

North Eastern River Basin Management Plan

Quoile Pondage Classification

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An Agency within the Department of the
Environment
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NIEA Northern Ireland
Environment
www.ni-environment.gov.uk Agency

RIVER BASIN MANAGEMENT PLAN		
	WFD TRANSITIONAL WATER BODY CLASSIFICATION Quoile Pondage	
	Version Date:	22/12/09
	MARINE ASSESSMENT AND LICENSING TEAM	

QUOILE PONDAGE (TRANSITIONAL WATER)

Water body Information

- River Basin District: NE
- Water body type: Transitional Water 2 (TW2)
- Water Body Code: UKGBNI5NE130010
- Water body characteristics: Partly mixed/stratified, mesotidal, sand and mud, mesohaline
- Water body area: 0.59 km²
- Heavily Modified Water Body: Yes

OVERALL WATERBODY CLASSIFICATION	MODERATE or worse EP	
PASS/FAIL	FAIL	
<p>WATERBODY CLASSIFICATION: MODERATE OR WORSE (FAIL) – limited data. Classification based on AFBI continuous recording of dissolved oxygen. The marine DIN assessment for the waterbody cannot be completed due to low salinity (<5psu).</p> <p>Transitional waters are recognised across Europe as being difficult to classify as each one is unique. Transitional environments are naturally stressed systems with high spatial and temporal variability. Tools for assessment are not well developed for this classification.</p> <p>Quoile Pondage is an unusual system as it has a flood defence barrage, built in the 1950s which results in heavily modified status. The seaward barrage means the pondage area does not behave as a saline or freshwater system and monitoring techniques are currently under review. In 2001 it was classed as a sensitive area under the Urban Waste Water Treatment Directive, due to elevated nutrient and chlorophyll concentrations with known depressions of dissolved oxygen, particularly in saline bottom waters, and associated occasional fish kills.</p> <p>In this round of classification HMWBs can only be classified as ‘good EP or better’ or ‘moderate EP or worse’.</p>		

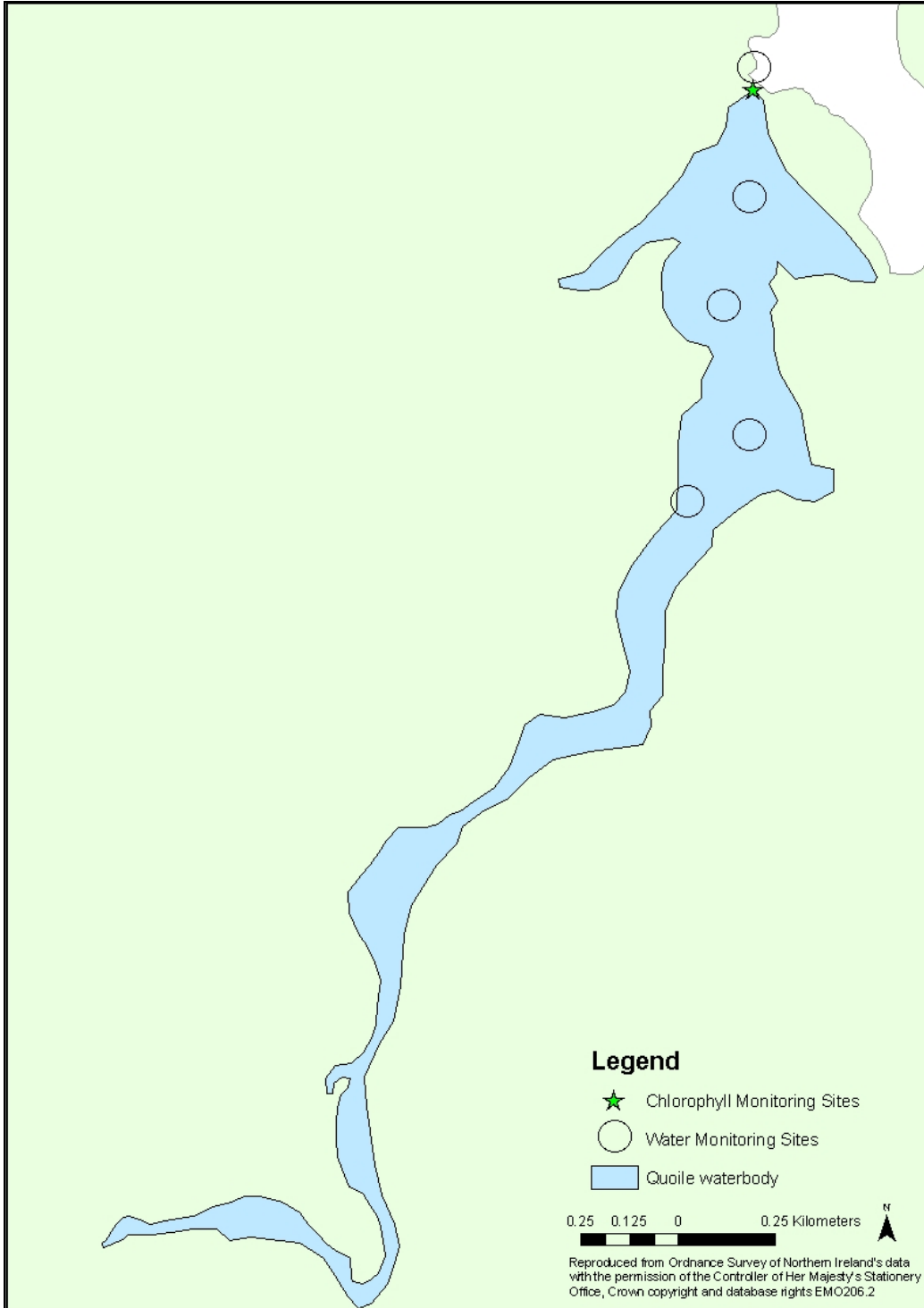
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Pressures and monitoring points within Quoile Pondage (Transitional Water).

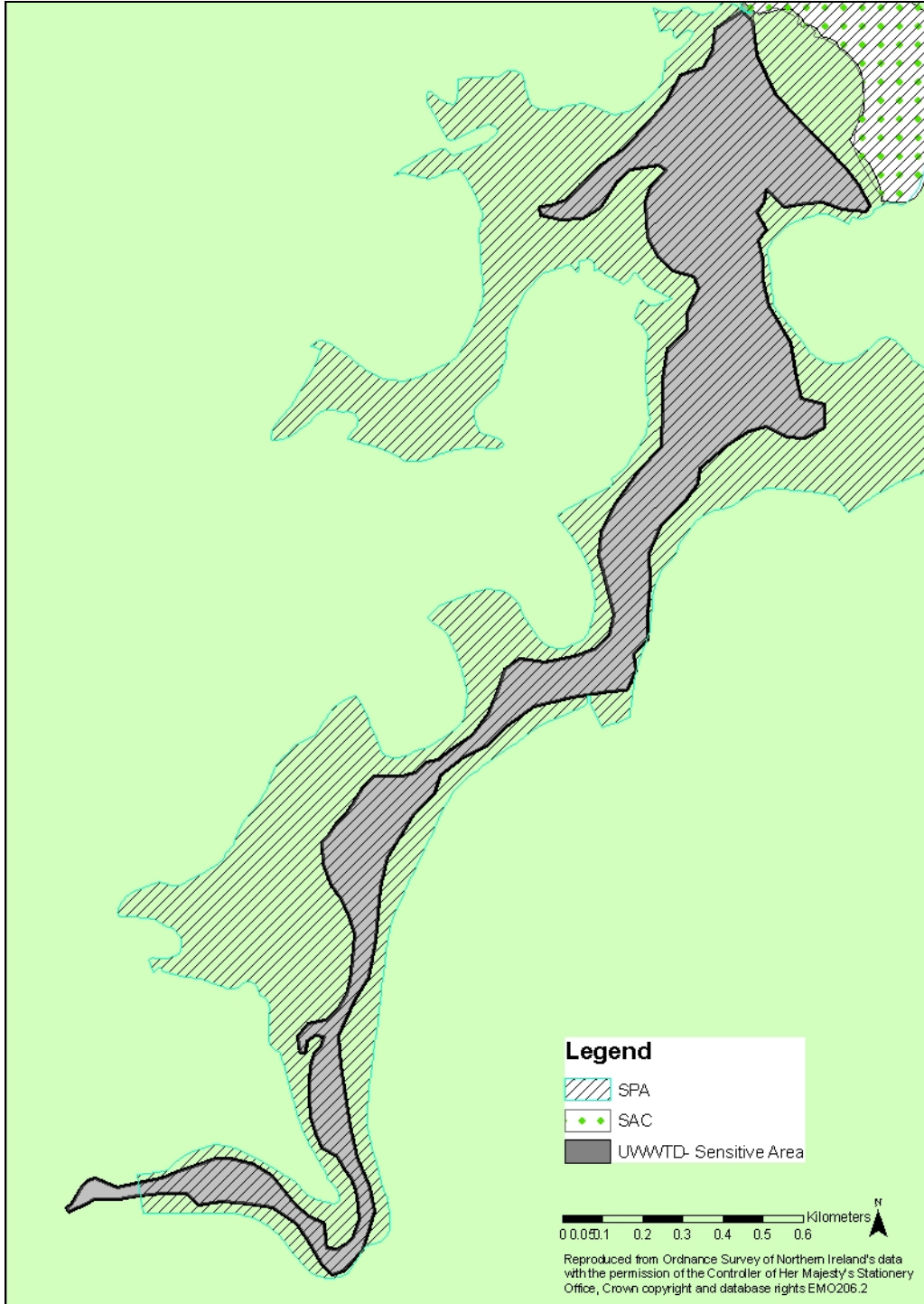
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Protected areas within Quoile Pondage (Transitional Water).

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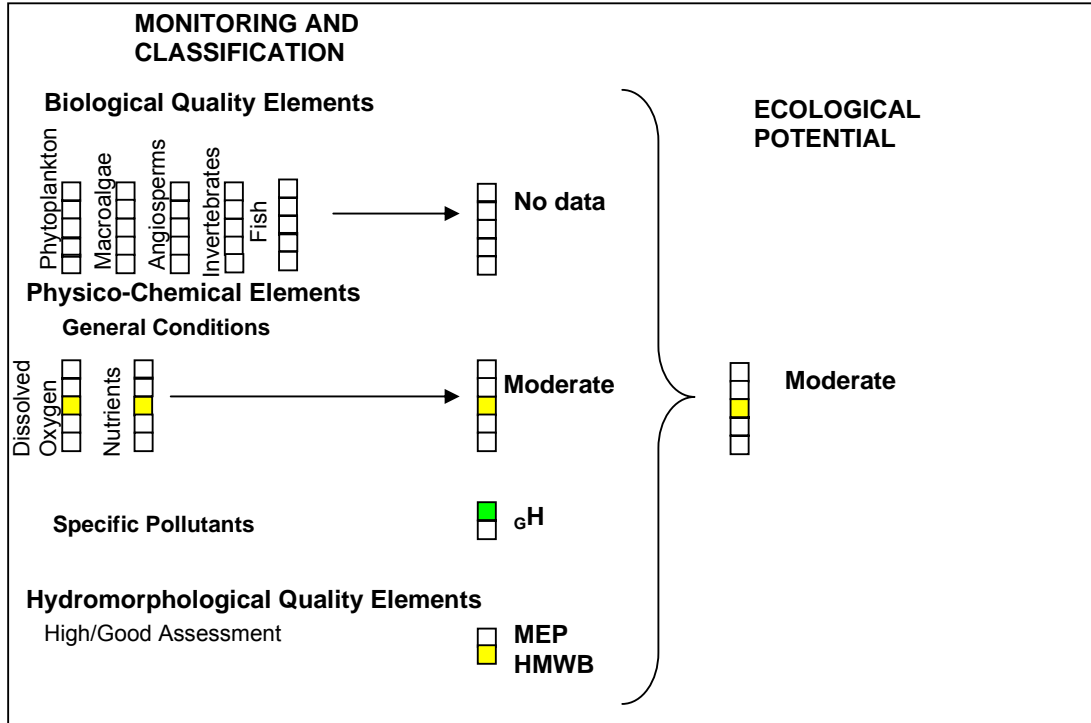
Parameters Requiring Assessment (for this exercise)

PARAMETERS TABLE

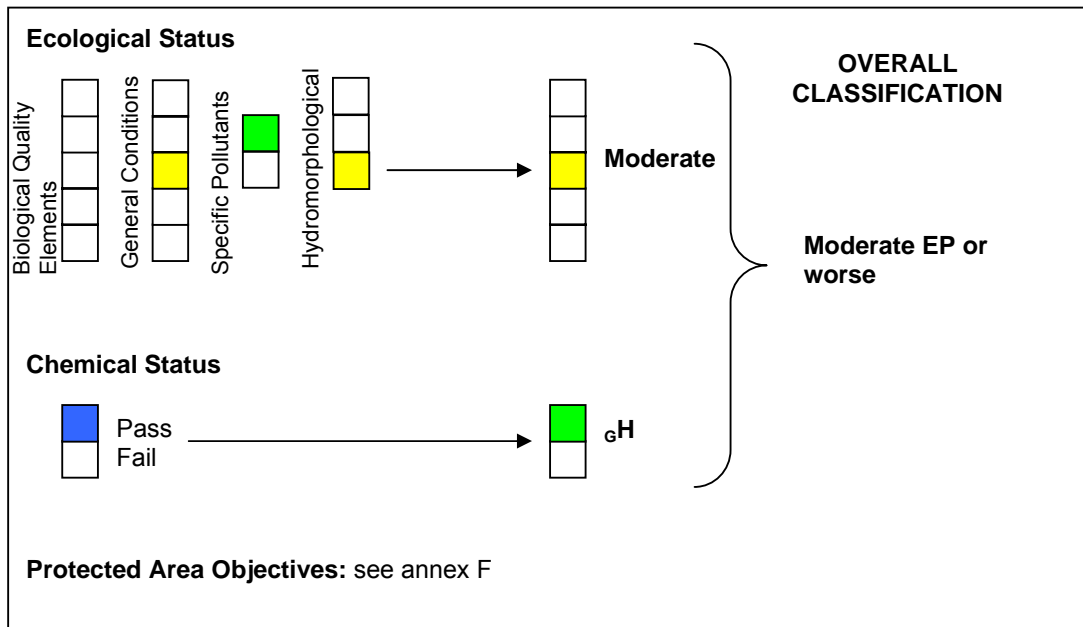
Parameters for which classification systems are available and have been used in the first round of classification. Some biological assessment tools are not suitable for all water bodies due to habitat type.

Ecological Quality Element			
Main Element	Sub-Element	Applied	Comment
Plants	Macro Algae		
	-Opportunistic Macroalgae	<input checked="" type="checkbox"/>	Tool not applicable
	-Reduced Species List	<input checked="" type="checkbox"/>	Tool not applicable
	Angiosperms	<input checked="" type="checkbox"/>	Tool not applicable
Benthic Invertebrates	Phytoplankton	<input checked="" type="checkbox"/>	Tool under development
	Infaunal Quality Index	<input checked="" type="checkbox"/>	Tool under development
Fish	Imposex	<input checked="" type="checkbox"/>	Tool not applicable
	Transitional Fish Classification Index	<input checked="" type="checkbox"/>	No data available
Physico-Chemical	General Conditions		
	-Dissolved Oxygen	✓	
	-Nutrients	<input checked="" type="checkbox"/>	Tool not applicable (salinity)
	Specific Pollutants (Annex VIII subs)	✓	
Hydromorphological Quality Elements	SEPA Rapid Designation	✓	
	TraC MIMAS	✓	
Chemical Status			
Priority Hazardous Substances (Annex X)	Annex X Substances	✓	


Waterbody Classification



Ecological classification of Quoile Pondage (Transitional Water)



Overall classification of Quoile Pondage (Transitional Water)


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First River Basin Cycle (2004 – 2008) – WFD specific data

Monitoring Level: *Surveillance*

Sampling frequency for each quality element.

Quality Elements	Year (if 1 in 3 years)	No. of sites
Phytoplankton - 90 %ile	2004-7	9 sites 73 samples
Physio-chemical		
Nutrients	TNA	
Dissolved Oxygen	2002-3, 2006-8	242 daily averages
Other polluting substances (Annex VIII)	Yes	
Hydromorphology	Yes	
Water chemistry (Annex X)		
Priority hazardous substances	Yes	

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ANNEX A: Classification of Biological Quality Elements


QE: Phytoplankton **NO CURRENT REF CONDITIONS FOR TWs**

QE Macrophytes: – tool not applicable/ tool under development

QE Angiosperms: – tool not applicable

QE: Benthic Invertebrates – tool under development for transitional waters

QE: Transitional Fish – no data available

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ANNEX B: Classification of physico-chemical Quality Elements: General

Dissolved Oxygen

Dissolved oxygen (+ data confidence):	Moderate (M)	
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Classification tools: Comparison of 5% ile against reference standards

- **Data store:** \\marine on ehslis2k \Water Framework Directive\DRAFT WFD CLASSIFICATION REPORTS\Dissolved Oxygen
- **Data Availability:** 02-03, 06-08
- **Data Availability (spot & continuous samples):** Spot & Continuous

Thresholds:

WFD Status	Marine 5%ile	Objectives
HIGH	≥5.7 mg/L	All life stages of salmonoids and transitional fish
GOOD	≥4.0 <5.7 mg/L	Presence of salmonoids and transitional fish
MODERATE	≥2.4 <4.0 mg/L	Most life stages of non-salmonoid adults
POOR	≥1.6 <2.4 mg/L	Presence of non-salmonoids, poor survival of salmonoids
BAD	<1.6 mg/L	No salmonoids present, marginal survival of resident species

Results:


5% ile DO (mg/L)	Status	Data years	Data Quality	No. of daily averages	Data Coverage (proportion of possible months with data*)
2.94	Moderate	02 – 03, 06 - 08	**	242	56.6%

* Proportion of possible months for which data are available

****Data Quality, Medium**

- Instruments subject to regular calibration checks and quality assurance programme, but databases not QA'd.
- Medium = 5 – 10 (daily averages) x n (no. of assessment years in reporting cycle).

Nutrients, Winter DIN - Good (ND). The data collected for this assessment was outside the current salinity limits of this tool.

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	<table border="1"> <tr> <td style="width: 50%;">Version Date:</td> <td>22/12/09</td> </tr> </table>	Version Date:	22/12/09
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ANNEX C: Classification of physico-chemical quality elements: Other specific Pollutants

Specific pollutants assessment (+data confidence)	gH	
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Classification tools: Comparison with EQS levels.

Data Availability: 2007 data only

Data Confidence: Low

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QUOILE

ANNEX VIII	Value						EQS ug/l	Ecological Status
	2002	2003	2004	2005	2006	2007		
111_tri	ND	ND	ND	ND	ND	<0.025	100	GH
112_tri	ND	ND	ND	ND	ND	<0.75	300	GH
24_D	ND	ND	ND	ND	ND	ND		
2_chloro	ND	ND	ND	ND	ND	ND		
4_chloro_3	ND	ND	ND	ND	ND	ND		
ammonia	ND	ND	ND	ND	ND	ND		
As	ND	ND	ND	ND	ND	ND		
Bentazone	ND	ND	ND	ND	ND	ND		
biphenyl	ND	ND	ND	ND	ND	ND		
boron	ND	ND	ND	ND	ND	ND		
chlorine	ND	ND	ND	ND	ND	ND		
chloronit	ND	ND	ND	ND	ND	ND		
chloronit_calc	ND	ND	ND	ND	ND	ND		
Cr	ND	ND	ND	ND	ND	ND		
Cu	ND	ND	ND	ND	ND	ND		
Cy	ND	ND	ND	ND	ND	ND		
Cyfluthrin	ND	ND	ND	ND	ND	ND		
cyper	ND	ND	ND	ND	ND	ND		
diazinon	ND	ND	ND	ND	ND	0.0017	0.01	GH
dichlorvos	ND	ND	ND	ND	ND	ND		
dimethoate	ND	ND	ND	ND	ND	ND		
fenitrothion	ND	ND	ND	ND	ND	0.0018	0.01	GH
Fe	ND	ND	ND	ND	ND	ND		
linuron	ND	ND	ND	ND	ND	ND		
malathion	ND	ND	ND	ND	ND	0.0023	0.02	GH
Mn	ND	ND	ND	ND	ND	ND		
mecoprop	ND	ND	ND	ND	ND	ND		
permethrin	ND	ND	ND	ND	ND	ND		
phenol	ND	ND	ND	ND	ND	<4	7.7	GH
toluene	ND	ND	ND	ND	ND	ND		
Vn	ND	ND	ND	ND	ND	ND		
xylenes	ND	ND	ND	ND	ND	ND		
Zn	ND	ND	ND	ND	ND	ND		

G	Good
F	Fail
GH	Good or better and is normally treated as high
M	Moderate

	Mean includes LOD data
	Mean based on actual values

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ANNEX D: Hydromorphological quality elements

Overall hydromorphology assessment	HMWB-MEP	
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Classification tools:

1. TRaC Hydromorphology metrics
2. MIMAS

Moderate ecological potential due to modifications to hydromorphology.

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ANNEX E: Chemical Status

Overall water chemistry assessment (+data confidence)	gH	
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Classification tools: Comparison with EQS levels.

Annex X: Overall Compliance	Pass
Annex X: Pass/Fail	Pass

Data confidence: 2007 data only.

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Quoile

ANNEX X	Value						EQS	Chemical Status	Ecological Status
	2002	2003	2004	2005	2006	2007			
12_Dichloro	ND	ND	ND	ND	ND	<2	10	G	GH
anthracene	ND	ND	ND	ND	ND	ND			
atrazine	ND	ND	ND	ND	ND	0.009	0.6	G	GH
benzene	ND	ND	ND	ND	ND	ND			
benzo	ND	ND	ND	ND	ND	ND			
benzo_a	ND	ND	ND	ND	ND	ND			
Cadmium	ND	ND	ND	ND	ND	ND			
Chlorfenvos	ND	ND	ND	ND	ND	ND			
Chloropyrifos	ND	ND	ND	ND	ND	0.001	0.03	G	GH
Dichloro	ND	ND	ND	ND	ND	ND			
Diuron	ND	ND	ND	ND	ND	ND			
endosulphan	ND	ND	ND	ND	ND	ND			
floranthene	ND	ND	ND	ND	ND	ND			
hcb	ND	ND	ND	ND	ND	ND			
hcbd	ND	ND	ND	ND	ND	<0.01	0.1	G	GH
hch	ND	ND	ND	ND	ND	ND			
hch_calc	ND	ND	ND	ND	ND	ND			
Hg	ND	ND	ND	ND	ND	ND			
Indeno	ND	ND	ND	ND	ND	ND			
ISP	ND	ND	ND	ND	ND	ND			
Napthalene	ND	ND	ND	ND	ND	ND			
Ni	ND	ND	ND	ND	ND	ND			
Nonyl	ND	ND	ND	ND	ND	ND			
Octyl	ND	ND	ND	ND	ND	ND			
Pb	ND	ND	ND	ND	ND	ND			
pcp	ND	ND	ND	ND	ND	ND			
simazine	ND	ND	ND	ND	ND	0.011	1	G	GH
TBT	ND	ND	ND	ND	ND	ND			
TCB	ND	ND	ND	ND	ND	<0.15	0.4	G	GH
TCB_calc	ND	ND	ND	ND	ND	ND			
trichloromethane	ND	ND	ND	ND	ND	ND			
trifluralin	ND	ND	ND	ND	ND	ND			

G	Good
F	Fail
GH	Good or better and is normally treated as high
M	Moderate

	Mean includes LOD data
	Mean based on actual values

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ANNEX F: Protected Area Objectives

Water body	Protected area	Designation	Status	Reason for non-compliance
Quoile Pondage	Strangford Lough	SPA	Favourable	
Quoile Pondage	Quoile Pondage	UWWTD	Sensitive area	

Nitrates Directive

Until 1 January 2007, Northern Ireland had designated seven NVZs on the basis of elevated nitrate levels in groundwaters. These NVZs were very small and covered less than 1% of Northern Ireland's area. However, Northern Ireland also has a widespread problem of eutrophication of surface waters and a large proportion of this nutrient enrichment is attributable to agriculture. Following extensive consultation, the total territory of Northern Ireland was established as the area to which an action programme would be applied under the Protection of Water Against Agricultural Nitrate Pollution Regulations (Northern Ireland) 2004 with effect from 29 October 2004.

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Glossary

AFBI	Agri-Food and Biosciences Institute (under contract to NIEA)
AMBI	AZTI Marine Biotic Index
Annex 10	Annex 10 Priority Hazardous Substances
Annex 8	Annex 8 Specific Pollutants
Article 5	Characterisation, typology, pressures and impacts analysis
ASSI	Area of Special Scientific Interest
DIN	Dissolved Inorganic Nitrogen
DO	Dissolved Oxygen
EQR	Ecological Quality Ratio
EQS	Ecological Quality Status
EUNIS	European Nature Information System
FSL	Full Species List
GEP	Good Ecological Potential
gH	Good/High
H/G/M/P/B	High/Good/Moderate/Poor/Bad (Classification Status)
H/M/L	High/Medium/Low (Confidence)
HMWB	Heavily Modified Water Body
IQI	Infaunal Quality Index
IRBD	International River Basin District
LOD	Limit of Detection
MBT	Macroalgal Blooming Tool
MEP	Moderate Ecological Potential
NB	Neagh Bann
ND	No data
NE	North Eastern
NEAGIG	North Eastern Atlantic Geographical Intercalibration Group
NIEA	Northern Ireland Environment Agency
N-regs	Nitrogen Regulation
NVZ	Nitrate Vulnerable Zone
NW	North Western
Physico-chem	Physical and chemical monitoring
RSL	Reduced Species List
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SPA	Special Protected Area
TNA	Tool Not Applicable
TraC MImAS	Transitional and Coastal Morphology Impact Assessment System
TUD	Tool Under Development
UKAS	United Kingdom Accreditation Service
UKTAG	United Kingdom Technical Advisory Group for Water Framework Directive
UNICORN	Database for marine organisms.
UWWTD	Urban Waste Water Treatment Directive (91/271/EEC)
VDSI	Vas Deferens Sequence Index
WFD	Water Framework Directive

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Our aim is to protect, conserve and promote
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