Northern Ireland
Environment Agency

River Basin Management Plans

Programme of measures

Key Sectors — Marine (Ports & Harbours, Aggregate and Fishing/ Aquaculture Industry)

Pressure Type — Marine Morphology

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Northern Ireland Environment Agency

Introduction

There are many morphological pressures on the marine environment around Northern Ireland. Our ports play an important role in transporting goods in and out of the country. In 2006, approximately 25 million tonnes of goods were transported through our ports in addition to half a million tourist vehicles. In order to sustain viability and safety in our ports, essential operations like dredging and the engineering of port facilities must be carried out on a regular basis.

In addition to construction pressures within ports, the drive for renewable energy is rapidly extending into the marine environment. Northern Ireland's target is to produce 12% of electricity from renewable sources by 2012 and 40% by 2025 with at least 25% of this being generated by non-wind technologies. The first marine current turbine was licensed in Strangford Lough in December 2005 and became operational in 2008.

Other morphological pressures on the marine environment include the extraction of marine minerals for the construction industry. Historically, this has not been a major pressure around Northern Ireland, but as land-based sources become depleted, the marine environment may come under more pressure in the future. There is an extensive marine mineral extraction industry around the English coast.

Fishing and aquaculture activities can also have a morphological impact, and in particular invasive techniques such as bottom trawling, fisheries-related dredging and bottom-culture mussels. There are extensive aquaculture activities within our sea loughs and this industry is important for the Northern Ireland economy. At present there are 64 marine sites licensed for the cultivation of shellfish and 2 marine sites licensed for the cultivation of finfish.

The disposal of dredged material is also carried out within Northern Ireland waters. Although most disposal licences operate beyond the sea area covered by the Water Framework Directive (WFD) (i.e. greater than 1 nautical mile from the baseline for coastal waters), there is some licensing of dredged material disposal within sea loughs.

The WFD requires that Member States ensure that the physical condition of surface waters supports ecology. We have classified all transitional (estuarine) and coastal waters for morphology using the TraC MiMAS (**Tra**nsitional and **C**oastal **M**orphological **I**mpact **A**ssessment) tool. Morphological quality elements only contribute to status classification for water bodies at high ecological status (i.e. if the water is at high status from all other parameters a morphological impact can cause it to be downgraded to good ecological status). The tool classifies morphology by scoring it based on departure from naturalness.

Most of our estuaries, sea loughs and coastline have been changed morphologically as a result of aquaculture activity or through the construction of ports and harbours and impoundments. Only 3 of our transitional and coastal water bodies are considered to be at high status for morphology and these are Rathlin, the North Coast and the Maidens. The remainder of our transitional and coastal waters, with the exception of those that have been designated as heavily modified, are at good status morphologically.


Rathlin Island

Heavily Modified Water Bodies

In some areas transitional and coastal waters have been altered to such a degree that attempting to return them to a natural condition would now be economically or technically infeasible. Such water bodies have been designated as Heavily Modified Water Bodies (HMWBs), again using the TraC MiMAS tool. Our major ports (Belfast, Londonderry, Larne and Warrenpoint) have been developed and modified over many years. All of these lie within designated Heavily Modified Water Bodies. Instead of "good ecological status", the environmental objective for HMWBs is 'good ecological potential' (GEP), which has to be achieved by 2015. These designated water bodies will require mitigation measures that maximise their ecological potential, as opposed to 'restoring' the natural condition. The Northern Ireland Environment Agency (NIEA) held a workshop with relevant agencies and stakeholders in 2009 to define ecological potential of the designated HMWBs.

In addition to our major ports, 6 out of the 7 transitional waters have been designated as heavily modified, with only the Roe Estuary being considered a natural system. The Lagan Estuary and Quoile Pondage are designated due to the presence of impounding weirs / barrages. The Bann Estuary is designated due to the presence of the weir and the flow controls over the whole lower Bann system. Both the Newry Estuary and the Connswater are modified with walled structures over much of their length. The Foyle and Faughan have port modification, though NIEA is giving consideration to the splitting of this water body as the area upstream of Londonderry city is much more natural. More information on the process used to assess whether a water body was heavily modified can be found on the *Quality of Our Water Environment* section of the NIEA website.

What causes the environmental impact?

Morphological alterations have the potential to change the ecology of a water body. Land reclamation or the construction of sea defences and walls can result in the loss of important intertidal habitat. Dredging, the extraction of marine minerals and fishing activities can all cause physical disturbance to seabed communities or can result in increase in suspended solids, which in turn reduces light penetration in the water column, which can alter marine community structures. Bottom culture of mussels has the potential to displace the natural benthic communities in our sea loughs.

The impact of subsea structures with moving parts, like tidal turbines, is as yet largely unknown although rapid advances in this area are being made with the development of marine renewable energy technologies.

Weir structures and barrages which can be used for flood defence purposes in our transitional waters (e.g. the Lagan Weir and Quoile Pondage) have the potential to physically impede the passage of migratory fish. In addition, barrage structures in transitional waters can increase the degree of stratification in the water column and can cause problems with deoxygenation of the bottom saline layers, which are effectively trapped by the overlying freshwater. Where the underlying sediments are organically enriched, they scavenge oxygen from the water column in the degradation process and in extreme conditions can cause fish kills.


Warrenpoint

What action are we already taking?

There are already a number of controls on activities that affect the morphology of the seabed.

Key legislation and guidance

Part II, Food and Environment Protection Act, 1985 (FEPA)

Deposits in the sea are controlled by FEPA which is applicable throughout all UK waters. The Department of the Environment (DOE), through NIEA, is responsible for licensing within the Northern Ireland territorial waters. The area covered is from the mean high water spring tide mark out to 12 nautical miles from the baseline. The baseline comprises the mean low water mark on the open coast, and in a sea lough the baseline is represented by a number of bay closing lines across the mouth of the lough. Any deposit in the sea within this area, whether as a result of construction activity in a port, land reclamation, or the disposal of dredged material requires a licence under the Act. Although FEPA covers the disposal of dredged material, it does not cover the practice of dredging.

In determining whether to issue a licence, NIEA has a duty to have regard to the need to protect the marine environment, the living resources which it supports and human health and must prevent interference with legitimate uses of the sea. NIEA may also have regard to other matters which it considers relevant. In exercising its duties, NIEA, as licensing authority, implements a thorough consultation process with other parts of Government and public bodies with a statutory role in the management of the marine environment. In determining licence applications, NIEA can also require the applicant to examine practical alternatives to the proposed operation. Licence applications are also published to ensure that a wider group of stakeholders have the opportunity to comment on a proposal.

Marine Works (Environmental Impact Assessment) Regulations 2007

The Marine Works Regulations apply across the UK, and implement the need for an Environmental Impact Assessment for FEPA licence applications which fall under Annex I of the Environmental Impact Assessment Directive, or under Annex II of the Directive where the project is likely, because of its size, nature or location, to have significant effects on the environment. The Regulations also implement the Public Participation Directive which requires the publicising of FEPA applications.

Harbour Works (Environmental Impact Assessment) Regulations 2003

Most harbour works fall under the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 1999. Only those which fall under permitted development, or are outside the planning limit, attract the Harbour Works regulations. The Harbour Work Regulations implement the need for Environmental Impact Assessment for harbour works that fall under Annex I of the Environmental Impact Assessment Directive or under Annex II of the Directive where the project is likely, because of its size, nature or location, to have significant effects on the environment. The Department of Agriculture and Rural Development (DARD) is the appropriate Department regarding harbour works within any fishery harbour and the Department for Regional Development (DRD) covers all other harbours.

The Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging) (England and Northern Ireland) Regulations 2007

These Regulations introduced a new licensing system to cover the extraction of minerals, like sands and gravels from the marine environment by dredging. These Regulations incorporate the requirements of both the Environmental Impact Assessment and Habitats Directives. The Department implements the Regulations through NIEA and aims to ensure that the use of marine dredged sand and gravel remains consistent with the principles of sustainable development. NIEA determines licence applications through a consultation process with other government Departments and organisations with a statutory role, in addition to the wider stakeholder community.

Fisheries (Northern Ireland) Act 1966 as amended

Under the terms of the Fisheries Act (Northern Ireland) 1966 as amended, the DARD are responsible for the licensing of fish and shellfish farms in Northern Ireland.

Foyle and Carlingford Fisheries Bill

The Foyle, Carlingford and Irish Lights Commission are responsible for licensing and regulation of aquaculture and shellfisheries in the Loughs Foyle and Carlingford.

The Foyle and Carlingford Fisheries (Northern Ireland) Order 2007

The Loughs Agency operate a number of automated environmental monitoring systems in Foyle and Carlingford and also one approximately 4 miles off Inishowen head. These provide valuable information on water quality to the Marine Institute and NIEA in fulfilment of their various objectives.

The Inshore Fishing (Prohibition of Fishing and Fishing Methods) Regulations (NI), 1993 (amended in 2008)

The Inshore Fishing (Prohibition of Fishing and Fishing Methods) (Amendment) Regulations (Northern Ireland) 2008 came into operation in July 2008. The Regulations amend the Inshore Fishing (Prohibition of Fishing and Fishing Methods) Regulations (Northern Ireland) 1993 by extending the current ban on fishing by suction dredges in Strangford Lough and Dundrum Inner Bay to all Northern Ireland waters and by introducing a prohibition on dredging for sea fish and extending the prohibition on the use of seine and trawl nets in Belfast Lough westward to an imaginary straight line drawn from Carrickfergus Castle in County Antrim to Grey Point in County Down.

OSPAR

OSPAR is the international convention for the protection of the marine environment of the North East Atlantic. The UK is one of 15 signatories to the Convention. OSPAR produces many extremely useful guidelines which NIEA, along with the other UK regulators, use in marine licensing processes. These include:

- OSPAR Guidelines for the Management of Dredged Material; and
- OSPAR Guidance on a Common Approach for Dealing with Applications for the Construction and Operation of Offshore Wind Farms (replaced by agreement 2008-3)

Central Dredging Association (CEDA)

The Central Dredging Association is an independent, non-profit, non-governmental, professional society. It provides a forum for all those involved in activities related to dredging and promotes good dredging practice. CEDA provide good practice guidance and participate in the environmental debate at all levels. In partnership with the International Association of Dredging Companies (IADC), CEDA produced a series of guides "Environmental Aspects of Dredging". The series consists of guides covering the groundwork required before dredging work can be carried out advice on best practice, examples of beneficial use of dredged material and the environmental and socio-economic impact of dredging work.


Castlerock

What improvements will current measures achieve?

The current measures already provide methods for controlling some of the pressures outlined in the introduction. For example, only dredged material meeting the appropriate environmental quality standards (set in OSPAR Guidelines) will be approved for sea disposal. Alternative solutions have to be found for materials that are too contaminated for sea disposal, and may include bunding or capping of the contaminated material, use of the material in construction, or even bioremediation.

Mitigation measures are commonly used in marine licensing processes and these will be used to help define GEP. Typical mitigation measures when considering morphological change could include:

- The reinstatement of shoreline where land reclamation or construction has removed habitat;
- The timing of construction projects to ensure that this does not compromise the passage of migratory fish, or a seal pupping season; and
- The monitoring of the rate of dredged material disposal to ensure that suspended solids in the water column are kept at levels which will not compromise the ecology.

Portstewart Strand

What further actions will deliver environmental improvements?

New Legislation and guidance

UK Marine Act 2009

The Marine and Coastal Access Act 2009 extends to Northern Ireland in a number of areas, including a new marine licensing regime. The changes that are proposed are intended to result in better, more consistent licensing decisions delivered more quickly and at less cost to all by a system that is proportionate and easier to understand and to use. They will integrate delivery across a range of sectors. The Act also introduces the concept of marine planning. This will clarify marine objectives and priorities for the future, and will assist decision-makers and users towards more efficient, sustainable use and protection of our marine resources. The first stage of this marine planning system will be the creation of a UK-wide Marine Policy Statement to create a more integrated approach to marine management and setting both our short and longer-term objectives for sustainable use of the marine environment. It is then intended that the second stage will be the creation of a series of marine plans, which will implement the policy statement in specific areas, using information about spatial uses and needs in those areas.

Strategic Environmental Assessment

Recognising the potential resource in tidal power around Northern Ireland, the Department of Enterprise Trade and Investment (DETI) is currently carrying forward a Strategic Environmental Assessment of the tidal energy reserves around Northern Ireland. This will provide a framework for decision making around marine licensing.

Development of a protocol for maintenance dredging

In Great Britain the ports and harbour authorities have successfully worked with Government and Natural England to develop a protocol and guidance for maintenance dredging to ensure compliance with the Habitats and Birds Directive. The development of a Northern Ireland equivalent protocol which would also meet the requirements of the WFD is currently planned.

The following tables summarise the existing/ planned measures and supplementary measures for Marine Morphology.

Key Sectors: Ports and harbours, aggregate and fishing / aquaculture industry
Pressure Type: **Marine morphology**

Summary of existing and planned measures

Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of mechanism (year end)
Protection of the aquatic marine environment	Regulate all harbour works	Control of works within harbours under the Harbour Works (Environmental Impact Assessment) Regulations (Northern Ireland) 2003	DRD, DARD (fishery harbours)		In place
		Marine Works (Environmental Impact Assessment) Regulations 2007	NIEA		In place
	Regulate specific offshore works	Food and Environment Protection Act 1985 Part II	NIEA	DARD, MCA	In place
Better management of dredging activities within harbours	Adopt industry or best practice standards	Existing Harbour Works Regulations	DRD, DARD	NIEA	In place
Enhanced Management Practices	Regulate deposits of material to the coastal and marine environment	Food and Environment Protection Act 1985 Part II	NIEA		In place
	Control of marine aggregate extraction from seabed	The Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging) (England and Northern Ireland) Regulations, 2007	NIEA	DOE	In place
	Protect fish and assure free passage	Fisheries Act (NI) 1966	DCAL/ LA		In place
	Protect the aquatic environment, specifically fisheries	Foyle and Carlingford Fisheries (Northern Ireland) Order 2007	LA		In place
	Regulate aquaculture and shellfisheries	Foyle and Carlingford Fisheries (Northern Ireland) Order 2007	LA		In place
	Control dredging for fish	The Inshore Fishing (Prohibition of Fishing and Fishing Methods) Regulations (NI), 1993 (amended in 2008)	DARD		In place
	Manage disposal of Dredged Material and promote good dredging practice	OSPAR Guidelines for the Management of Dredged Material	DRD & Dredging Industry		In place
		Central Dredging Association guidelines 'Environmental Aspects of Dredging'			

Key Sectors: Ports and harbours, aggregate and fishing / aquaculture industry
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Summary of supplementary measures

Improvement Required	Actions	Delivery mechanism	Lead Department / Agency	Support Provider	Deadline for delivery of action (year end)
Management of dredging activities	Develop and implement protocol for maintenance dredging to ensure compliance with the Habitats, Birds & Water Framework Directives	Dredging protocol	DRD	NIEA	2012

Our aim is to protect, conserve and promote the natural environment and built heritage for the benefit of present and future generations.

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