

draft RIVER BASIN MONITORING PLAN

CLASSIFICATION PAMPHLET

Coastal Waterbody Ards Peninsula

22nd December 2008

ARDS PENINSULA

Water body Information

- *River Basin District:* NE
- *Water body type:* CW5
- *Water body characteristics:* Euhaline, mesotidal, moderately exposed
- *Water body area:* 185.73 km²
- *Heavily Modified Water Body:* No

OVERALL WATERBODY CLASSIFICATION. (H/G/M/P/B):GOOD
(PASS/FAIL):PASS

Limited phytoplankton data, classified as GOOD overall.

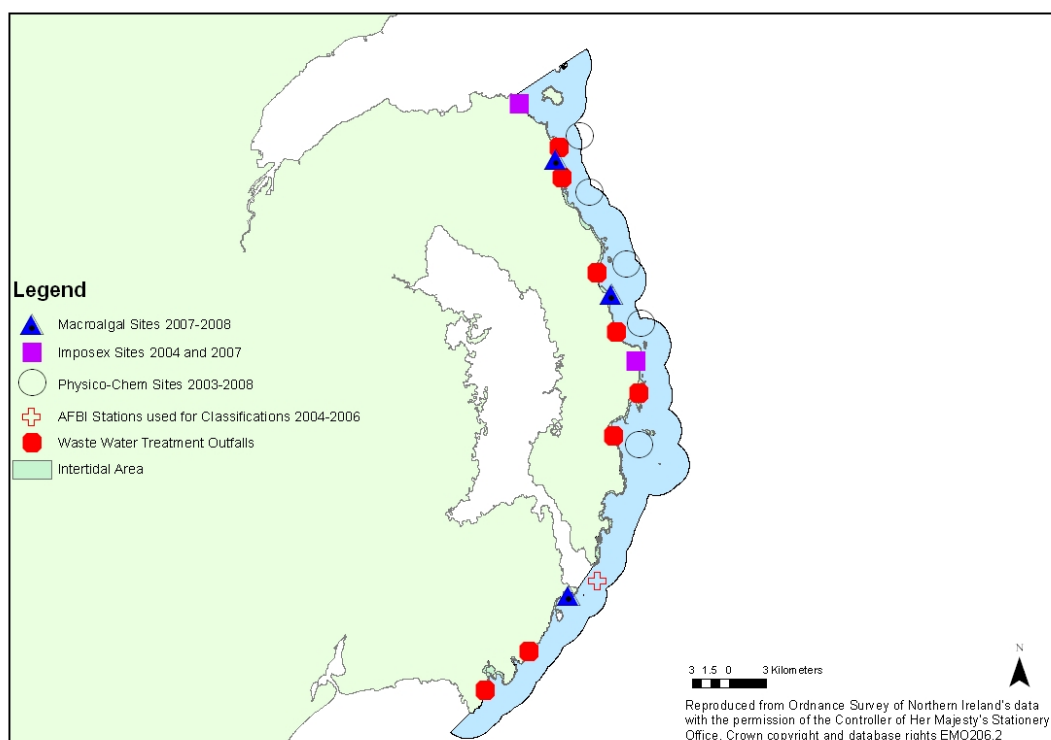


Figure showing WWTW pressures and monitoring points within Ards Peninsula (Coastal Water).

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Ards Peninsula

Version Date: 22/12/08

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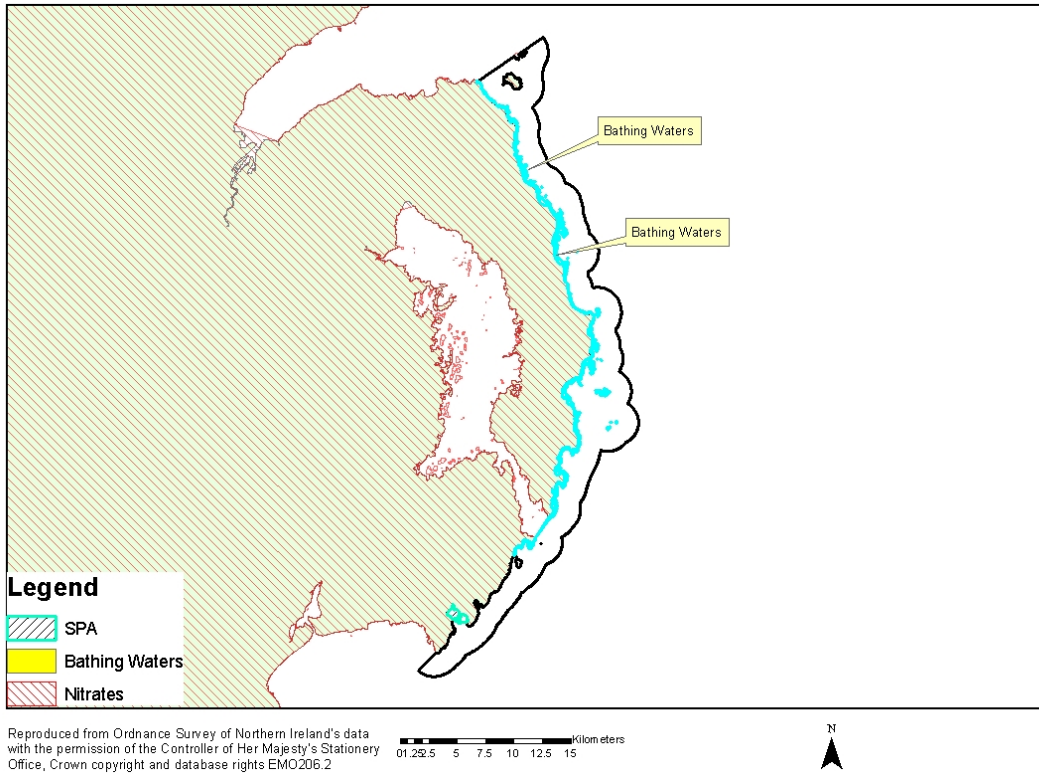


Figure showing protected areas within Ards Peninsula (Coastal Water), see Annex F.

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**WFD COASTAL WATER BODY CLASSIFICATION
Ards Peninsula**

Version Date: 22/12/08

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PARAMETERS TABLE

(Parameters for which classification systems are available and have been used in the first round of classification. Note: for some parameters data is not yet available hence the tools have not been applied).

Ecological Quality Element			
Main Element	Sub-Element	Applied	Comment
Plants	Macro Algae	✓	
	-Opportunistic Macroalgae	☒	Tool not applicable
	-Reduced Species List	✓	
	Angiosperms	☒	Tool not applicable
	Phytoplankton	✓	
Benthic Invertebrates	Infaunal Quality Index	☒	Tool not applied in this report
	Imposex	✓	
Fish	Transitional Fish Classification Index		
Physico-Chemical	General Conditions	✓	
	-Dissolved Oxygen	✓	
	-Nutrients	☒	Data not available for this report
	Specific Pollutants (Annex VIII subs)	☒	Data not available for this report
Hydromorphological Quality Elements	SEPA Rapid Designation	✓	
	TraC MIMAS	✓	
Chemical Status			
Priority Hazardous Substances (Annex X)	Annex X Substances	☒	Data not available for this report

Waterbody Classification

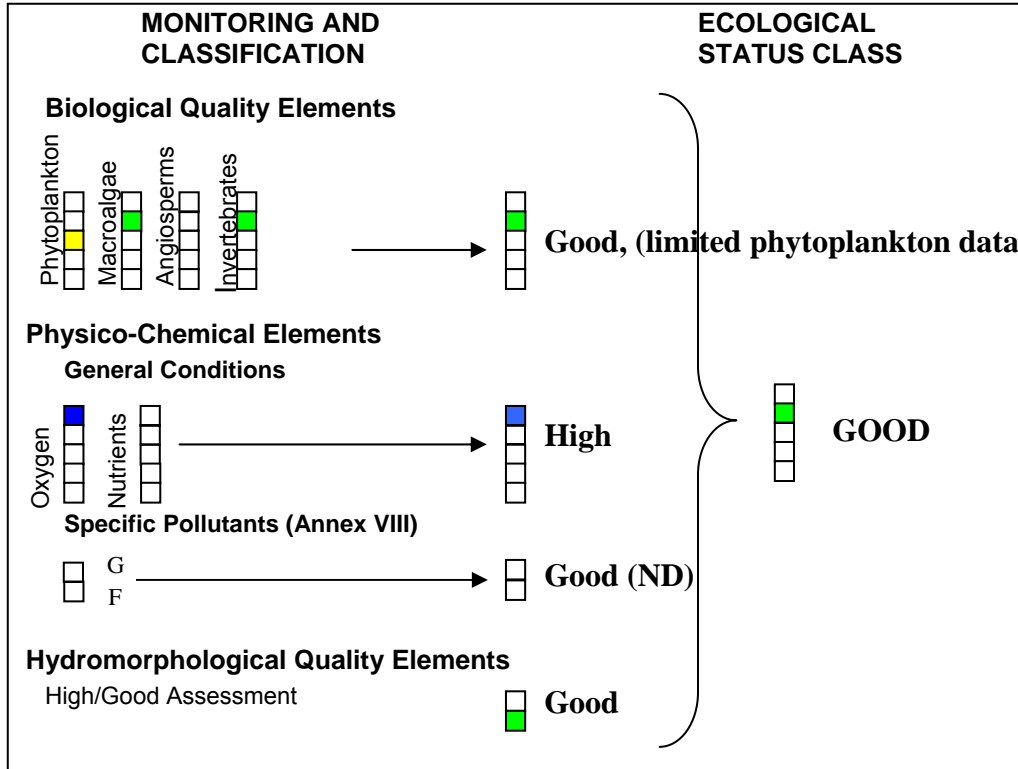


Figure showing Ecological classification of Ards Peninsula (Coastal Water)

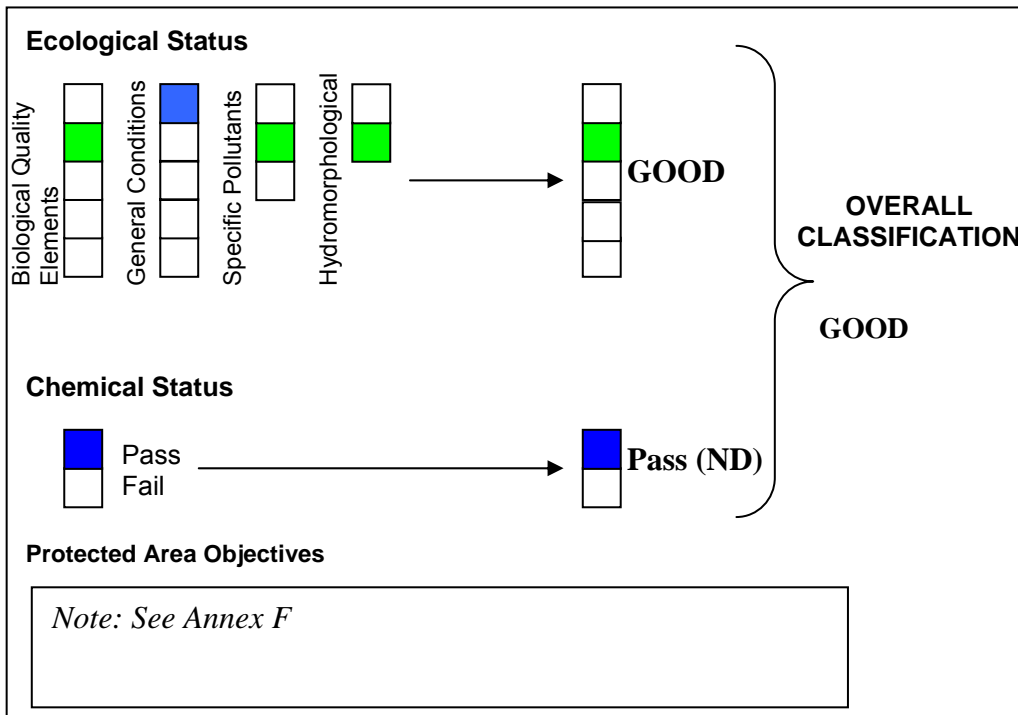


Figure showing overall classification of Ards Peninsula (Coastal Water)

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**WFD COASTAL WATER BODY CLASSIFICATION
Ards Peninsula**

Version Date: 22/12/08

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First River Basin Cycle (2004 – 2008)

Monitoring Level:

Surveillance

Sampling frequency for each quality element

Quality Elements		Surveillance		
		Year (if 1 in 3 yrs)	Frequency (if p.a.)	No. of sites
Biological				
Phytoplankton		2004-8		1 sites 10 samples
Macroalgae	Reduced Species List	2007		3
	MBT	ND		
Angiosperms	Seagrass	ND		
Benthic Invertebrates	Infaunal Quality Index	ND		
	Imposex	2007		2
Physico-chemical				
Nutrients		ND		
Salinity		2007-8		
Temperature		2007-8		
Dissolved Oxygen (DO)		2007-8		5
Suspended particulate matter (SPM)				
Specific polluting substances (Annex VIII)		ND		
Hydromorphology				
Water chemistry				
(Annex X)		ND		

draft RIVER BASIN MANAGEMENT PLAN	
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula
	Version Date: 22/12/08
	MARINE ASSESSMENT AND LICENSING TEAM

ANNEX A: Classification of Biological Quality Elements

QE: Phytoplankton

QE phytoplankton assessment (+ Data confidence): MODERATE (L)

Classification tools:

First round reporting now

1. Chlorophyll biomass index (90%ile)
2. Elevated taxa count index

- Data store (classification):
MARINE\Water Framework Directive\DRAFT WFD CLASSIFICATION REPORTS\QE Phytoplankton\Chlla 90th Percentile\Final 90th Percentile
- Data Availability (spot & continuous samples):
Chl = spot (2004-2007) AFBINI

1. Chlorophyll Biomass Index - 90%ile (Chl $\mu\text{g l}^{-1}$)
(Growing Season 1st Mar – 30th Sept)

Waterbody Chl. biomass assessment

MODERATE (L)

Thresholds:

Water Ref. Area		Status				
		High	Good	Moderate	Poor	Bad
North/Irish Sea	Chl $\mu\text{g l}^{-1}$	<5	5-10	10-15	15-20	>20
	EQR	0 -1.0	1.0-0.8	0.8-0.6	0.6-0.4	0.4-0.2

Results:


90%ile	Status	Data Years	Data Quality	No. of daily averages	No. of Sites	No. of Samples	Data Confidence (proportion of possible months with data*)
11.21	MODERATE	2004 - 2007	Low	0	1	10	35.7%

* proportion of possible months (of growing season in years assessed) for which data are available

Data confidence:

Low

- The proportion of possible months sampled and the number of spatial samples collected yielded a low confidence in data confidence. No samples were collected in the 2007 period reducing the data confidence although this will be addressed during the coming 2008-2009 period.
- Data collected was from AFBINI.

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	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula
	Version Date: 22/12/08
	MARINE ASSESSMENT AND LICENSING TEAM

2. Elevated Taxa Count Index

Waterbody Elevated Taxa Assessment

Good (ND)

- Thresholds:**

Tool	Thresholds	
	North/Irish Sea	Atlantic
I ₁ - Individual Species Count (excl. Phaeocystis) (%)	250,000 (cells l ⁻¹)	
I ₂ - Phaeocystis Counts (%)	10 ⁶ (cells l ⁻¹)	
I ₃ - Total Taxa Count (%)	10 ⁷ (cells l ⁻¹)	
I ₄ - Elevated Biomass Count (%)	>10 (µg l ⁻¹)	>5 (µg l ⁻¹)

Waterbody Elevated count (%) = [I₁ (%) + I₂ (%) + I₃ (%) + I₄ (%)] / 4

- EQR Boundaries:**


Class	% Exceedance	EQR
High	0-15	0.67-1.0
Good	15-30	0.33-0.67
Moderate	30-40	0.28-0.33
Poor	40-50	0.20-0.33
Bad	>50	0-0.20

Results

I ₁	I ₂	I ₃	I ₄	Elevated Count Mean	Status	Data Years	No. of sampling occasions	No. of phytoplankton samples

Data confidence:

No data

draft RIVER BASIN MANAGEMENT PLAN	
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula
	Version Date: 22/12/08
	MARINE ASSESSMENT AND LICENSING TEAM

QE: Macroalgae: Ards Peninsula

QE Macroalgae assessment (+ Data confidence): GOOD (M)

Downgraded due to presence of *Sargassum muticum*, awaiting further guidance on alien species from UKTAG.

Classification tools:

Reduced species list (RSL), Macroalgal Blooming Tool - not applicable

Reduced Species List (RSL)

Waterbody RSL assessment: *High (Medium)*

Reduced Species List (RSL)

- WFD surveillance monitoring: 2007
- Data Availability (classification): 2007, 3 Sites
- Data Store: G:\MARINE\Projects 07\MM07-03 Marine Plants\Macrophyte Survey 07

Boundaries:

Parameters	Quality Status	Bad	Poor	Moderate	Good	High
	Sub-metric quality status	0.0 – 0.2	0.21 – 0.4	0.41 – 0.6	0.61 – 0.8	0.81 – 1.0
Species richness (adj. for shore)		0 – 3	3 – 10	10 – 20	20 – 34	34 – 68
Proportion of Chlorophyta (% G)		80 – 100	45 – 80	30 – 45	20 – 30	0 – 20
Proportion of Rhodophyta (% R)		0 – 10	10 – 25	25 – 35	35 – 45	45 – 100
Ecological Status Group ratio (ESG)		0.0 – 0.2	0.2 – 0.4	0.4 – 0.6	0.6 – 0.8	0.8 – 1.2
Proportion of opportunists (% opp)		50 – 100	35 – 50	25 – 35	15 – 25	0 – 15

Results

Shore	Sub-Metric EQR							RSL EQR	Status
	Shore desc.	Sp. richness	Adj. Sp. Richness	% G	% R	ESG	% Opp		
Wallace Rocks 07	16	48	45	10.42	54.17	1.40	4.00	0.885	HIGH
Craiglewey Point 07	18	57	46	15.79	49.12	1.28	5.00	0.870	HIGH
Galloway Rocks 07	18	51	41	15.69	52.94	1.22	5.00	0.863	HIGH
Mean								0.87 ±0.01	HIGH


Data Confidence:

Medium


- Standard Deviation (±) are included with the mean EQR
- Data QA (expert team)
- Three shores (good spatial coverage) over single year (poor temporal trend assessment)
- FSL not yet carried out

Alien taxa present (*Sargassum muticum*):

Yes

draft RIVER BASIN MANAGEMENT PLAN			
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula		
	<table border="1"> <tr> <td>Version Date:</td> <td>22/12/08</td> </tr> </table>	Version Date:	22/12/08
	Version Date:	22/12/08	
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QE Angiosperms: Ards Peninsula – tool not applicable

draft RIVER BASIN MANAGEMENT PLAN	
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula
	Version Date: 22/12/08
	MARINE ASSESSMENT AND LICENSING TEAM

QE: Benthic Invertebrates – Ards Peninsula

Overall benthic invertebrate assessment: GOOD (L)

Classification tools: 1. Infaunal Quality Index (IQI)
2. Imposex tool (VDSI)

1. IQI (v4)
Water body IQI assessment: Good (ND)
No data is available for this water body, though a site at South Rock was sampled in 2007.

- WFD surveillance monitoring:
- Data store:
 - Benthic invertebrates
 - Supporting Parameters
 - Digital images
- Data Availability (classification):
- Habitat max values (sub-tidal mud): 1-(AMBI/7) = 0.78, 1-Lambda' = 0.72, Taxa = 24
- Boundaries (Intercalibrated NEAGIG):

Class	Bad	Poor	Moderate	Good	High
IQI	>0.0 ≤0.24	≥0.24 <0.44	≥0.44 <0.64	≥0.64 <0.75	≥0.75

Results

Year	Survey	Station	n	Mean	± S.D	Status
Overall Mean						

Data confidence: No data

Alien taxa present:

<i>Eriocheir sinensis</i> (Chinese mitten crab)	No
<i>Crepidula fornicata</i> (Slipper limpet)	No

draft RIVER BASIN MANAGEMENT PLAN



**WFD COASTAL WATER BODY CLASSIFICATION
Ards Peninsula**

Version Date: 22/12/08

MARINE ASSESSMENT AND LICENSING TEAM

Ards Peninsula

2. VDSI (*Nucella lapillus*)

Waterbody VDSI assessment: **Good (L)**

- Data store: NIEA imposex shoreline data.xls; MERMAN
- Data availability: 2004/2007 NI survey

Boundaries:

Class	Moderate	Good	High
VDSI	≥4.0	≥0.3 <4.0	<0.3
EQR	<0.33 -0	≥0.33 <0.95	0.95 – 1.0


Results:

Year	Shore	VDSI	EQR	Status
2007	Portavogie	2.09	0.65	GOOD
2007	Sandy Bay	2.12	0.65	GOOD

Data confidence:

Low

- Sample analysis QA through QUASIMEME (High)
- <3 sites (Low)
- Two assessment periods (2004; 2007) (High)

draft RIVER BASIN MANAGEMENT PLAN	
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula
	Version Date: 22/12/08
	MARINE ASSESSMENT AND LICENSING TEAM

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

Dissolved Oxygen

Waterbody DO assessment:	HIGH (L)
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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: 2007/2008
- 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*)
6.36	HIGH	07/08	**	6	28.6%

* 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)

draft RIVER BASIN MANAGEMENT PLAN	
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula
	Version Date: 22/12/08
	MARINE ASSESSMENT AND LICENSING TEAM

Nutrients – Winter DIN

Winter DIN assessment

Good (ND)

Data store:

- Data Availability:
- Data Availability (spot & continuous samples):
- N regulation thresholds:


Area	Salinity range	DIN (uM) Winter mean H/G	DIN (uM) Winter mean G/M
Coastal (at salinity 32)	30-34.5	12	18

Results:

Mean Winter DIN (uM) (normalised to salinity 32)	Winter DIN Daily average (n)	SPM	SPM (n)	Data Years	Data Quality	Status

Data confidence:

No data

draft RIVER BASIN MANAGEMENT PLAN			
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula		
	<table border="1"> <tr> <td>Version Date:</td> <td>22/12/08</td> </tr> </table>	Version Date:	22/12/08
	Version Date:	22/12/08	
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ANNEX C: Classification of physico-chemical quality elements: Specific Pollutants (Annex VIII)


Overall specific pollutants assessment (ND) gH

Annex VIII: Overall Compliance	Pass- No Data.
Annex VIII: Pass/Fail	Pass- No Data.

Classification tools: Comparison with EQS levels.

Data Availability: No Data available until 2009 (from dedicated WFD monitoring).

Data confidence: No Data


draft RIVER BASIN MANAGEMENT PLAN			
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula		
	<table border="1"> <tr> <td>Version Date:</td> <td>22/12/08</td> </tr> </table>	Version Date:	22/12/08
	Version Date:	22/12/08	
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ANNEX D: Hydromorphological quality elements

Overall hydromorphology assessment:	Good
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Classification tools:

1. TRaC Hydromorphology metrics
2. MIMAS

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	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula		
	<table border="1"> <tr> <td>Version Date:</td> <td>22/12/08</td> </tr> </table>	Version Date:	22/12/08
	Version Date:	22/12/08	
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ANNEX E: Chemical Status – Annex X Chemicals

Overall water chemistry assessment: (No Data) **Good (No**


Annex X: Overall Compliance Pass- No Data.

Annex X: Pass/Fail Pass- No Data.

Classification tools: 1. Comparison with EQS levels.

Data Availability: No Data available until 2009 (from dedicated WFD monitoring).

Data confidence: **No**
data.

draft RIVER BASIN MANAGEMENT PLAN	
	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula
	Version Date: 22/12/08
	MARINE ASSESSMENT AND LICENSING TEAM

ANNEX F: Protected Area Objectives

Water body	Protected area	Designation	Status	Reason for non-compliance
Ards Peninsula	Outer Ards	SPA	Favourable	
Ards Peninsula	Killough Bay	SPA	Favourable	
Ards Peninsula	Ards Peninsula	Saltmarsh	Favourable	


Bathing Water Directive Compliance

Water Body		2008	2007	2006	2005	2004	2003
Ards Peninsula	Millisle						
Ards Peninsula	Ballywalter						
Ards Peninsula	Ballyhalbert						

- Compliance with Guideline standards
- Compliance with Mandatory standards
- Failure to comply with Mandatory standards
- Not on monitoring programme

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.

	WFD COASTAL WATER BODY CLASSIFICATION Ards Peninsula	
	Version Date:	22/12/08
	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
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
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