

Neagh Bann River Basin Management Plan

Newry River Classification

December 2009



An Agency within the Department of the
Environment
www.doeni.gov.uk




INVESTOR IN PEOPLE



www.ni-environment.gov.uk

Northern Ireland
Environment
Agency


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

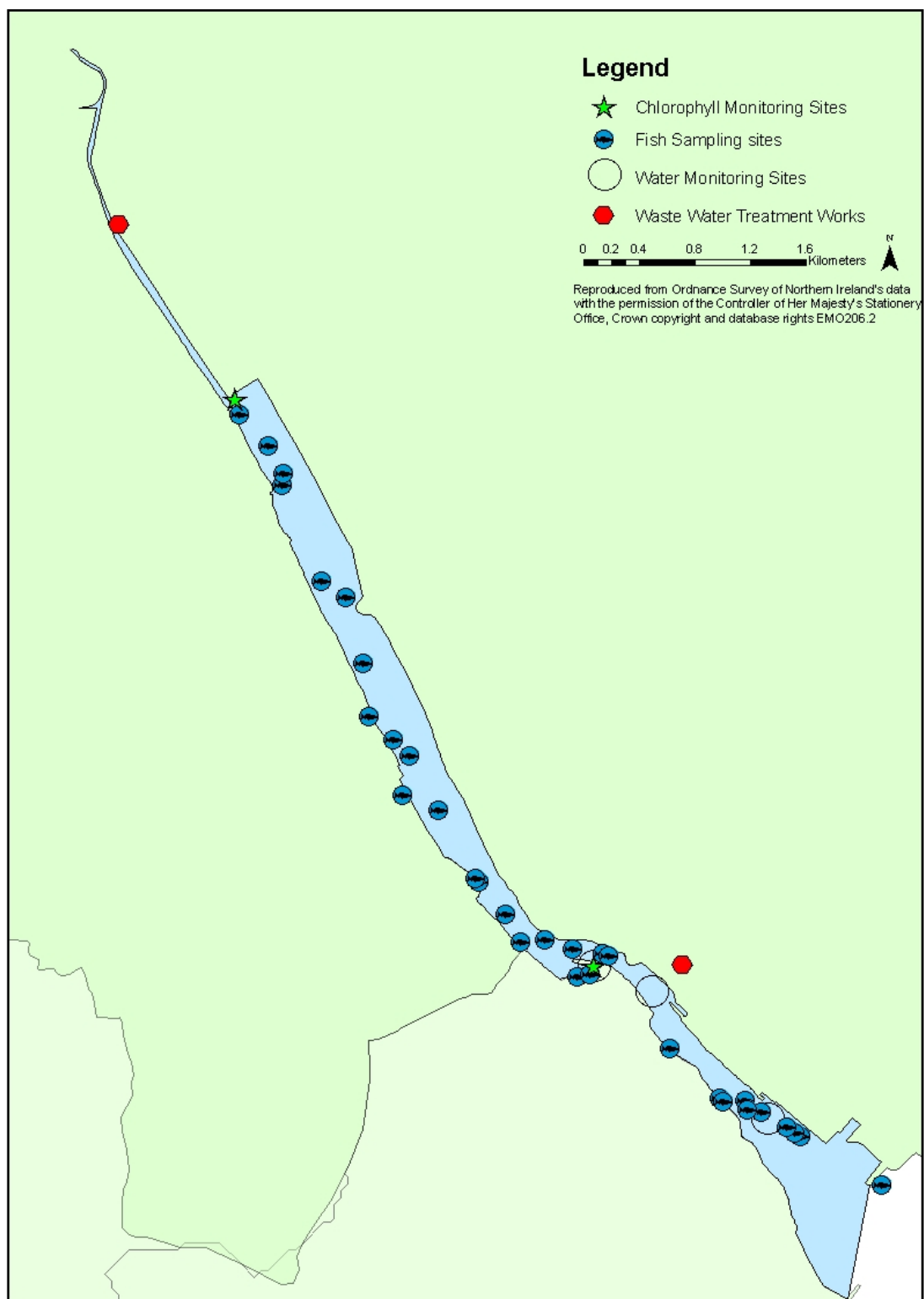
NEWRY RIVER (TRANSITIONAL WATER)

Water body Information


- River Basin District: North Eastern
- Water body type: Transitional Water 2 (TW2)
- Water Body Code: UKGBNIE5NB030010
- Water body characteristics: Partly mixed/stratified, mesotidal, sand and mud, mesohaline
- Water body area: 2.56 km²
- Heavily Modified Water Body: Yes

OVERALL WATERBODY CLASSIFICATION	MODERATE ECOLOGICAL POTENTIAL (EP) or worse	
PASS/FAIL	FAIL	
<p>Downgraded due to elevated DIN in downstream water bodies. At present the DIN assessment cannot be completed for this water body due to low salinity but it has been classified as MODERATE ECOLOGICAL POTENTIAL.</p> <p>The hydromorphological assessment for the water body is that it could meet Good Ecological Potential (GEP) due to management and mitigation measures undertaken within the area. As the biological and supporting elements do not pass the assessment it does not reach GEP at this time.</p> <p>In this round of classification HMWBs can only be classified as 'good EP or better' or 'moderate EP or worse'.</p>		

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




Map of pressures and monitoring points within Newry River (Transitional Water).

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

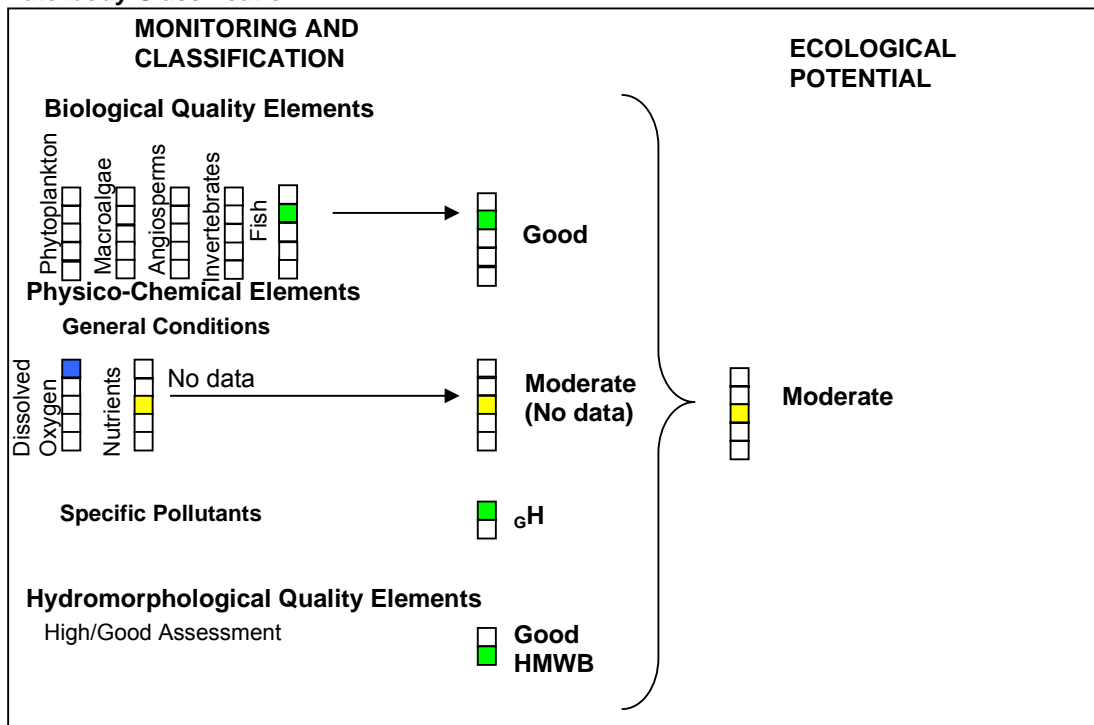
PARAMETERS TABLE

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.

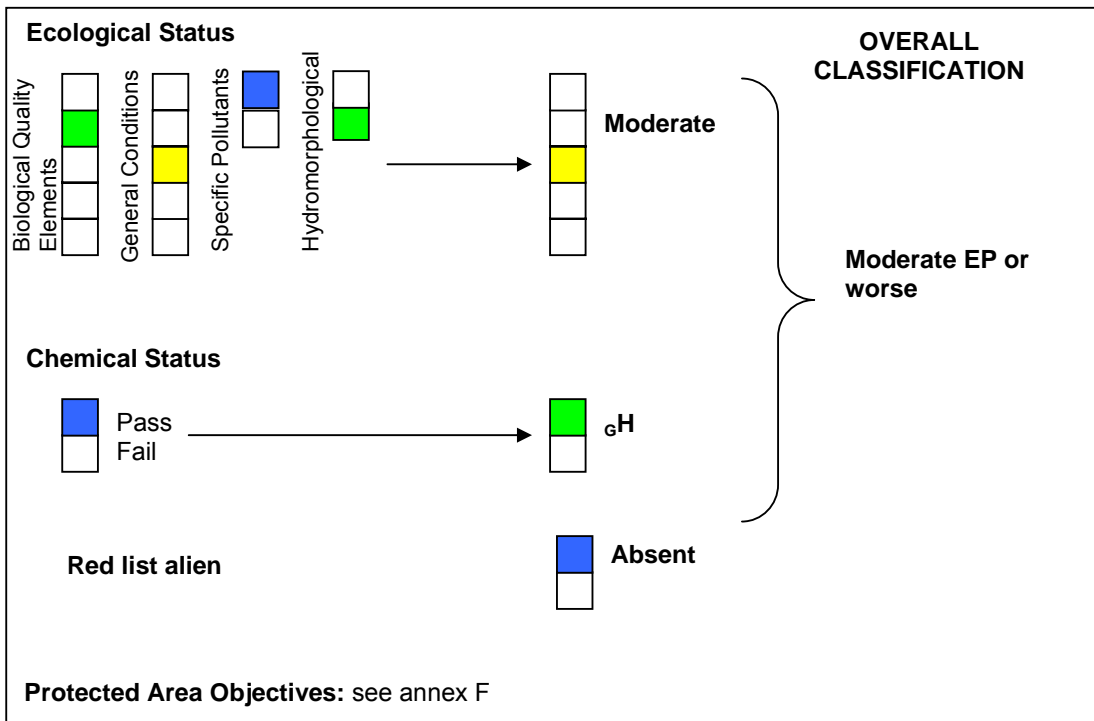
Ecological Quality Element			
Main Element	Sub-Element	Applied	Comment
Plants	Macro Algae		
	-Opportunistic Macroalgae	<input checked="" type="checkbox"/>	Tool not applicable
	-Reduced Species List	<input checked="" type="checkbox"/>	Tool not applicable
	Angiosperms	<input checked="" type="checkbox"/>	Tool not applicable
	Phytoplankton	<input checked="" type="checkbox"/>	Tool under development
Benthic Invertebrates	Infraunal Quality Index	<input checked="" type="checkbox"/>	Tool under development
	Imposex	<input checked="" type="checkbox"/>	Tool not applicable
Fish	Transitional Fish Classification Index	✓	
Physico-Chemical	General Conditions		
	-Dissolved Oxygen	✓	
	-Nutrients	<input checked="" type="checkbox"/>	Tool not applicable (salinity) – expert judgement
	Specific Pollutants (Annex VIII subs)	✓	
Hydromorphological Quality Elements	SEPA Rapid Designation	✓	
	TraC MIMAS	✓	
Chemical Status			
Priority Hazardous Substances (Annex X)	Annex X Substances	✓	

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


Waterbody Classification



Ecological classification of Newry River (Transitional Water)



Overall classification of Newry River (Transitional Water)


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

First River Basin Cycle (2004 – 2008)

Monitoring Level: *Surveillance*

Sampling frequency for each quality element.

Quality Elements		Year (if 1 in 3 years)	No. of sites
Phytoplankton - 90 %ile		2001-7	3 sites 18 samples
Fish	Spring	2008	
	Autumn	2008	
Physio-chemical			
Nutrients		TNA	
Salinity		2002-2008	
Temperature		2002-2008	
Dissolved Oxygen		02,03 05 to 08	14 daily averages
Specific polluting substances (Annex VIII)		2007	
Hydromorphology		2007	
Water chemistry (Annex X)			
Priority hazardous substances		2007	

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

NEWRY ESTUARY


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

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

QE: Transitional Fish – Newry

QE benthic invertebrate assessment (+ Data confidence):	Good (M)	
---	----------	--

Classification tools: Transitional Fish Classification Index (TFCI)

Data store:

- Fish: NIEA fish data – MS Excel
- Supporting Parameters: NIEA physico-chemical parameters – MS Excel

Data Availability:

- WFD surveillance monitoring 2005-2007; One survey in 2005, two surveys in 2006, 2007 and 2008; sampling method – seine netting, fyke nets & beam trawling.
- CSSEG fish monitoring 2000-2007; between one and two surveys per year; sampling method – beam trawling.

EQR boundaries:

	Bad	Poor	Moderate	Good	High
EQR	<0.2	≥0.2; < 0.4	≥0.4; <0.6	≥0.6; < 0.8	≥0.8


Results:

Transitional Fish Classification Index (TFCI) – 2007 data

Metric Number	Metric	Score
1	Species composition	4
2	Presence of Indicator species	2
3	Species relative abundance	2
4	No. of taxa making up 90% of the abundance	2
5	No. of estuarine resident taxa	5
6	No. of estuarine-dependent marine taxa	5
7	Functional guild composition	5
8	No. of benthic invertebrate feeding taxa	5
9	No. of piscivorous taxa	5
10	Feeding guild composition	4
TFCI		39
EQR		0.73

Data confidence: Medium

- Survey methodologies and protocols (Medium)
- Realistic type-specific reference conditions (Medium)
- Data QA (Medium)
- Statistical testing and intercalibration (Low)

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

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

Dissolved Oxygen

Dissolved oxygen (+ data confidence):	HIGH (L)	
---------------------------------------	----------	--

Classification tools: Comparison of 5% ile against reference standards

- Data store: \\marine on ehs\sls2k\Water Framework Directive\DRAFT WFD CLASSIFICATION REPORTS\Dissolved Oxygen
- Data Availability: 02,03, 05 to 08
- Data Availability (spot & continuous samples): Spot

Thresholds:

WFD Status	Marine 5%ile	Objectives
HIGH	≥5.7 mg/L	All life stages of salmonids and transitional fish
GOOD	≥4.0 <5.7 mg/L	Presence of salmonids and transitional fish
MODERATE	≥2.4 <4.0 mg/L	Most life stages of non-salmonid adults
POOR	≥1.6 <2.4 mg/L	Presence of non-salmonids, poor survival of salmonids
BAD	<1.6 mg/L	No salmonids 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*)
7.08	HIGH	02,03 05 to 08	**	14	17.4%


* Proportion of possible months for which data are available

**Data Quality: Low

- Instruments subject to regular calibration checks and quality assurance programme, but databases not QA'd.
- Low - ≤ 4 daily averages x n (no. of assessment years)

Nutrients – Winter Dissolved Inorganic Nitrogen DIN

Winter DIN (+ Data confidence):	Moderate (ND)	
Based on classification of downstream water body. The data collected for this assessment was outside the current salinity limits of this tool.		

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


ANNEX C: Classification of physico-chemical quality elements: Other specific Pollutants

Specific pollutants assessment (+data confidence)	gH (L)	
---	--------	--

Classification tools: Comparison with EQS levels.

Data Availability: 2007 WFD Dedicated monitoring data only

Data confidence: Low.

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


ANNEX D: Hydromorphological quality elements

Overall hydromorphology assessment	HMWB-GEP	
------------------------------------	----------	--

Classification tools:

1. TRaC Hydromorphology metrics
2. MIMAS

Alternative approach assessment (CIS guidance 2006): Good Ecological Potential can be achieved based on the hydromorphology assessment.

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

ANNEX E: Chemical Status – Annex X Chemicals


Specific pollutants assessment (+data confidence)	gH (L)	
---	--------	--

Classification tools: Comparison with EQS levels.

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

Data Availability: 2007 WFD Dedicated Monitoring


Data confidence: Low

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

ANNEX X	2007	EQS	Chemical Status	Ecological Status
12_Dichloro	<2	10	G	GH
anthracene	ND			
atrazine	0.001	0.6	G	GH
benzene	ND			
benzo	ND			
benzo_a	ND			
Cadmium	ND			
Chlorfenvos	ND			
Chloropyrifos	0.0013	0.03	G	GH
Dichloro	ND			
Diuron	ND			
endosulphan	ND			
floranthene	ND			
hcb	ND			
hcbd	<0.01	0.1	G	GH
hch	ND			
hch_calc	ND			
Hg	ND			
Indeno	ND			
ISP	ND			
Napthalene	ND			
Ni	ND			
Nonyl	ND			
Octyl	ND			
Pb	ND			
pcp	ND			
simazine	0.001	1	G	GH
TBT	ND			
TCB	<0.15	0.4	G	GH
TCB_calc	ND			
trichloromethane	ND			
trifluralin	ND			

G
F
GH
M


	Mean includes LOD data
	Mean based on actual values

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

ANNEX F: Protected Area Objectives

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.

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

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
CIS	Common Implementation Strategy
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

Northern Ireland Environment Agency
17 Antrim Road
Lisburn
BT28 3AL

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

www.ni-environment.gov.uk



An Agency within the Department of the
Environment
www.doeni.gov.uk



INVESTOR IN PEOPLE