Lough Foyle will exceed its 2015 WFD Objective of Moderate Ecological Status.

**Table 1 WFD Ecological Status and Objectives for Lough Foyle**

| 2013 Status | 2015 Objective | 2021 Objective | 2027 Objective |
|---|---|---|---|
| Good Ecological Status | Moderate Ecological Status & Class B under EU Hygiene Regulations | Good Ecological Status & Class B under EU Hygiene Regulations | Good Ecological Status & Class B under EU Hygiene Regulations |

Table 2 shows the Classification status at Production Areas 3 & 4 in Lough Foyle under WFD (colour) and under the EU Hygiene Regulations (text).

**Table 2 Classification status of shellfish production areas in Longfield Bank & Balls Point – Lough Foyle**

| | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| **Production Area 3 * (Mussels)** | B | B | B | B Provisional | B Provisional |
| **Production Area 3 * (Oysters)** | B | B | B | B Provisional | B Provisional |
| **Production Area 4 ** (Mussels)** | B | B | B | B Provisional | B Provisional |
| **Production Area 4 ** (Oysters)** | B | B | B | B Provisional | B Provisional |

* Production Area 3 – Longfield Bank
** Production Area 4 – Balls Point

Provisional classification is given when a new bed is classified based on a limited number of samples or when a bed is borderline compliant with criteria of a classification.

**Key to WFD Status**

| | | | |
|---|---|---|---|
| | High | | |
| | Good | | Good Environmental Potential |
| | Moderate | | Moderate Environmental Potential |
| | Poor | | Poor Environmental Potential |
| | Bad | | Bad Environmental Potential |

## 4.0 Monitoring Programmes for Shellfish Water Protected Areas and shellfish flesh

### 4.1 Monitoring of *E. coli* in shellfish flesh

FSA conducts monthly analysis of *E. coli* in shellfish flesh as part of its Official Control monitoring. This analysis is used to classify the quality of shellfish production areas. The classification determines the level of post-harvest treatment required before placing shellfish product from that area on the market. The FSA in NI's Official Control monitoring programme is solely for the purpose of classification of shellfish production areas, it is not intended as an indication of the end product standard of shellfish. Responsibility for ensuring the safety of shellfish which are placed on the market for human consumption rests solely with the food business operator (FBO).

www.food.gov.uk/enforcement/monitoring/shellfish/nibiotoxin#toc-3

**Table 3 Shellfish classification and post harvest treatment**

| Classification of harvesting areas | | |
|---|---|---|
| **Category** | **E.coli per 100g flesh and intravalvular liquid** | **Post-harvest treatment required** |
| **A** | <230 | May go directly for human consumption if end product standard met. |
| **B** | 90% results <4600<br>Remaining 10% results <46000<br>100% results <46000 | Must be subject to purification or cooked by an approved method. |
| **C** | <46,000 | Must be subject to relaying for a period of at least 2 months or cooked by an approved method. |
| | >46,000 E.coli/100g of flesh | Prohibited. Harvesting not permitted. |

## 4.2 Monitoring of contaminants in shellfish flesh

Annual analysis of a suite of contaminants in shellfish flesh is carried out in all seven sea loughs/areas in Northern Ireland in which shellfish are cultivated and harvested. This is a joint programme of monitoring currently in place with FSA in NI and DOE to meet both organisations' requirements under EU legislative requirements and OSPAR (Oslo/Paris convention *(for the Protection of the Marine Environment of the North-East Atlantic*)) and to enable DOE to determine compliance with a range of environmental obligations relating to Shellfish Water Protected Areas.

The suite of contaminants tested for includes some trace metals, lipids, polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), organochlorinated pesticides and dioxins. See Annex A.

## 4.3 Guideline microbiological standard (DOE)

The shellfish flesh monitoring programme is operated by FSA in NI. The analyses in shellfish flesh are carried out by Northern Ireland Public Health Laboratories and results are reported back to both DOE and FSA in NI.

In addition to being used for the Official Control monitoring for the microbiological shellfish classification carried out by the FSA in NI, this information is also used by DOE to determine the status of Shellfish Water Protected Areas against a guideline microbiological standard for shellfish flesh which is set in the Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2015. This guideline standard requires that 75% of samples contain ≤ 230 *E. coli* per 100ml of shellfish flesh and intervalvular liquid.

Table 4 shows the status of Longfield Bank & Balls Point against the WFD Guideline standard.

**Table 4 Balls Point & Longfield Bank – Guideline microbiological standard**

| Shellfish Water Protected Area | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 |
|---|---|---|---|---|---|---|
| **Longfield Bank** | | | | | | |
| Number of samples | 22 | 23 | 24 | 20 | 8 | 12 |
| **Balls Point** | | | | | | |
| Number of samples | 22 | 21 | 24 | 20 | 8 | 12 |

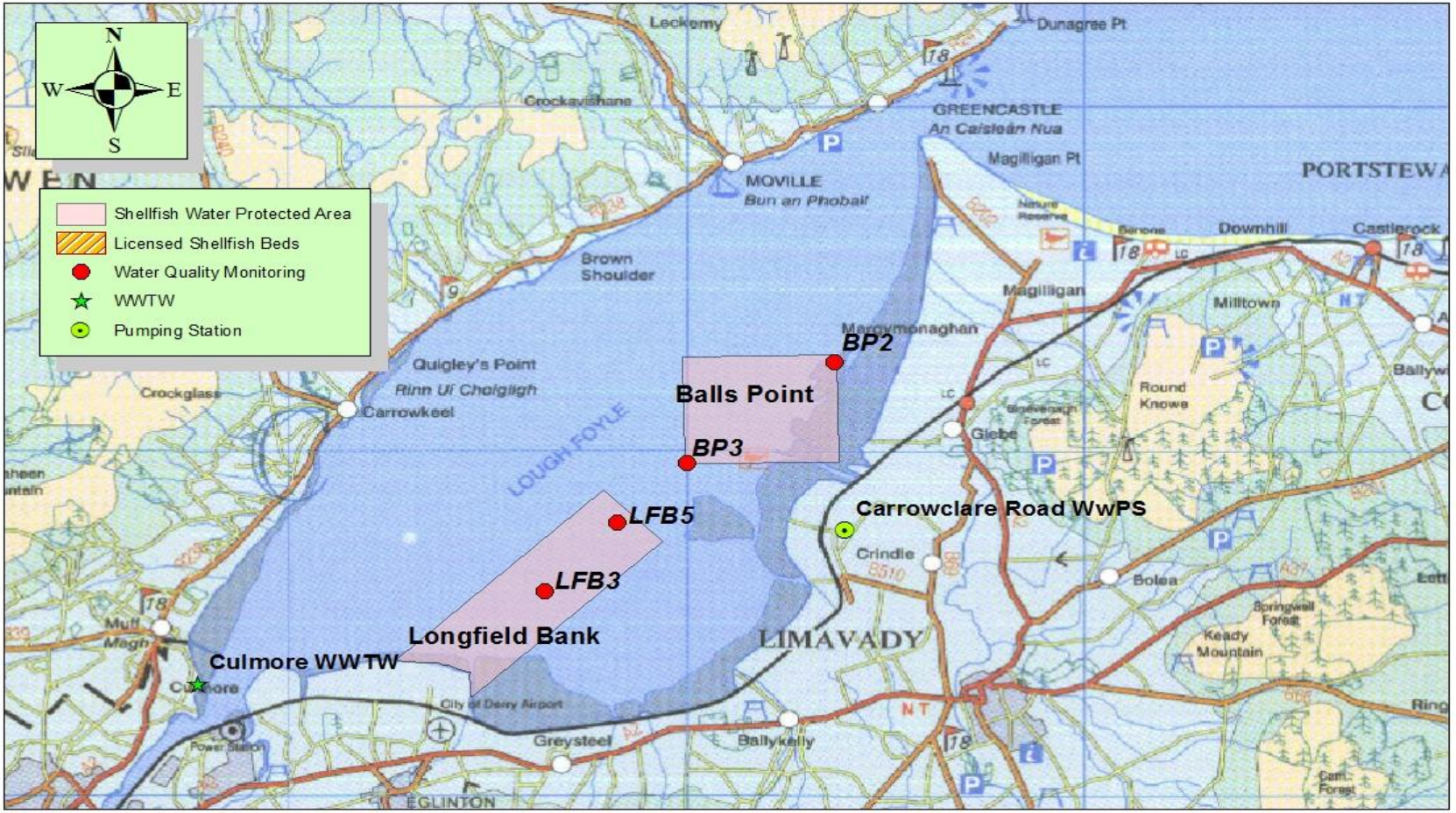
| | |
|---|---|
| | Met Guideline |
| | Did not Meet Guideline |

4.4 Water Quality Monitoring

In addition to the shellfish flesh monitoring, DOE carries out a water quality monitoring programme on a quarterly basis looking at bacteria and some metal and organic pollutants. These are linked to the specific pollutant monitoring programme within WFD catchment areas.

Where Shellfish Water Protected Areas are at risk of failing to meet objectives, additional investigative monitoring is undertaken of the protected areas, rivers and any other potential sources of pollution identified.

Figure 1 Longfield Bank & Balls Point Shellfish Water Protected Areas, showing water sampling points and potential point pollution sources.



## 5.0 Improvement actions carried out to date

### 5.1 Consenting urban wastewater treatment works

NIEA is responsible for regulating NI Water and sets the relevant discharge standards in respect of Waste Water Treatment Works (WWTW).

Shellfish Water Protected Areas must meet their WFD water quality objective and meet at least class B FSA in NI shellfish classification whilst making progress towards the WFD guideline standard.

In order to meet these requirements, the microbiological impact of any new outfall should not result in more than 230 colony forming units (cfu) of *E. coli* on more than 25% of occasions within the Shellfish Water Protected Area.

Marine modelling is carried out by NI Water at all new or upgraded WWTW discharging to, or in the vicinity of a Shellfish Water Protected Area. The model must demonstrate compliance with the microbiological standards required in order to protect the Shellfish Water Protected Area. A restriction on the number of spills from intermittent discharges is also required.

### 5.2 Current sewerage infrastructure

Although there are no Wastewater Treatment Works (WWTWs) within 2km of either Longfield Bank or Balls Point Shellfish Water Protected Areas, the sanitary survey for Lough Foyle has identified that areas with a higher population will have higher levels of sewage and wastewater entering the Lough Foyle system. Therefore, the highest levels of sewage and wastewater enter the lough from the Londonderry area and the River Roe from Limavady.

Culmore WWTW provides secondary treatment for a Population Equivalent (PE) of approximately 134,000. Limavady WWTW provides secondary treatment for a PE of approximately 16,500.

### 5.3 Investigative and remedial works carried out to date

There have been no investigative or remedial works carried out at Culmore WWTW since it was commissioned in 2005. The EC Urban Waste Water Treatment Directive, Sensitive Area Review (2005) designated the River Roe as sensitive (eutrophication). As a result a standard of 2 mg/l phosphorus (annual average) was set for the final effluent at Limavady WWTW and a subsequently a phosphorus removal process was implemented.

## 6.0 Planned improvement actions

The Price Control (PC) process is the mechanism through which NI Water is funded in order to deliver its priorities and plans for the period of the Price Control. PC13 covers 2 years running from April 2013 to March 2015. The next planned round of investment falls under PC 15 which runs for 6 years from April 2015 to March 2021.

### 6.1 PC15 Planned upgrades to NI Water Infrastructure

There have been no improvements or upgrades identified for Culmore WWTW. Limavady WWTW has been upgraded in recent years and has not been identified for upgrading under PC15. Monitoring of all CSOs within 2km of Shellfish Protected Areas is to be introduced by NI Water during the PC15 period.

### 6.2 Producer responsibility

Shellfish producers and harvesters have obligations under the EU Hygiene Regulations to ensure the quality of the product which they place on the market for human consumption. Producers should have an understanding and awareness of the environment in which any product is being produced. Producers should use, where possible their own testing regimes to inform business management decisions. It is acknowledged that in order to make sound decisions, producers need access to appropriate and timely information relating to the quality of the shellfish water and anything which has the potential to impact upon it.

## 7.0 Other Protection Measures

### 7.1 Protection measures against agricultural pollution

The Nitrates Directive (91/676/EEC) requires EU Member States to set out action programmes to reduce nitrates from agricultural sources entering the aquatic environment and address both high nitrate levels in surface and groundwaters and eutrophication in surface waters. The Directive allows Member States to either designate discrete areas of land as Nitrate Vulnerable Zones (NVZs) or establish an action programme to be applicable to the whole territory.

Northern Ireland has a widespread problem of eutrophication of surface waters and a large proportion of this nutrient enrichment is attributable to agriculture. Following a scientific report and extensive consultation in 2004 and 2005, the total territory of

Northern Ireland was established as the area to which an action programme would be applied.

In Northern Ireland the action programme is currently set out in the Nitrates Action Programme Regulations (Northern Ireland) 2010 (NAP Regulations). The action programme establishes closed periods for the application of organic and inorganic fertilisers, a livestock manure application limit of 170kg nitrogen/ha/year, a requirement for sufficient slurry storage capacity on farms and controls on the management of manure storage and manure and chemical fertiliser application. As well as helping to address eutrophication and nitrate levels in water bodies, the action programme measures can improve bacteriological quality in river catchments and also in downstream shellfish waters. The action programme is supported by a water quality monitoring programme and guidance and training offered to farm businesses. The aims of the action programme are also supported by other legislation concerning agricultural nutrient management – the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (Northern Ireland) 2003 (SSAFO Regulations) and the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2006 (the Phosphorus Regulations). The NAP Regulations are the joint responsibility of the Department of the Environment (DOE) and the Department of Agriculture and Rural Development (DARD). The SSAFO and Phosphorus Regulations are the responsibility of DOE.

The three sets of Regulations apply to all farm businesses in Northern Ireland and are enforced by the Northern Ireland Environment Agency (NIEA). Compliance with the NAP Regulations is also one of the Cross-Compliance Statutory Management Requirements, therefore farmers claiming the single farm payment or other direct aid payments risk a financial penalty if they do not comply with them. Non-compliance with the measures has the potential to cause harm to the environment and human health and to negatively impact upon Shellfish Water Protected Areas. Breaches of these controls should therefore be reported to NIEA through the NIEA Water Pollution Hotline (0800 80 70 60), so that they can be investigated.

**Table 5 Summary of the closed spreading periods for fertilisers**

| Fertiliser type | Closed period starts | Closed period ends |
|---|---|---|
| Chemical nitrogen fertiliser | Midnight 15 September | Midnight 31 January |
| Slurry, poultry litter and other organic manures, e.g. sewage sludge and abattoir waste | Midnight 15 October | Midnight 31 January |
| Farmyard manure | Midnight 31 October | Midnight 31 January |

In addition to these restrictions, other general restrictions apply to the application of fertilisers to land. The following is a summary of some of the key restrictions.

- Application rates of fertilisers are capped, e.g. no more than 50m$^3$/ha of organic manures to spread at one time, with a minimum of three weeks between applications.
- All fertilisers, Chemical and organic, must not be applied:
  - On waterlogged soils, flooded land or land liable to flood;
  - On frozen ground or snow covered ground;
  - If heavy rain is falling or forecast in the next 48 hours;
  - On steep slopes where there is a risk of water pollution
- Organic manures and dirty water must not be applied within:
  - 20m of lakes;
  - 50m of a borehole, spring or well;
  - 250m of a borehole used for a public water supply;
  - +10m of a waterway other than lakes; this distance may be reduced to 3m where slope is less than 10% towards the waterway and where organic manures are spread by bandspreaders, trailing shoe, trailing hose or soil injection or where adjoining area is less than 1 ha in size or not more than 50m in width.

Further information is available at:

www.doeni.gov.uk/niea/summary-of-nitrates-action-programme-2015-18-and-phosphorus-regulations.pdf

## 7.2 River Basin Management Plans – Programme of Measures

A North Western River Basin Management Plan which covers the period 2009-2015 was published in December 2009, as required by the Water Framework Directive. It identifies where the water environment needs to be protected or improved, the timeframe to make these improvements and how that can be achieved through a Programme of Measures.

The water environment in the North Western River Basin District is being managed at a local level through Local Management Area action plans, including the Burn, Dennet & Foyle Local Management Area action plan.

Catchment Stakeholder groups provide forums for stakeholders to discuss water management issues in their local area and to work in partnership to address them.

A draft update to the North Western River Basin Management Plan is available for consultation. The plans set out the existing and proposed measures that are needed to improve water quality: www.doeni.gov.uk/niea/2015-wfd-north-western-river-basin-management-plan-summary.pdf

A second cycle North Western River Basin Management Plan will be published in December 2015. The Local Management Area Plan and 2013 update for the Burn Dennet & Foyle can be found at: www.doeni.gov.uk/niea/burn-dennet-swmi-joined.pdf

## 7.3 Other Designations within the Area

Habitats Directive (92/43/EEC) - There is 1 water dependant Special Area of Conservation (SAC) in the Lough Foyle catchment area – 'River Foyle and Tributaries'.

Birds Directive (79/409/EEC) – There is 1 Special Protection Area (SPA) in the Lough Foyle catchment area – 'Lough Foyle'.

Bathing Waters Directive (76/160/EEC) – There are no identified bathing waters in the Lough Foyle Catchment.

## 8.0 Regulation and Enforcement

In addition to the measures set out in this Pollution Reduction Programme, DOE will investigate any pollution incident and/or deterioration in water quality. Formal arrangements are in place between DOE, NI Water and the FSA in NI to investigate and respond to incidents relating to water quality at Shellfish Water Protected Areas. This includes responding to requests for investigation of FSA microbiological official control sample results which are outwith the classification of the shellfish production area and any pollution incident in the proximity of a Shellfish Water Protected Area.

It is an offence under the terms of the Water (Northern Ireland) Order 1999 to cause pollution to a waterway. Pollution incidents will be investigated in accordance with the DOE Enforcement and Prosecution Policy, which can be found at: http://www.doeni.gov.uk/niea/niea_enforcement_policy.pdf.

### 8.1 Reporting Water Pollution Incidents

Any incident should be reported to the **NIEA Water Pollution Hotline**

**0800 80 70 60**

**9.0 Summary of current and planned controls for Lough Foyle**

| **Current Control** | **Responsible Group** |
|---|---|
| Water Framework Directive ecological objectives | DOE |
| *E. coli* in shellfish flesh monitoring and classification programme | FSA in NI |
| UWWT Directive Sensitive Area Review | DOE |
| Chemical contaminant monitoring in shellfish flesh | DOE & FSA in NI |
| Upgrade to Limavady WWTW | NI Water |
| Nitrates Action Programme control of fertiliser use across Northern Ireland | DOE & DARD |
| SSFAO Regulations and Phosphorus Regulations | DOE |
| River basin management plan – programme of measures | DOE |
| **Planned Control** | **Responsible Group** |
| Monitoring of CSOs within 2km of Shellfish Water Protected Area | NI Water |

**10.0 <u>Further Information</u>:**

Further Information is available at:

www.doeni.gov.uk

Or by Emailing :

MarineDivision.InfoRequests@doeni.gov.uk

**Annex A**

**Contaminants in shellfish flesh monitored by DOE and FSA in NI**

| **Metals** | **Polyaromatic Hydrocarbons** |
|---|---|
| Arsenic | Naphthalene |
| Silver | Phenanthrene |
| Cadmium | Anthracene |
| Chromium | Fluoranthene |
| Copper | Pyrene |
| Iron | Benzo (a) Anthracene |
| Mercury | Chrysene |
| Nickel | 5 Methyl Chrysene |
| Lead | Benzo (b) Fluoranthene |
| Zinc | Benzo (k) Fluoranthene |
| | Benzo (j) Fluoranthene |
| | Benzo (c) Fluorene |
| | Benzo (a) Pyrene |
| | Indeno (123,cd) Pyrene |
| | Dibenzo (a,h) Anthracene |
| | Benzo (ghi) Perylene |
| | Dibenzo (a,l) Pyrene |
| | Dibenzo (a,e) Pyrene |
| | Dibenzo (a,i) Pyrene |
| | Dibenzo (a,h) Pyrene |
| | Cylcopenta (c,d) Pyrene |

| **Organochlorinated Pesticides** | **Polychlorinated Biphenyls** |
|---|---|
| Aldrin | PCB 28 |
| Dieldrin | PCB 52 |
| Endrin | PCB 101 |
| HCB | PCB 105 |
| Heptachlor | PCB 118 |
| a HCH | PCB 138 |
| b HCH | PCB 153 |
| g HCH | PCB 156 |
| Oxychlordane | PCB 180 |
| cis Heptachlor Epoxide | PCB 77 |
| trans Heptachlor Epoxide | PCB 81 |

| | |
|---|---|
| a Chlordane | PCB 126 |
| g Chlordane | PCB169 |
| op DDT | PCB 114 |
| pp DDE | PCB 118 |
| pp DDT | PCB 123 |
| pp TDE | PCB 157 |
| | PCB 167 |
| | PCB 189 |

| **Dibenzo-p-dioxins (PCDDs)** | **Dibenzofurans (PCDFs)** |
|---|---|
| 2,3,7,8-TCDD | 2,3,7,8-TCDF |
| 1,2,3,7,8-PeCDD | 1,2,3,7,8-PeCDF |
| 1,2,3,4,7,8-HxCDD | 2,3,4,7,8-PeCDF |
| 1,2,3,6,7,8-HxCDD | 1,2,3,4,7,8-HxCDF |
| 1,2,3,7,8,9-HxCDD | 1,2,3,6,7,8-HxCDF |
| 1,2,3,4,6,7,8-HpCDD | 1,2,3,7,8,9-HxCDF |
| OCDD | 2,3,4,6,7,8-HxCDF |
| | 1,2,3,4,6,7,8-HpCDF |
| | 1,2,3,4,7,8,9-HpCDF |
| | OCDF |

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