

Northern Ireland
Environment Agency

River Basin Management Plans (2015 - 2021)

Programme of Measures

Key Sectors: Sewage and Industry

Pressure Type: Diffuse and Point Source Pollution

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Sewage and Industry

Northern Ireland Water is the sole provider of water sewerage services in Northern Ireland. When businesses, private housing developments or single dwellings are unable to connect to the sewerage infrastructure provided by Northern Ireland Water, private wastewater treatment systems are required to treat sewage. Pumping stations may also be required to pump sewage from new housing developments to the public sewerage system. When this is not possible, on-site systems (conventional septic tanks or treatment systems) with soil percolation areas are used.

Why is this a significant issue?

Sewage discharges can contain a wide range of substances, such as nutrients, organic matter, ammonia, faecal pathogens, toxic substances (from industrial effluent, household chemicals and road run-off) and sewage-related debris.

Pollution can occur through:

- direct discharges of sewage effluent to the water environment;
- combined sewer overflows (or storm overflows), designed to discharge to the water environment when the capacity of the sewerage system is exceeded during rainfall, may be a source of faecal contamination and sewage-related debris;
- misconnections in the sewerage system may lead to foul water being discharged to the storm sewer and then to a watercourse. Many new houses and businesses have two separate sewers, separating foul water to discharge into the foul sewer and storm water which discharges direct to local water courses. When pipes are incorrectly connected, misconnections result;
- poorly maintained and/or defective on-site treatment systems; and
- privately owned sewers, pumping stations and treatment systems may not be completed or maintained where developers have gone into receivership.

What are we already doing about this?

Point source discharges are regulated through the process of licensing consents under the Water Order (Northern Ireland) 1999, and all consents are currently being reviewed to ensure that the consent conditions are compliant with the objectives of the Water Framework Directive.

Waste water treatment works and sewerage networks are prioritised for investment based on their performance under the Northern Ireland Water Capital Investment Programme known as the Price Control Process¹. This process is to ensure compliance with the conditions of Water Order Consents and compliance with other Directives. It also helps to identify sewerage assets which are overloaded and discharges which are impacting or have the potential to impact on the status of a water body. The most significant polluting discharges are prioritised and solutions identified and implemented to reduce the polluting effects on the water environment.

¹ Price Control Process covers all of Northern Ireland

Northern Ireland Water invested £840 million to upgrade sewerage infrastructure from 2010 to 2013. As part of the Price Control 13 process (2013 to 2015) 37 large waste water treatment works, 26 small wastewater treatment works and 67 intermittent discharges were upgraded. A further investment of over £900 million (subject to PC settlement) is planned for the next investment period 2015 to 2021.

The SIMCAT model (SIMulation of the water quality of CATchments) has been developed for Northern Ireland to investigate the cumulative impacts of point source discharges at a catchment scale.

A consenting policy has been developed for discharge consents, promoting the installation of reed beds and constructed wetlands to treat sewage and industrial effluent.

A programme of enforcement inspections for domestic septic tanks is being targeted to sites with known pollution problems and this is informed by a risk assessment process which identifies septic tanks situated in areas of poor water quality and high groundwater vulnerability.

Bathing water catchments considered to be “at risk” are prioritised on an annual basis for pollution source apportionment studies. Microbiological pollution is traced to its source and reported to the appropriate regulatory body.

DOE Marine Division part fund a joint programme with the Food Standards Agency in Northern Ireland to monitor specific pollutants in shellfish flesh. These analyses are used to help manage water bodies to meet their objectives for Shellfish Water Protected Areas.

Shellfish Water Protected Areas are managed to ensure that they meet at least Class B of the EU Hygiene Regulations. This is a microbiological standard for shellfish flesh which can be adversely impacted by agriculture.

Shellfish Waters Protected Areas are now managed under the list of Water Framework Directive protected areas. In shellfish waters, the Department shall endeavour to respect the microbial guideline value in the shellfish flesh and intervalvular liquid as set out in the Water Framework Directive(Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2015 Regulations.

For a full list of measures already in place in the first cycle please see our website.

What further actions will deliver environmental improvements?

RBMP 1 (2009-2015)

Table 1 summarises the progress we have made against the existing and planned measures and an update on the supplementary measures are in Table 2.

RBMP 2 (2015-2021)

The new measures which we will take forward in the second cycle are summarised in Table 3.

These are measures which will improve our understanding of the pressures, enable us to improve the evidence base to target actions, and build on actions already complete.

In the current economic climate there is no certainty at this stage around future funding and budgets that will be available throughout the lifetime of this plan. However DOE will in collaboration with other departments and agencies continue to make a strong case for additional funding through the standard government bidding processes.

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Table 1 Summary of existing and planned measures 2009-2015

Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Reduction in pollution	Comply with discharge standards in quality and quantity	PC10 and subsequent Investment Programmes (PC13)	NIW	DRD, NIEA, NIAUR	In Place

Table 2 Summary of supplementary measures 2009-2015

Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Reduction in pollution from unsewered properties	Review waste water consent conditions to ensure that adequate controls and emission limits are set	The Water (Northern Ireland) Order 1999	NIEA	NIW, DRD	Ongoing
	Develop mathematical models for all of Northern Ireland to look at cumulative impacts of discharges at a catchment scale.	Research and development	NIEA		Ongoing
	Address the environmental impacts of inadequate private sewerage discharges and support sustainable development.	The Water (Northern Ireland) Order 1999	NIEA	NIW, DRD	In Place

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Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Reduction in pollution from unsewered properties	Improve existing controls on septic tanks	The Water (Northern Ireland) Order 1999	NIEA		In Place
	Mapping and method development to calculate the vulnerability of receiving waters	Development control and enforcement practices Guidance to address improved procedures for site selection, design, installation and construction supervision.			
	Research to examine legislative requirements and responsibilities to identify best practice in relation to OWWTS (septic tanks)	Policy and guidance on OWWTS (septic tanks)	NIEA		In Place
	Improve existing controls, support updated guidance for new systems and to prioritise actions in areas with high concentrations of existing OWWTS (septic tanks)	Pollution Prevention Guidelines (PPG4)			
	Investigate provision of main sewers or OWWTS (septic tanks) maintenance programmes in priority areas (existing systems, large unsewered populations where water quality is threatened)	Maintenance programmes	NIEA, NIW		Ongoing
Ban on sale of Domestic Laundry Cleaning Products (DLCPs) containing more than 0.4% Phosphorus	Development of UK-wide legislation	DOE	DEFRA	Complete	

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Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Reduction in pollution from unsewered properties	Identify where there are potential constraints on development	The Water (Northern Ireland) Order 1999	DOE	DRD/ PS/ NIW	In Place
	Introduce seasonal discharge consents where possible to promote installation of reed beds and constructed wetlands for sewage treatment	The Water (Northern Ireland) Order 1999 SIMCAT model	NIEA	NIW	In Place
	Review and investigate the effectiveness of wetlands in the reduction of nutrient loadings	Research and development	NIEA		In Place
	Improve septic tank maintenance, installation and design	Awareness programme	NIEA	NIW	In Place

Table 3 Summary of supplementary measures for 2015 to 2021.

Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Reduction in pollution from sewage	Review consents to discharge on a pilot catchment basis using the SIMCAT model	Programme of priority catchments to be piloted	NIEA		2021
	Introduce flow and priority pollutant monitoring as part of the compliance regulation regime	Programme of compliance projects to be piloted	NIEA		2021
	Further development and implementation of innovative and sustainable measures such as the use of willows to treat effluent from small waste water treatment works (WWTWs) and then harvesting for fuel	Enactment of PC15 Business Plans	NIW/ NIEA		2021
	Controlling sewage gross solids by using separation devices such as screens in unsatisfactory storm overflows	Enactment of PC15 Business Plans	NIW/ NIEA		2021
	Inclusion of event monitoring on networks in the vicinity of bathing and shellfish waters	Agreed programme of compliance projects funded as part of PC15	NIEA		2021
	Improve knowledge about the operation of storm overflows through more monitoring	Agreed programme of monitoring funded as part of PC15	NIEA	NIW	2021
	Assess the potential use of general environmental rules for small private sewage sources to ensure they are correctly operated and maintained and to prohibit polluting discharges to the aquatic environment	Environmental Better Regulation Bill & subordinate permitting regulations	NIEA/ RNRPD		2021

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Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Reduction in pollution from sewage	Work with the water industry to develop and pilot recovering phosphorus from waste water treatment works and to pilot new technology to remove phosphorus to meet tighter discharge limits	Engage with Water Industry on any projects on phosphorus recovery	NIEA/ NIW		In Place
	Increase awareness of need to install and maintain private sewerage systems correctly	Continue to work with 'Supply, Install, Monitor, Maintain (SIMM) group for Private waste water management	NIEA	NIW/ SIMM	Ongoing
	In land drained for agricultural purposes, research the impacts on streams of effluent from septic tank percolation areas	Engage with research community-possible research student project	NIEA		2021
Reduction in pollution from industry	Consider Regulatory Reform to include single integrated permits, unified inspection powers for all environmental obligations, and enhanced enforcement powers	Integrated permitting and inspection coordination group	DOE RNRPD		2021
Protection of Freshwater Pearl Mussel sites	Implement measures developed through the INTERREG IVA funded project (Practical Implementation of Freshwater Pearl Mussel Measures) to minimise the impact of sewage and industry on fresh water pearl mussels	Partnership working between Government and NGOs	NIEA		2021

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Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Reduction in pollution from sewage and industry	Work with other UK agencies and the water industry to scope and develop cost effective measures for reducing Phosphorus loads in WWTWs, septic tanks, human food, dishwasher detergents and use in water supply dosing	Engage with UK agencies and water industries on relevant projects	NIEA	NIW/ UK Agencies	In place/ Ongoing
Protection of Bathing and Shellfish Water Protected areas	Developing models and catchment based approach to protect these areas. INTERREG VA project to develop prediction and discounting at bathing waters.	Partnership working between Government and NGOs	MED	DARD/ NIW	2021
Protection of Bathing and Shellfish Water Protected areas	Potential further new measure in Microbial source tracking work to identify sources of bacterial contamination (waste water/ agriculture) being undertaken by NIW in conjunction with Agri-Food and Biosciences Institute (AFBI)	Partnership working between Government organisations	NIW		2021



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