

DRAFT

**NATIONAL SURFACE AND GROUNDWATER
MONITORING PROGRAMMES**

REPUBLIC OF IRELAND

**PREPARED TO MEET THE REQUIREMENTS OF
EU WATER FRAMEWORK DIRECTIVE
(2000/60/EC)**

AND

**NATIONAL REGULATIONS IMPLEMENTING THE
WFD SI NO 722 OF 2003**

AND

**NATIONAL REGULATIONS IMPLEMENTING THE
NITRATES DIRECTIVE SI NO 788 of 2005**

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6. Canals Monitoring Programme

6.1 Introduction

Artificial Water Bodies (AWBs) are defined in Article 1 of the WFD as “a body of water created by human activity”. The WFD also states in Article 4.3(a) that “Member States may designate a body of surface water as artificial or heavily modified when the changes to the hydromorphological characteristics of that body which would be necessary for achieving good ecological status would have significant adverse effects” on a list of activities including navigation and recreation. For these reasons canals were identified as AWBs under the WFD.

Canals are to be included in the Operational Monitoring programme recognising their artificial nature and specific monitoring requirements to ensure their continued beneficial uses. Canals play an important role in Ireland’s River Basin Districts for many integrated purposes including for navigation, angling, water sports, water quality, environmental and amenity value. Canal monitoring is currently carried out by the Central Fisheries Board (CFB) on behalf of Waterways Ireland (WI), the owners of most of Ireland’s canals, for their maintenance programme. The EPA reports on the water quality of canals in Ireland based on CFB monitoring data.

The following text outlines the current monitoring undertaken for canals and sets out the anticipated additional work required to make the programme WFD compliant based on initial discussions between WI, EPA and CFB. The exact roles and responsibilities of this programme have yet to be defined between WI, EPA and CFB.

6.2 Aim of canal monitoring programme

The Canal Monitoring Programme for WFD reflects the varied beneficial uses of canals. The monitoring programme should allow for the ecological potential of each canal to be identified and support the measures in the River Basin Management Plans aimed at achieving Good Ecological Potential for AWBs.

Good Ecological Potential (GEP) and Maximum Ecological Potential (MEP as reference condition) have yet to be defined for AWBs or Heavily Modified Water Bodies (HMWBs). However, while it is anticipated that the ecological quality associated with GEP and MEP will require mitigation measures in some cases, it is understood that those mitigation measures should not have a significant adverse impact on the use of beneficial uses of canals listed above. Specific management practices will be required to maintain these beneficial uses, e.g. dredging to ensure safe boat movement and aquatic plant management practices.

This programme should link with the monitoring of feeder streams and associated river water bodies, as in many cases the measures applied to the catchments of feeder streams will play a key role in improving Canal water quality. Given the beneficial uses of canals outlined above, macrophytes, benthic invertebrates,

physico-chemical parameters, hydromorphological parameters and fish are deemed the most appropriate elements for inclusion.

6.3 Canal typology

Thirty-six canal water bodies were identified as AWBs during the Characterisation and Analysis of Ireland RBDs for Article 5. However, these AWB-canals are often continuous stretches only divided by their discharge point to transitional water bodies or at the boundary of RBDs. Given their artificial nature a typology like that applied to natural rivers or lakes cannot be readily extended to canals. There is a SNIFFER (Scottish Northern Ireland Forum For Environmental Research) research project (WFD61) to develop a WFD compliant canal classification tool. EPA and Waterways Ireland are co-funding this project along with British Waterways, SEPA and EA. Outputs from this project including monitoring protocols and the classification tool will influence how canals are managed for WFD in Ireland.

In the interim, a basic typology can be applied for the monitoring programme based on summit points (the canals equivalent of a catchment divide) and major canal junctions (equivalent to a confluence). The RBD boundaries will not influence the ecological potential of canals, however for reporting purposes they will result in further subdivision of canals to allow for discrete water body reporting by each RBD to the European Commission. On this basis the following canal water bodies listed in the table below have been identified for the purposes of the monitoring programme.

Number	Description	River Basin District(s)
Canal AWB-1	Royal Canal: Dublin to Mullingar	ERBD
Canal AWB-2	Royal Canal: Dublin to Shannon	ERBD and SHIRBD
Canal AWB-3	Grand Canal: Dublin to Lowtown	ERBD and SERBD
Canal AWB-4	Grand Canal: Lowtown to Shannon	ERBD, SERBD and SHIRBD
Canal AWB-5	Grand Canal: Naas Line	ERBD
Canal AWB-6	Barrow Line	SERBD
Canal AWB-7	Shannon-Erne Waterway	SHIRBD and NWIRBD
Canal AWB-8*	Ardnacrusha headrace and tailrace canal	SHIRBD
Canal AWB-9*	Plassey Erina canal	SHIRBD
Canal AWB-10*	Lough Allen canal	SHIRBD

*Not currently monitored by CFB on behalf of WI.

There are some minor canalised stretches of rivers, which are not considered in this monitoring programme. These stretches are typically less than 3km in length and will be accommodated by natural river water monitoring upstream and downstream of these stretches. Measures applied to these adjacent natural water bodies should ensure the optimal ecological potential is achieved. Significant stretches of the River Barrow (downstream of Athy) and Shannon-Erne Waterway are natural and therefore not strictly artificial water bodies. These stretches will continue to be monitored for the beneficial uses required by Waterways Ireland, however they have not been defined as AWBs and therefore are not subject to canal WFD monitoring and will be accommodated in the rivers monitoring programme. The Boyne Navigation is not

currently monitored by CFB but has been identified as an AWB and therefore may require canal WFD monitoring.

6.4 Size of canal monitoring programme

It is anticipated that for the WFD purposes of assigning Ecological Potential to canals and monitoring the influence of measures approximately 40 canal monitoring points are required throughout the ten canal-AWBs identified above. There are currently some 200 monitoring points for physico-chemical parameters sampled by CFB (roughly one site every 3km) used to maintain the canals' beneficial uses. A subset of these sites can accommodate the 40 WFD canal monitoring.

6.5 Location of canal monitoring points

The location of the 40 WFD canal monitoring points will be determined by consultation with Waterways Ireland, CFB, EPA and the RBDs. The significant influence that feeder streams have on water quality in canals will be an important consideration in choosing sites.

6.6 Quality elements for canal monitoring programme

The exact nature and extent of canal WFD monitoring will be influenced by the outcome of the SNIFFER research project and best practice developed by other Member States. However, based on current knowledge the table below summarises the anticipated requirements for a WFD compliant canal monitoring programme.

Quality Elements	No. of Sites	Frequency
General physico-chemical	40 (each year)	4 times per year
Benthic invertebrate fauna	c. 13 (per year)	Once per three years
Macrophytes	40 (each year)	Annually
Hydromorphology	c. 7 (each year)	Once per six years
Fish	c. 13 (per year)	Once per three years
Annex X Substances	To be considered when deemed to be discharged into an RBD and subsequently into a canal	12 times per year for 1 year in 3 year cycle
Annex VIII Other pollutants	To be considered when deemed to be discharged into an RBD and subsequently into a canal	12 times per year for 1 year in 3 year cycle

6.7 Resources

Currently canal monitoring is carried out by CFB under contract with Waterways Ireland to meet their remit of maintaining the canals for their beneficial uses. The additional work required to make the programme WFD compliant can largely be accommodated by the current programme but nonetheless will require some additional resources. Some taxonomic resources may also be required to be provided by EPA for the benthic invertebrate fauna monitoring. These additional resources and

the roles and responsibilities of this programme should be discussed at senior management level between EPA, WI and CFB.

If Annex X or Annex VII substances are deemed to be discharged into a given RBD and subsequently require monitoring in canals, there is no capacity within CFB or WI to cover the cost of such monitoring.

There will be a requirement by local authorities (via RBDs) and EPA as WFD Competent Authorities to process the data collected by CFB. This interpretation exercise will include the WFD tasks of assigning ecological potential and interpreting, developing and implementing appropriate measures.