NS 2 FRESHWATER PEARL MUSSEL SUB-BASIN MANAGEMENT PLANS

REPORT ON MORPHOLOGICAL MONITORING AND CATCHMENT WALKOVER RISK ASSESSMENTS IN THE NEWPORT CATCHMENT

September 2009

TABLE OF CONTENTS

INTRODUCTION

In order to assess the hydromorphological alterations within the Newport catchment the EPA WFD classification tool called the River Hydromorphology Assessment Technique (RHAT) was utilised by RPS. This tool was developed through the North South Share project, to classify rivers in terms of their morphology. It is a field technique which assigns a channel typology. This influences the rivers physical attributes assessed in the field. The technique assigns a morphological classification directly related to that of the WFD – high, good, moderate, poor and bad.

RHAT surveys were carried out at high risk areas located within pearl mussel populations. The methodology classifies river hydromorphology based on a departure from naturalness, and assigns a morphological classification, based on semi-quantitative criteria. It is designed to be a rapid visual assessment based on information from desktop studies, using GIS data, aerial photography, historical data and data obtained from previous field surveys as well as observations in the field.

A catchment walkover risk assessment survey sheet was also designed by the project team in conjunction with NPWS in order to focus the collation of the pressure data in the field with respect to the Freshwater Pearl Mussel. The risk sheet was divided into eight categories designed to highlight the main pressures within the catchment. The eight categories are as follows:

- Source of erosion
- Diffuse Nutrient
- Diffuse Silt
- Current Riparian Zone
- Field Drainage
- Outfalls
- Abstractions
- Barriers to Migration

Each sub-pressure within the eight categories is analysed and an overall risk assessment of High, Medium or Low is assigned to that category. The “one out all out principle” is then used to assign the river stretch or point an overall risk category. A detailed description, together with a series of photographs outlining the pressures is also taken. The risk assessment sheets will assist the project team in focussing the specific freshwater pearl mussel measures within the catchment.

Location of survey stretches and points are shown in Figure 1

2.0 METHODOLOGY

Sampling was carried out on the 7th May 2009.

2.1 RIVER HYDROMORPHOLOGY ASSESSMENT TECHNIQUE (RHAT)

Classification of hydromorphology can be used to contribute to the status classification of water bodies at high ecological status only. However, RHAT plays a vital role in identifying why a water body might be failing to achieve Good Ecological Status as it is based on the observed impact in the field. It can assist in deciding what indirect and direct efforts are needed to improve status and in helping to prevent further deterioration.

The eight criteria that are scored are:

1. Channel morphology and flow types
2. Channel vegetation
3. Substrate diversity and embeddedness
4. Channel flow status
5. Bank and bank top stability
6. Bank and bank top vegetation
7. Riparian land use
8. Floodplain connectivity

Sheet 1 of the RHAT form contains the Field Health and Safety sheet which is filled on arrival at the site. Before the field survey, a desk study is required this element of the survey was completed as part of the development of the draft sub-basin management plans. The reach identification and physical characterisation sections for each field site are recorded on Sheet 2 (see Appendix 1) with all information available from GIS and aerial photographs, including:

a. expected stream type and the description of various stream types
b. catchment and reach-scale pressures (these may help to identify, confirm or explain field observations);
c. expected riparian vegetation types (for high quality status);
d. the weather conditions on the day of the survey, and those immediately preceding the day of the survey. This information is important to interpret the effects of storm events on the survey results;
e. the estimated stream width and the reach length to be assessed (~ 40 x width).
f. any other notable issues (e.g. from previous surveys).

A score is allocated to each relevant attribute (the number of attributes to be assessed will depend on the stream type). Where the condition departs from the reference condition, note should be made if this condition results from a particular identifiable pressure. Where possible and where relevant, all attributes should be included in the assessment, using the assessment sheet (Sheet 3, see Appendix 1). If an attribute is not assessed, the score-summary table should be amended (cells shaded) and a note made as to why the assessment was not carried out. The WFD status can still be calculated on the basis of other attributes, but with a note that a particular attribute was omitted.

Transfer scores for individual attributes to the summary table on the survey Sheet 2. Finally the overall WFD category can be calculated using the following values:

> 0.8	= high
0.6 – 0.8	= good
0.4 – 0.6	= moderate
0.2 – 0.4	= poor
< 0.2	= bad

For the purposes of the assessment as part of the NS2 project, a high status for morphology is desirable for pearl mussel habitats. Through work carried out by the Shannon IRBD project on the Freshwater Morphology Programme of Measures Study, it was found that an observed relationship exists between biological data and a RHAT score. The study confirmed that morphological pressure can impact biology and therefore ecological status. In general, sites with RHAT scores less than 0.6 also have less than good Q scores. Similarly high levels of siltation affecting macrophyte populations are reflected by less than good RHAT scores.

Grid references were recorded at all sites using a GPS together with site photographs which were taken using a digital camera.

2.2 CATCHMENT WALKOVER RISK ASSESSMENT

During the development of the draft sub-basin management plans throughout 2008 a complete desk study was conducted of all relevant biological, water quality and pressure source data within the Newport catchment. Best use was made of all available datasets such as the pressure source data collated by the River Basin District Projects for the Article V Characterisation and Programme of Measures Studies. This work allowed the NS 2 project team to assess the catchment through the combined availability of aerial imagery and digitised pressure information. Where gaps in this data existed together with areas that required ground truthing such as physical barriers to migration, catchment walkover risk assessments were focussed throughout the 2009 field survey season.

The catchment walkover risk assessment sheet (See Appendix 3) covers eight main categories or pressures which are subsequently sub-divided into the various sources. Each source is ticked if present and an overall risk assessment for each pressure assigned from High to Medium to Low over the survey length or point. All eight pressures are combined to give an overall risk assessment to the catchment based on the “one out all out principle”.

3.0 RESULTS

Figure 3.1 indicates where the Newport morphology RHAT assessments were carried out throughout the catchment.

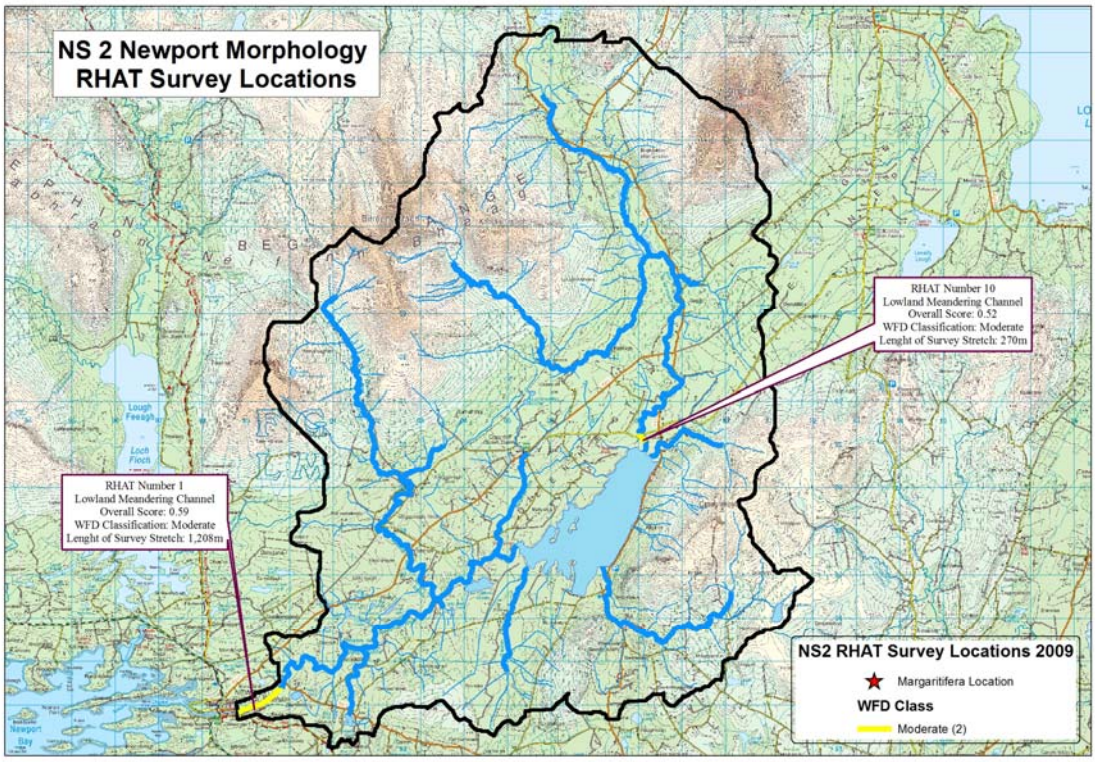


Figure 3.1 Morphology RHAT Assessment Locations

(The RHAT numbering system corresponds to the site code which may mean they are not sequential where a RHAT was not carried out at a particular site)

3.1 RHAT Survey Results

Two RHAT surveys were carried out in the Newport catchment. RHAT number one was carried out in Newport moving from downstream to upstream. A considerable stretch of the Newport River has a wall running along it where the road runs parallel with the channel. One major bridge together with two intermediate weirs are located along the survey stretch. These are stone or concrete v-notch weirs. There is no riparian zone where the wall runs parallel with the channel. The channel has been resectioned and reinforced on both the left and right banks and also over widened in some areas.

It is a lowland meandering channel which was classified as being at “moderate” status, The lowest scoring attributes were – Substrate condition, bank structure and stability, bank vegetation, riparian landcover and floodplain connectivity. The river was in flood

on the day in which the survey took place and although the visibility was poor silt was noted on the substrate with a heavy silt plume evident when the substrate was kicked.
The second RHAT survey was undertaken at Crompaun Bridge and again the river was in flood on the day in which the survey took place. Both the left and right banks appear to have been resectioned and the channel has been over deepened and over widened. It is a lowland meandering channel which scored lowest on the bank structure and bank vegetation due to the removal/cutting down of the bankside vegetation on both banks. This survey stretch was also classified as being at moderate status.

Plate 3.1 Representative photographs from reach:

RHAT 1 	**RHAT 1** 
RHAT 2 	**RHAT 2** 

Details in relation to photographs are tabulated in Appendix 2.

3.2 Catchment Walkover Risk Assessment Results

A total of eighteen sites were surveyed in the Newport catchment, with a risk assessment carried out at eight of these sites (ten stopping points). **Figure 3.2** outlines the stopping point locations in addition to the High to Low Risk Assessment from the Catchment Walkover Risk Assessments. Six high risk sites were recorded out of the eight that were assessed. A further two sites were recorded as medium risk, meaning no low risk sites were recorded within this catchment. **Figure 3.3** outlines the percentage of sites classified at high and medium risk together with the number of stopping points throughout the catchment.

The most common high risk categories identified were:

- Diffuse Silt – evident at 67% of high risk sites,
- Current Riparian Zone – evident at 67% of high risk sites,

The Current Riparian Zone category of the Catchment Walkover Risk Assessment slightly varies from the seven other categories or pressures. The Current Riparian Zone is not a pressure in itself; however the aspects listed in this category are the interceptors to the pressure and convey the extent or lack of buffer provided by the riparian zone. A high risk riparian zone indicates that the pressures acting on the river are more likely to have significant impact. For example the lack of fencing along a river stretch can lead to excessive trampling and/or poaching which in turn may lead to siltation within a pearl mussel habitat. The various categories and pressures listed in the Catchment Walkover Risk Assessment sheet were designed to assist the project in focussing the measures which will be needed to combat the pressure along its pathway, rather than removing a source which may not always be possible such as intensive agriculture. Recording the Riparian Zone in terms of its current performance as a buffer is important in this regard.

Current Riparian Zone has ten aspects as follows:

- Fencing
- Buffer

- Tree line at bank
- Tree line buffer
- Plantation with no buffer
- Urbanisation
- Flood Protection
- Marshy Land
- Landuse at bank
- Other Sources

Where one or any of these aspects is found to be the cause of significant impact to the riparian zone, or the channel along the stretch then this category may be assigned a high risk score. Locations where pressures were evident in the field which were not highlighted through the desk based assessment were also noted as stopping points. These points were not selected prior to fieldwork, they were opportunistic as the catchment drive through was taking place. The pie chart in **Figure 3.3** indicates the percentage of stopping points also.

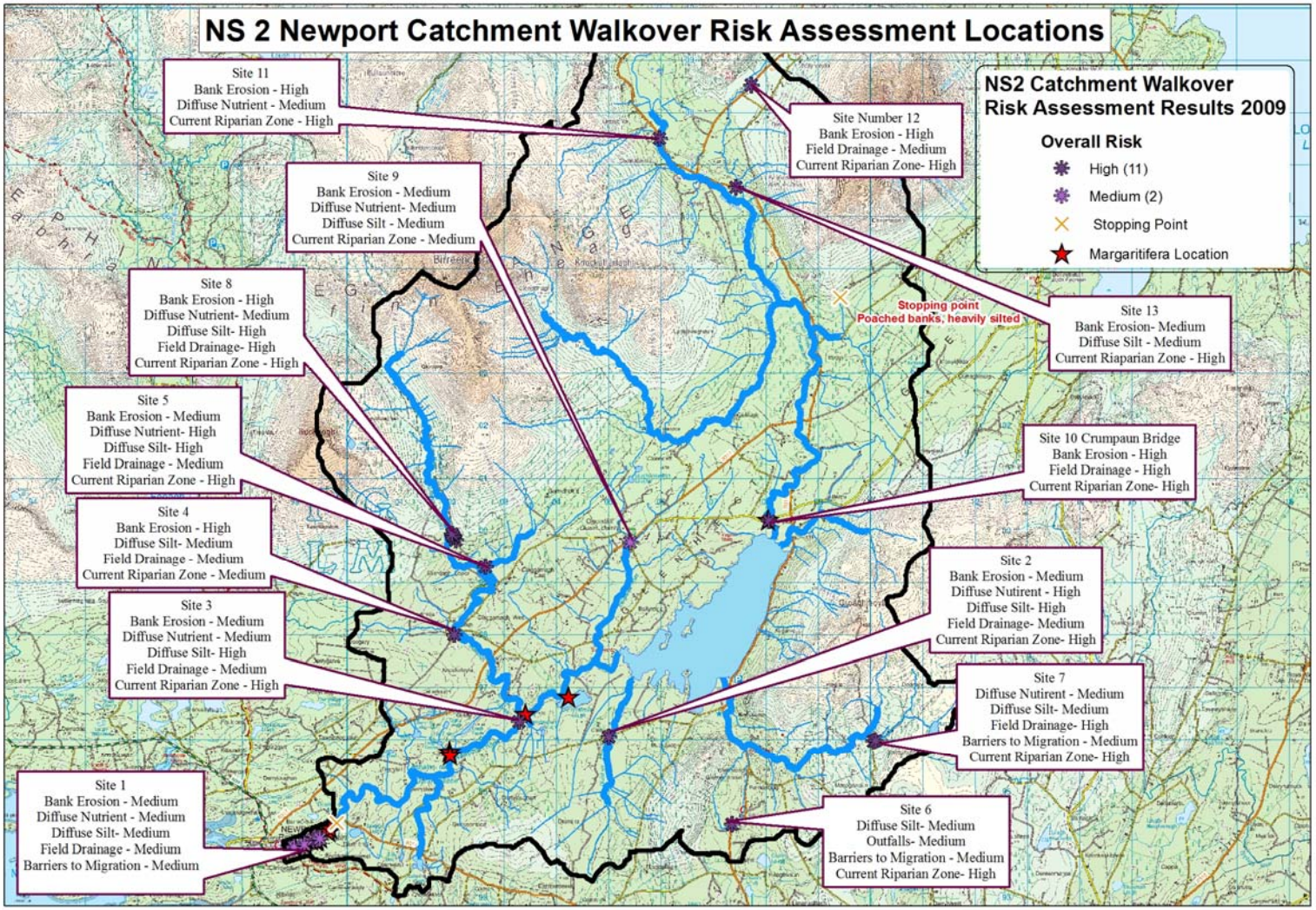
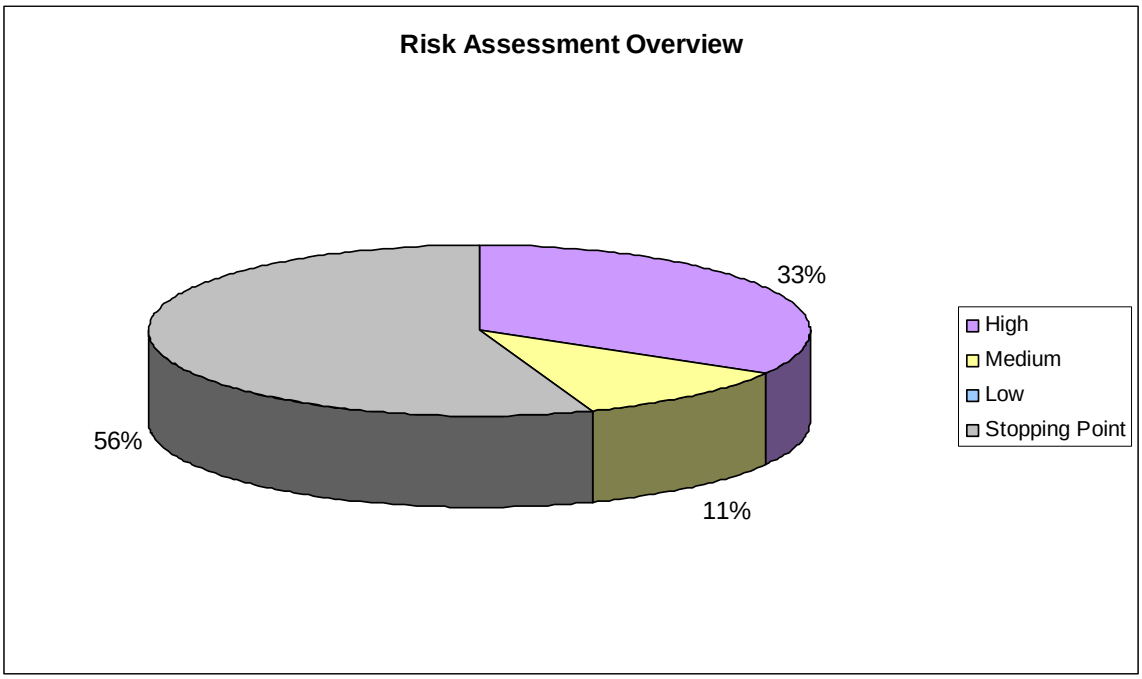


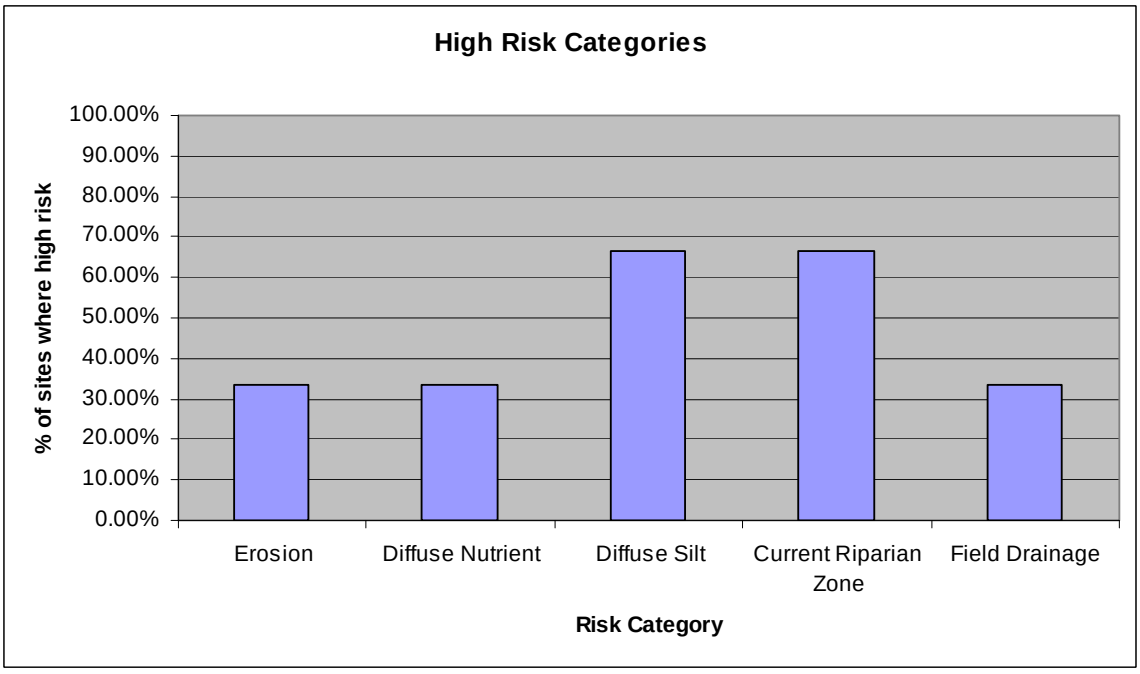
Figure 3.2 Location of Stopping points and Catchment Walkover Risk Assessments

Figure 3.3 Risk Assessment Overview



The break-down of pressure categories identified as high risk are outlined in **Figure 3.4**

Figure 3.4 Breakdown of High Risk Categories

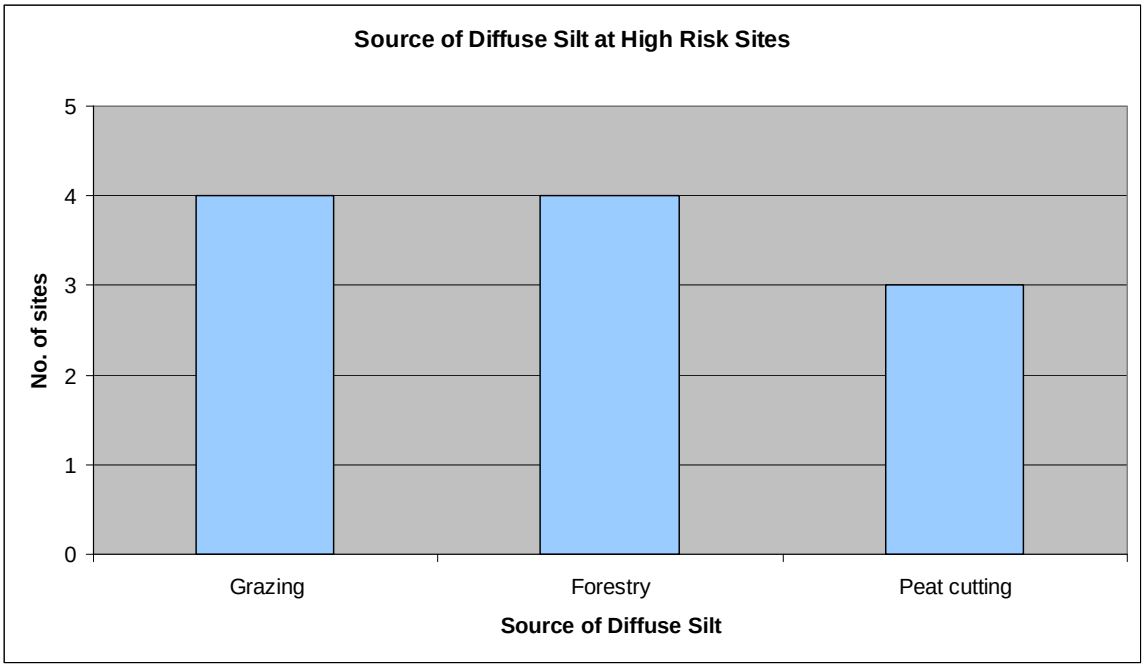


The current riparian zone category is a considerable pressure within this catchment, however this pressure generally relates to how a poor riparian zone can intensify other pressures e.g. animal trampling caused by a lack of fencing or increased diffuse nutrient as a result of an ineffective or poor buffer zone.

As a result quantitative statistics do not adequately convey the pressures that arise through a high risk riparian zone, the main issues identified were:

The most common sources of diffuse silt were grazing and forestry; each being present at four high risk sites. The individual sources of diffuse silt are shown below.

Figure 3.5 Source of field drainage pressure at high risk sites



4.0 CONCLUSIONS

The Newport sub-basin catchment is in a poor condition from a morphological point of view with a high percentage of high risk sites, and all remaining sites being considered medium risk. In addition ten opportunistic stopping points identified additional pressures within the catchment which were not identified through the desk based assessment. While it was not possible to cover the entirely of the catchment through the scope of this investigation from the areas that were covers it indicates the level of pressure which is acting on the water quality and the pearl mussel habitat and populations. Further, more localised pressures may also be located within the habitat which have not been highlighted through this investigation but should also be remediated in the future.

APPENDIX A

RHAT Field Sheet

Field Health and Safety sheet

River Name_____ Site Code_____ Date_____

1 = Low risk 5 = High risk

Please circle applicable number

PARKING	1	2	3	4	5
FENCES/BARRIERS	1	2	3	4	5
GROUND STABILITY	1	2	3	4	5
DENSE VEGETATION	1	2	3	4	5
BANK STEEPNESS OR STABILITY	1	2	3	4	5
RISK FROM ANIMALS	1	2	3	4	5
PHONE COVERAGE	1	2	3	4	5

Previous RHS/RAT/RHAT surveys - year and code _____

Details of access _____

RHAT (VERSION 2)

TRIBUTARY / MAIN CHANNEL*

Site Identification

River Name _____ Site Code _____

Nearest WFD site FF10 _____

Water Body ID _____ Start U / S or D / S*

First IGR _____ Last IGR _____

Bank surveyed from L / R / Both / in-Channel*

Desk-study notes		Field Notes
ACTION TO TAKE PRIOR TO FIELDWORK General overall shape of river Check weirs, impoundments etc. on catchment		River type Date
Floodplain connectivity and land use Expected river type Rain last week Estimated river width Estimated survey length Riparian land cover(s) River Agency designated? Other comments including geology - limestone / siliceous / peat*		Time Surveyors Weather conditions now Estimated river **width** (m) (average 3 readings) Estimated survey **length** (m) (40 X wetted width) Estimated river depth (m) Channel characteristics (e.g. different stream types on the reach)
RESULTS		Pressures
Hydromorph score WFD class		*Circle as appropriate

Photograph details include IGR or approximate location

_____

_____

_____

_____

N.B. The survey length should be 40x the wetted width with a minimal stretch of 160m but not exceeding 1km.

NS RHAT

Anthropogenic Impacts

River Name _____ Site Code _____ Date _____

Feature		Tick if present, record as E if > 30%		
Resectioning		None ☐ Left bank ☐ Right bank ☐		
Reinforcement		None ☐ Left bank ☐ Right bank ☐		
Embankments	NO*	LB ☐ RB ☐ Set back LB ☐ SB RB ☐		
Culverts**		Y / N / Unknown*		
Over deepening		Y / N / Unknown*		
Wver widened		Y / N / Unknown*		
Narrowing		Y / N / Unknown*		
Fords**		Y / N*		
		Major	Intermediate	Minor
Bridges**	NO*			
Weirs**	NO*			
Fish Pass**	NO*			

Physical features or resource use if applicable. *

Deflectors / Jetties / Arterial drainage / Side channels / Mid channel bar / Field Drains / Mill Race

Navigation / Fishing / Recreation / Forestry/ Urban / Industry / HEP

Trashline present (height __ m) above water / Buffer zone (LBm / RBm back from water edge)

Other observations - Invasives - Trees - Birds - Pollution indicators - Invertebrates*

Rhododendron / Himalayan Balsam / Japanese Knotweed / Giant hogweed / Snowberry / Cherry-Laurel/ Gunnera

Sycamore / Beech / Conifers / Oak / Ash / Alder / Willow / Birch / Hazel / Hawthorn / Blackthorn / Holly

Heron / Sand martin / Grey wagtail / Dippers / Kingfishers /

Sewage fungus / Diatomaceous algae / Oil / Cladophora / Vaucheria / Dumping / Silt on Substrate

Other comments:

_____

** Circle as appropriate E - extensive. ** Tally as appropriate. LB - left bank / RB - right bank*

RHAT RIVER HYDROMORPHOLOGY ASSESSMENT TECHNIQUE

Field Assessment of Morphological Condition

River Name _____ Site Code _____ Date _____

If river in spate ignore 3 and 4 but deduct individual scores from overall if either feature not visible. Greyed boxes may be scored but note why in Comments/Notes.

	Bedrock	Cascade / Step-pool	Pool-riffle-glide	Lowland Meandering
1. Channel form and flow types	4	4	4	4
2. Channel vegetation	4	4	4	4
3. Substrate condition	4	4	4	4
4. Barriers to continuity	4	4	4	4
5. Bank structure & stability L+R	4	4	4	4
6. Bank vegetation L+R	4	4	4	4
7. Riparian land cover L+R	4	4	4	4
8. Floodplain connectivity L+R	4	4	4	4
TOTAL	32	32	32	32
Hydromorph Score *				
WFD class **				

* Hydromorph score - Assessment score = Maximum Possible score

** WFD Class
> 0.8 = high
>0.6 – 0.8 = good
>0.4 – 0.6 = moderate
>0.2 - 0.4 = poor
< 0.2 = bad.

SHEET 5

NOTES

APPENDIX 2

PHOTOGRAPHS

Photographs of site locations and catchment pressures on the Newport River and tributaries 2009. All field work photographs can be found in the accompanying electronic appendix.

Overall Risk * uses the “one out all out” principle

Site No.	Catchment	Location	X	Y	Photo No.	Bank Erosion	Diffuse Nutrient	Diffuse Silt	Field Drainage	Outfalls	Abstraction	Barriers to Migration	Current Riparian Zone	Risk Overall	Pressures
1	Newport	Newport	98989	293948	1	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	V-notch stone weir
1	Newport	Newport	98989	293948	2	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Looking upstream from weir, tree line buffer lb, no buffer on RB
1	Newport	Newport	99183	294007	3	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Tree line buffer now on both banks
1	Newport	Newport	99353	294095	4	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Tributary joining river through road culvert (stone) plus land drain joins.
1	Newport	Newport	99422	294093	5	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	River in spate.
1	Newport	Newport	99454	294109	6	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Bridge structure (major)
1	Newport	Newport	99454	294109	7	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Reinforced RB for bridge
1	Newport	Newport	99454	294109	8	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Looking downstream
1	Newport	Newport	99478	294123	9	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Unmanaged field drain, entering river upstream of 2nd bridge
1	Newport	Newport	99478	294123	10	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	
1	Newport	Newport	99478	294123	11	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Looking upstream from bridge, stone weir causing bank erosion.
Stopping	Newport		99806	294409	1										Large stone

point 1															weir
Stopping point 1	Newport		99806	294409	2										Staff Gauge
Stopping point 1	Newport		99806	294409	3										Inspection chamber
Stopping point 1	Newport		99806	294409	4										Treatment works
2	Newport	Glaishwy River	104999	296067	1	Medium	High	High	Medium	Low	Low	Low	High	High	Clear felled on RB
2	Newport	Glaishwy River	104999	296067	2	Medium	High	High	Medium	Low	Low	Low	High	High	Some set back buffer from felling
2	Newport	Glaishwy River	104999	296067	3	Medium	High	High	Medium	Low	Low	Low	High	High	Looking downstream from bridge
2	Newport	Glaishwy River	104999	296067	4	Medium	High	High	Medium	Low	Low	Low	High	High	Bridge structure and flow station
2	Newport	Glaishwy River	104999	296067	5	Medium	High	High	Medium	Low	Low	Low	High	High	Bridge apron
2	Newport	Glaishwy River	104999	296067	6	Medium	High	High	Medium	Low	Low	Low	High	High	Unmanaged land drain
2	Newport	Glaishwy River	104999	296067	7	Medium	High	High	Medium	Low	Low	Low	High	High	Upstream of bridge
2	Newport	Glaishwy River	104999	296067	8	Medium	High	High	Medium	Low	Low	Low	High	High	No buffer/Riparian zone on RB downstream of bridge
2	Newport	Glaishwy River	104999	296067	9	Medium	High	High	Medium	Low	Low	Low	High	High	Bank erosion upstream
3	Newport	Confluence with the Skerda	103284	296355	1	Medium	Medium	High	Medium	Low	Low	Low	High	High	Looking upstream
3	Newport	Confluence with the Skerda	103284	296355	2	Medium	Medium	High	Medium	Low	Low	Low	High	High	bank erosion - natural
3	Newport	Confluence with the Skerda	103284	296355	3	Medium	Medium	High	Medium	Low	Low	Low	High	High	Placed bank boulders, possible from historical land clearance.
3	Newport	Confluence with the	103284	296355	4	Medium	Medium	High	Medium	Low	Low	Low	High	High	Right bank land use

		Skerda													rough, unimproved grassland
3	Newport	Confluence with the Skerda	103284	296355	5	Medium	Medium	High	Medium	Low	Low	Low	High	High	Incoming land drain on LB
3	Newport	Confluence with the Skerda	103284	296355	6	Medium	Medium	High	Medium	Low	Low	Low	High	High	Grazing downstream
4	Newport	Skerdagh	102053	298008	1	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Managed ditch entering river on RB
4	Newport	Skerdagh	102053	298008	2	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Sheep grazing on RB, no fencing
4	Newport	Skerdagh	102053	298008	3	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Looking downstream from bridge
4	Newport	Skerdagh	102053	298008	4	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Reinforced at bridge on RB
4	Newport	Skerdagh	102053	298008	5	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Looking upstream
4	Newport	Skerdagh	102053	298008	6	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Fenced no buffer
4	Newport	Skerdagh	102053	298008	7	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Improved grassland on LB upstream
4	Newport	Skerdagh	102053	298008	8	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Overgrazing /Peat Cutting
4	Newport	Skerdagh	102053	298008	9	High	Low	Medium	Medium	Low	Low	Low	Medium	High	Bridge Structure
4	Newport	Skerdagh	102053	298008	10	High	Low	Medium	Medium	Low	Low	Low	Medium	High	
5	Newport	Tributary of the Skerdagh	102650	299316	1	Medium	High	High	Medium	Low	Low	Low	High	High	Looking upstream very stained silty substrate.
5	Newport	Tributary of the Skerdagh	102650	299316	2	Medium	High	High	Medium	Low	Low	Low	High	High	Land drain from forestry on right bank upstream of bridge
5	Newport	Tributary of the Skerdagh	102650	299316	3	Medium	High	High	Medium	Low	Low	Low	High	High	Looking downstream of bridge

5	Newport	Tributary of the Skerdagh	102650	299316	4	Medium	High	High	Medium	Low	Low	Low	High	High	Grazing downstream
5	Newport	Tributary of the Skerdagh	102650	299316	5	Medium	High	High	Medium	Low	Low	Low	High	High	Poaching on LB
5	Newport	Tributary of the Skerdagh	102650	299316	6	Medium	High	High	Medium	Low	Low	Low	High	High	Excessive trampling
5	Newport	Tributary of the Skerdagh	102650	299316	7	Medium	High	High	Medium	Low	Low	Low	High	High	Excessive trampling
5	Newport	Tributary of the Skerdagh	102650	299316	8	Medium	High	High	Medium	Low	Low	Low	High	High	Poaching, drains to unmanaged ditch which feeds into river
6	Newport	Tributary of the Newport	107354	294392	1	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Looking downstream
6	Newport	Tributary of the Newport	107354	294392	2	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Looking upstream
6	Newport	Tributary of the Newport	107354	294392	3	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Culverted stream joining from across the road.
6	Newport	Tributary of the Newport	107354	294392	4	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Forestry & peat cutting upstream on LB.
6	Newport	Tributary of the Newport	107354	294392	5	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Forestry & peat cutting upstream on LB.
6	Newport	Tributary of the Newport	107354	294392	6	Low	Low	Medium	Low	Medium	Low	Medium	High	High	2 diggers present upstream from point.
6	Newport	Tributary of the Newport	107354	294392	7	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Forestry replanting
6	Newport	Tributary of the Newport	107354	294392	8	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Bank clearance on RB.

6	Newport	Tributary of the Newport	107354	294392	9	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Lack of buffer on RB - Boundary Road
7	Newport	Tributary of the Newport	107354	294392	10	Low	Low	Medium	Low	Medium	Low	Medium	High	High	Looks to be re-planting taking place.
7	Newport	Tributary of the Newport	110062	295978	1	Low	Medium	Medium	High	Low	Low	Medium	High	High	Looking upstream from bridge
7	Newport	Tributary of the Newport	110062	295978	2	Low	Medium	Medium	High	Low	Low	Medium	High	High	Looking downstream from bridge
7	Newport	Tributary of the Newport	110062	295978	3	Low	Medium	Medium	High	Low	Low	Medium	High	High	Plantation up to river bank on right and left bank
7	Newport	Tributary of the Newport	110062	295978	4	Low	Medium	Medium	High	Low	Low	Medium	High	High	Bridge structure
7	Newport	Tributary of the Newport	110062	295978	5	Low	Medium	Medium	High	Low	Low	Medium	High	High	Fenced off at road side, right bank
7	Newport	Tributary of the Newport	110097	295988	6	Low	Medium	Medium	High	Low	Low	Medium	High	High	Land drain unmanaged entering stream
8	Newport	Tributary of the Newport	102076	299826	1	High	Medium	High	High	Low	Low	Low	High	High	Looking upstream from road
8	Newport	Tributary of the Newport	102076	299826	2	High	Medium	High	High	Low	Low	Low	High	High	Looking downstream from road
8	Newport	Tributary of the Newport	102076	299826	3	High	Medium	High	High	Low	Low	Low	High	High	Inflowing land drain
8	Newport	Tributary of the Newport	102076	299826	4	High	Medium	High	High	Low	Low	Low	High	High	Land use
8	Newport	Tributary of the Newport	102036	299890	1	High	Medium	High	High	Low	Low	Low	High	High	Looking upstream from road
8	Newport	Tributary of the Newport	102036	299890	2	High	Medium	High	High	Low	Low	Low	High	High	Looking downstream from road

8	Newport	Tributary of the Newport	102036	299890	3	High	Medium	High	High	Low	Low	Low	High	High	Poaching on upstream
8	Newport	Tributary of the Newport	102023	299911	4	High	Medium	High	High	Low	Low	Low	High	High	Managed drain
8	Newport	Tributary of the Newport	102008	299940	5	High	Medium	High	High	Low	Low	Low	High	High	Bank erosion on left bank, large meander.
8	Newport	Tributary of the Newport	102008	299940	6	High	Medium	High	High	Low	Low	Low	High	High	Clearfelled are upstream of main channel as per comments from Caermon detailed on map.
8	Newport	Tributary of the Newport	102008	299940	7	High	Medium	High	High	Low	Low	Low	High	High	Clear felled are approx. 8m back from river
9	Newport	Ballyteige River	105412	299781	1	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Looking downstream from bridge
9	Newport	Ballyteige River	105412	299781	2	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Buffer tree line on LB, sheep grazing on RB.
9	Newport	Ballyteige River	105412	299781	3	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Looking upstream from bridge
9	Newport	Ballyteige River	105412	299781	4	Medium	Medium	Medium	Low	Low	Low	Low	Medium	Medium	Bankside vegetation upstream
10	Newport	Crumpaun Bridge	108059	300191	1	High	Low	Low	High	Low	Low	Low	High	High	Looking downstream from bridge, river in spate
10	Newport	Crumpaun Bridge	108059	300191	2	High	Low	Low	High	Low	Low	Low	High	High	Looking upstream from bridge
10	Newport	Crumpaun Bridge	108059	300191	3	High	Low	Low	High	Low	Low	Low	High	High	Bank clearance on RB.

10	Newport	Crumpaun Bridge	108059	300191	4	High	Low	Low	High	Low	Low	Low	High	High	Land drain entering on left bank upstream of bridge
10	Newport	Crumpaun Bridge	108059	300191	5	High	Low	Low	High	Low	Low	Low	High	High	Land drain entering on left bank downstream of bridge, straw/reed in channel.
10	Newport	Crumpaun Bridge	108059	300191	6	High	Low	Low	High	Low	Low	Low	High	High	Bridge structure
10	Newport	Crumpaun Bridge	108059	300191	7	High	Low	Low	High	Low	Low	Low	High	High	Clearance on left bank
11	Newport	Boghadoon River	105969	307515	1	High	Medium	High	Low	Low	Low	Low	High	High	Looking upstream of bridge
11	Newport	Boghadoon River	105969	307515	2	High	Medium	High	Low	Low	Low	Low	High	High	Looking downstream
11	Newport	Boghadoon River	105969	307515	3	High	Medium	High	Low	Low	Low	Low	High	High	Eroding banks
11	Newport	Boghadoon River	105969	307515	4	High	Medium	High	Low	Low	Low	Low	High	High	Steep eroding banks
11	Newport	Boghadoon River	105969	307515	5	High	Medium	High	Low	Low	Low	Low	High	High	Steep eroding banks
11	Newport	Boghadoon River	105969	307515	6	High	Medium	High	Low	Low	Low	Low	High	High	Bridge Structure
11	Newport	Boghadoon River	105969	307515	7	High	Medium	High	Low	Low	Low	Low	High	High	Steep eroding banks
11	Newport	Boghadoon River	105969	307515	8	High	Medium	High	Low	Low	Low	Low	High	High	Steep eroding banks
12	Newport	Trib of Boghadoon River	107723	308536	1	High	Low	Low	Medium	Low	Low	Low	High	High	Looking upstream from bridge
12	Newport	Trib of Boghadoon River	107723	308536	2	High	Low	Low	Medium	Low	Low	Low	High	High	Excessive trampling
12	Newport	Trib of Boghadoon River	107723	308536	3	High	Low	Low	Medium	Low	Low	Low	High	High	Bridge structure
12	Newport	Trib of Boghadoon River	107723	308536	4	High	Low	Low	Medium	Low	Low	Low	High	High	Downstream

12	Newport	Trib of Boghadoon River	107723	308536	5	High	Low	Low	Medium	Low	Low	Low	High	High	Downstream forestry, clearfelled, replanted
12	Newport	Trib of Boghadoon River	107723	308536	6	High	Low	Low	Medium	Low	Low	Low	High	High	Newly replanted coupe
12	Newport	Trib of Boghadoon River	107723	308536	7	High	Low	Low	Medium	Low	Low	Low	High	High	Newly replanted coupe
12	Newport	Trib of Boghadoon River	107723	308536	8	High	Low	Low	Medium	Low	Low	Low	High	High	Land drain
13	Newport	Trib of Boghadoon River	107434	306565	1	Medium	Low	Medium	Low	Low	Low	Low	High	High	Looking downstream
13	Newport	Trib of Boghadoon River	107434	306565	2	Medium	Low	Medium	Low	Low	Low	Low	High	High	Looking upstream from road bridge
13	Newport	Trib of Boghadoon River	107434	306565	3	Medium	Low	Medium	Low	Low	Low	Low	High	High	Interstitial silt between cobbles
13	Newport	Trib of Boghadoon River	107434	306565	4	Medium	Low	Medium	Low	Low	Low	Low	High	High	Bridge structure
13	Newport	Trib of Boghadoon River	107434	306565	5	Medium	Low	Medium	Low	Low	Low	Low	High	High	Very poor riparian zone
0	Newport		109433	304462	1										Poached banks
0	Newport		109433	304462	2										Heavily silted/sand
0	Newport		109433	304462	3										Heavily silted/sand

Appendix 3 – Catchment Walkover Risk Assessment Survey Sheet

Sheet 1: Catchment Walkovers	Version 1. 07/04/2009
Tributary/Main Channel*	
Site Identification	
River Name	Site Code
Water Body ID	Start U/S or D/S*
First site IGR	Last site IGR
Bank surveyed from L/R/In-channel*	
Photograph details include IGR or approximate location.	

* Select as appropriate

	Present?					
	Yes	No		Grid Reference of specific pressure	No.of Photographs	Comments
Source of Erosion						
Bank erosion						
Land clearance						
In river clearance						
Arable ploughing						
Animal trampling						
Fords						
Channel manipulation						
Hard bank protection measures						
Other sources						
Overall Risk	High	Medium	Low			
Diffuse Nutrient						
Arable						
Grazing						
Improved grassland						
Silage						
Forestry						
Housing						
Industry and associated works						
Other sources						
Overall Risk	High	Medium	Low			
Diffuse Silt						
Arable						
Grazing						
Over-grazing						
Improved grassland (Re-seeding)						
Forest						
Silage						
Industry						
Construction stages						
Housing						
Infilling						
Peat cutting						
Quarries						
Other sources						
Overall Risk	High	Medium	Low			

	Present?					
	Yes	No		Grid Reference of specific pressure	No.of Photographs	Comments
Current Riparian Zone						
Fencing						
Buffer						
Tree line at bank						
Tree line buffer						
Plantation with no buffer						
Urbanisation						
Flood protection						
Marshy land						
Landuse at bank						
Other sources						
Overall Risk	High	Medium	Low			
Field Drainage						
Ditch managed						
Ditch unmanaged						
Drainage on high slope						
Drainage on low slope						
Land drainage (perforated pipes)						
Other sources						
Overall Risk	High	Medium	Low			
Outfalls						
Industrial discharges						
Storm drains						
Culvert outfalls						
Other sources						
Overall Risk	High	Medium	Low			
Abstractions						
Small						
Large						
Overall Risk	High	Medium	Low			
Barriers to migration						
Culverts						
Bridge aprons						
Weirs						
Stone weirs						
Other sources						
Overall Risk	High	Medium	Low			