NS 2 FRESHWATER PEARL MUSSEL SUB-BASIN MANAGEMENT PLANS

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

September 2009

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INTRODUCTION

In order to assess the hydromorphological alterations within the Bandon 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 18th & 19th of June 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 Bandon 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 1 indicates where the Bandon morphological assessments were carried out throughout the catchment.

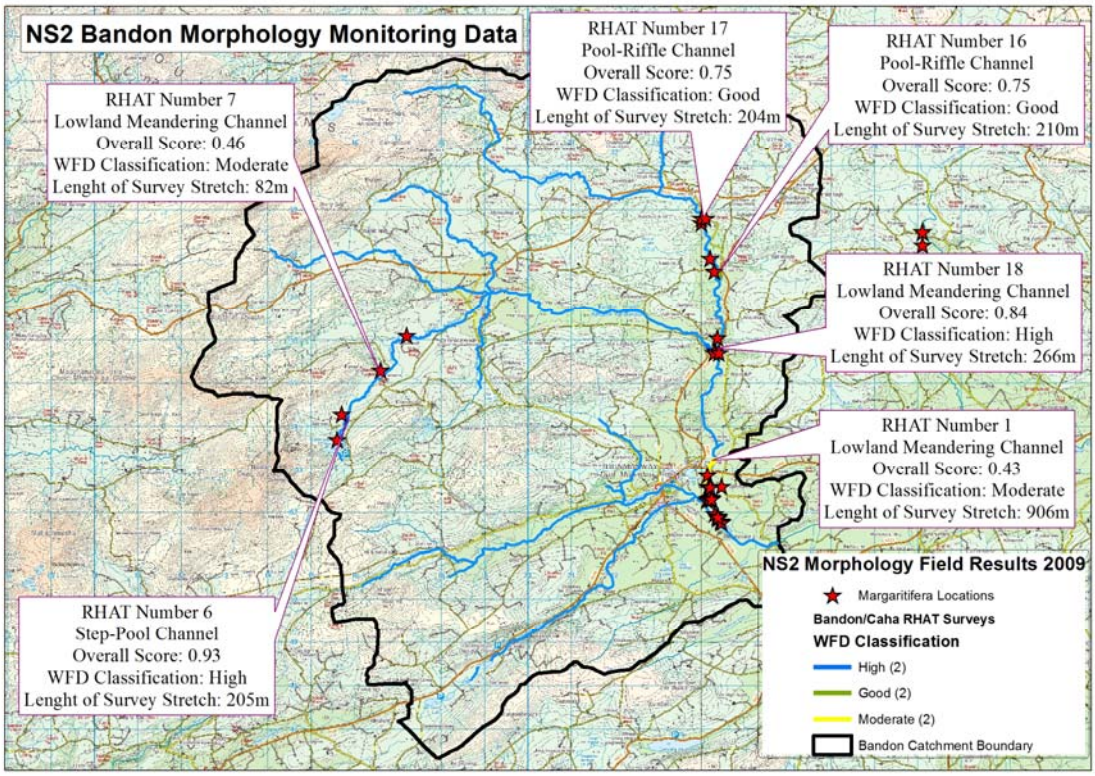


Figure 1 Morphology RHAT Assessment Locations

(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

Six RHAT surveys were carried out throughout the Bandon catchment. The results of these surveys can be found in the electronic appendix. Two were deemed to be at good status along the main channel of the Caha, in the upper reaches of the catchment to the west RHAT number 2 at the top of the Bandon scored high with RHAT number 3 classified as moderate. Farther down on the Bandon in Dunmanway the Bandon was again classified as moderate status. This is largely due to the morphological alterations which have taken place there in the past together with the excessive macrophyte growth across the main channel.

RHAT number 1 (Dunmanway) was carried out along the stretch of the Bandon both above and below the main bridge located on the outskirts of Dunmanway. This is a lowland meandering channel where rooted aquatic vegetation may be common at

channel margins during the growing season. Mid-channel islands may also be present and fringing reed beds may be found, but not excessive. Along the survey stretch excessive macrophyte growth was recorded not only along the margins but also across the entire width of the channel from the bridge and continuing down stream. (Site 1, Photo 7, 10 & 12). The levels of macrophyte growth along this stretch would suggest both a nutrient and siltation problem. The flow can be quite fast at this point and therefore the macrophytes would need a strong foot hold in order to maintain their dominance. This would suggest the substrate has become heavily infiltrated with silt.

Significant works were undertaken in Dunmanway for the flood relief scheme consisting largely of embankments rather than in channel works. Extensive ecological assessments were undertaken in association with this relief scheme in order to avoid any negative impacts to the ecology including the Freshwater Pearl Mussel. Survey work was carried out on a 1.5 km section upstream of Dunmanway for this assessment.

RHAT Number 6 was surveyed at the top of the Bandon river on a tributary which flows out of Cullenagh Lake. This stretch scored the highest out of all the RHAT surveys carried out throughout the catchment. The hydromorph score was 0.93. The only two attributes which were marked down slightly was the substrate condition and barriers to continuity. This was due to the presence of small pockets of fine silt along the stretch together with the presence of quick large boulders which may act as a barrier to migration. A number of small unmanaged land drains were also recorded along this stretch.

RHAT Number 7 was carried out at Farnanes bridge. The stretch was generally a glide which appeared to have been straightened at some point in the past. (Site 7, Photo 2). Due to this alteration coupled with the intensification of the land for agricultural purposes the bank side vegetation is of a uniform nature with little to no buffer zone as the fence line is directly on the bank edge. (Site 7, Photo 3). This led to low scores for both the channel form and flow types together with the bank vegetation. The riparian landcover also scored quite low due to the presence of improved grassland coupled with the presence of spreading of manure and cattle access directly to the channel. During April round feeder marks where cattle were obviously out wintered were recorded. The field in which the feeders were located is adjacent to the channel and quite wet. Little to no buffer zone exists along this stretch which may have lead to significant nutrient input to the channel and hence the increased macrophyte growth. While carrying out the

morphology surveys in June, round mounds of manure were recorded in the same location.

RHAT Number 16 was carried out on the lower stretch of the Caha river. The lowest scoring attribute within the catchment was the substrate condition as higher than expected levels of silt were recorded. This was further confirmed due to the presence of rooted macrophytes. All other attributes except the channel form and flow types scored three out of four. Some unmanaged drains were also recorded along this stretch.

RHAT Number 17 was also carried out along the lower Caha river just above site 16 in the vicinity of the pearl mussel population. Rooted macrophytes in particular *Ranunculus* was recorded along the margins of the river channel together with *Apium sp.* however, such growth along the margins is expected during the growing season. The channel vegetation attribute was slightly marked down but this was largely due to the presence of filamentous green algae at the confluence of the tributaries. The substrate condition was also quite poor along this stretch with fine silts recorded along the centre of the channel.

Representative photographs from reach:

RHAT 1 – Site 1 Photo 10	**RHAT 1 – Site 1 Photo 12**
	

RHAT 1 – Site 1 Photo 7

RHAT 6 – Site 2 Photo 5

RHAT 6 – Site 2 Photo 7

RHAT 7 – Site 7 Photo 2

RHAT 7 – Photo taken April 09

RHAT 7 – Site 7 Photo 13 same area as photo taken in April 09

RHAT 16 – Site 16 Photo 11	**RHAT 16, Site 16 Photo 10**
	
RHAT 17 – Site 17 Photo 7	**RHAT 17 – Site 17 Photo 9**
	

Details in relation to photographs are tabulated in Appendix 2.

3.1 Catchment Walkover Risk Assessment Results

A total of eighteen sites were surveyed in the Bandon sub-basin catchment, with a risk assessment carried out at sixteen of these sites (two stopping points). **Figure 2** outlines the stopping point locations in addition to the High to Low Risk Assessment from the Catchment Walkover Risk Assessments. Eleven high risk sites were recorded out of the sixteen that were assessed. The remaining five sites were recorded as medium risk, meaning no low risk sites were recorded within this catchment. **Figure 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:

- Current riparian zone – evident at 64% of high risk sites,
- Diffuse Silt – evident at 55% 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. Figure 3 outlines the percentage number of sites at High, Medium or Low risk. 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 indicates the percentage of stopping points also.

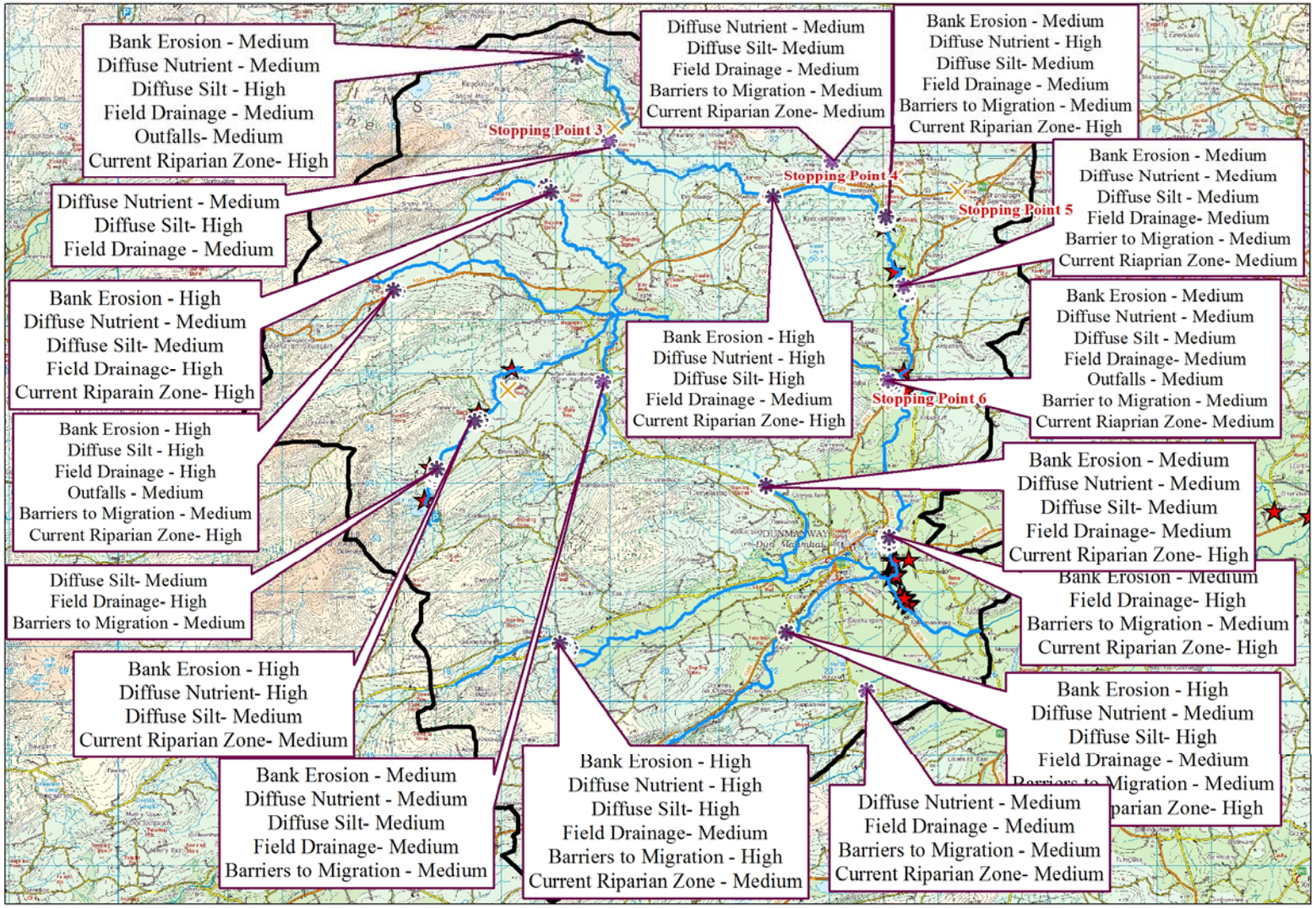


Figure 2 Location of Stopping points and Catchment Walkover Risk Assessments

Legend for Figure 2 Location of Stopping points and Catchment Walkover Risk Assessments

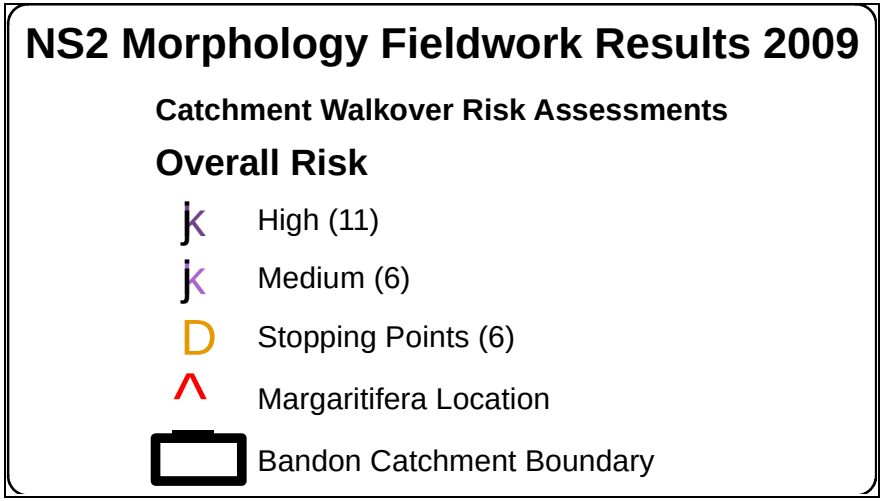
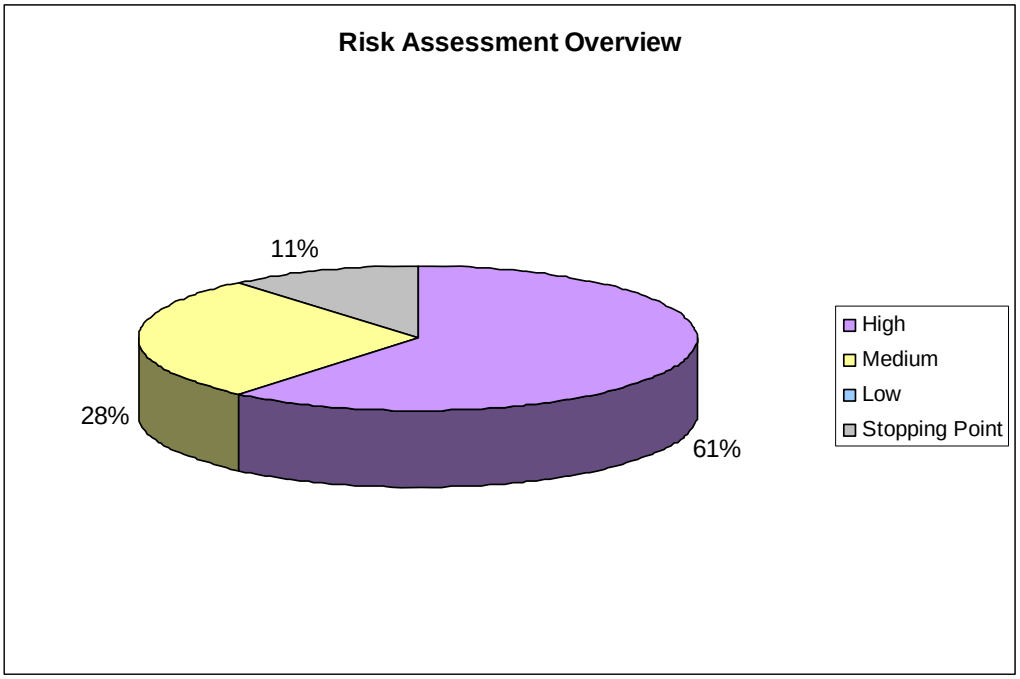
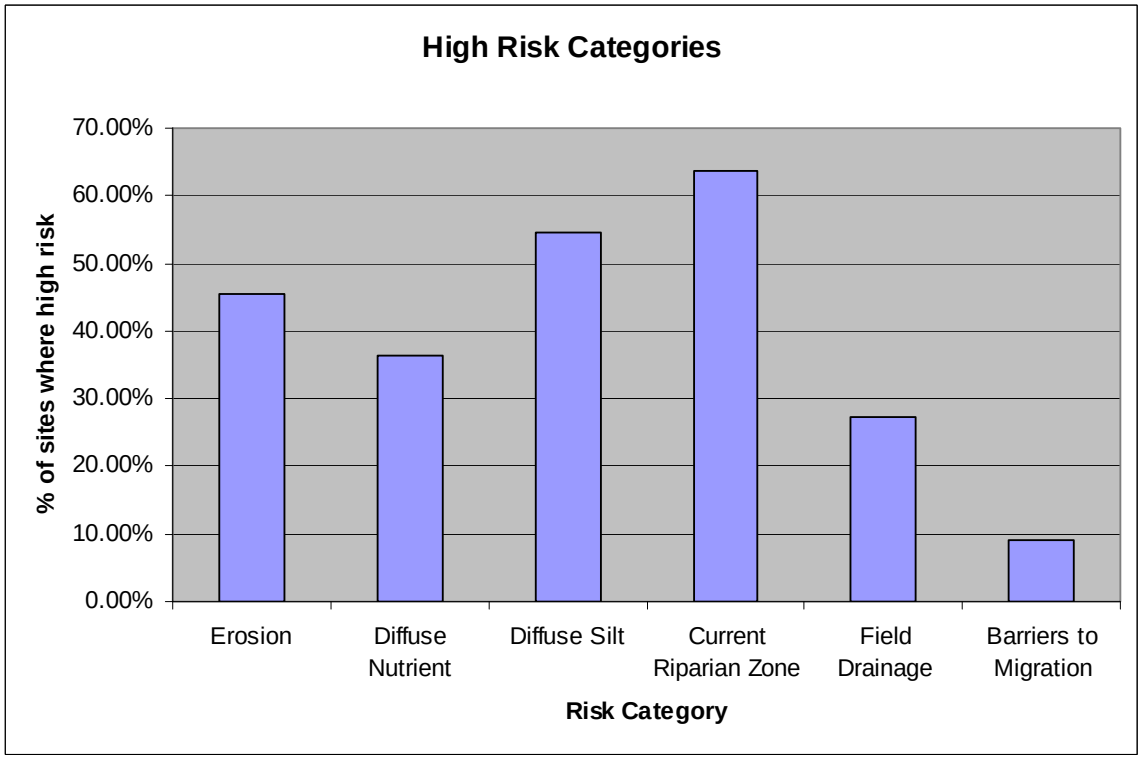


Figure 3. Risk Assessment Overview



The break-down of pressure categories identified as high risk are outlined in Figure 4

Figure 4 Breakdown of High Risk Categories



- The current riparian zone is a considerable pressure within the Bandon Sub-Basin catchment, however this pressure is difficult to quantify as it generally relates to how a poor riparian zone can intensify certain pressures e.g. increased erosion from animal trampling caused by a lack of fencing, or conversely how a high quality riparian zone reduce potential impacts of certain pressures e.g. low risk diffuse nutrient as improved grassland is set back from river channel with effective tree-line at bank and tree-line buffer.
- The main issues identified within this catchment which lead to a high risk riparian zone were:
    - Insufficient fencing on agricultural land with animals having direct access to the channel – this has resulted in increased erosion from heavy trampling on banks, increased nutrient enrichment from animals being within or very close to channel, increased silt within channel from exposed soil on banks;
    - A lack of adequate buffer or tree line in areas where the channel is within close proximity to forestry or peat bog – this has resulted in an increase in diffuse nutrients being washed directly into the channel, as well as increased levels of silt entering the river from peat bogs or forestry – especially during peat cutting or tree felling.
    - In addition urbanisation and roads within close proximity to the banks has been identified as a pressure on the current riparian zone, this has caused an increase in diffuse nutrient and silt as the natural riparian zone has been removed.

The most common source of diffuse silt is forestry which is evident throughout the catchment at five high risk sites, often within close proximity to the river channel. This coupled with a poor riparian buffer significantly intensifies the potential effects of diffuse silt on Freshwater Pearl Mussel Populations, each individual source of diffuse silt is illustrated below in Figure 5. Site 11 contained one of the most significant sources of this diffuse silt associated with land improvement works from what our field investigations and consultation with local NPWS staff could identify. A large area of the riparian zone along a tributary of the Bandon – Shanacrane East was recently cleared together with the removal of the top layer of vegetation for the construction of a road. This large area was cleared down to the river bank where the bank side vegetation was also removed. The substrate condition was very poor along this stretch with

siltation recorded in the gravels. The area is to the North East of the catchment near Tooreen. The Eastings and Northings are 117859 59321. Photos indicating the extent of these works are located below.

Site 11 Cleared riparian zone and bank side vegetation

Site 11 Site clearance in the riparian zone

Site 11 Photo 10 removed bank vegetation

Site 11 Photo 13 Associated roading and stock piles

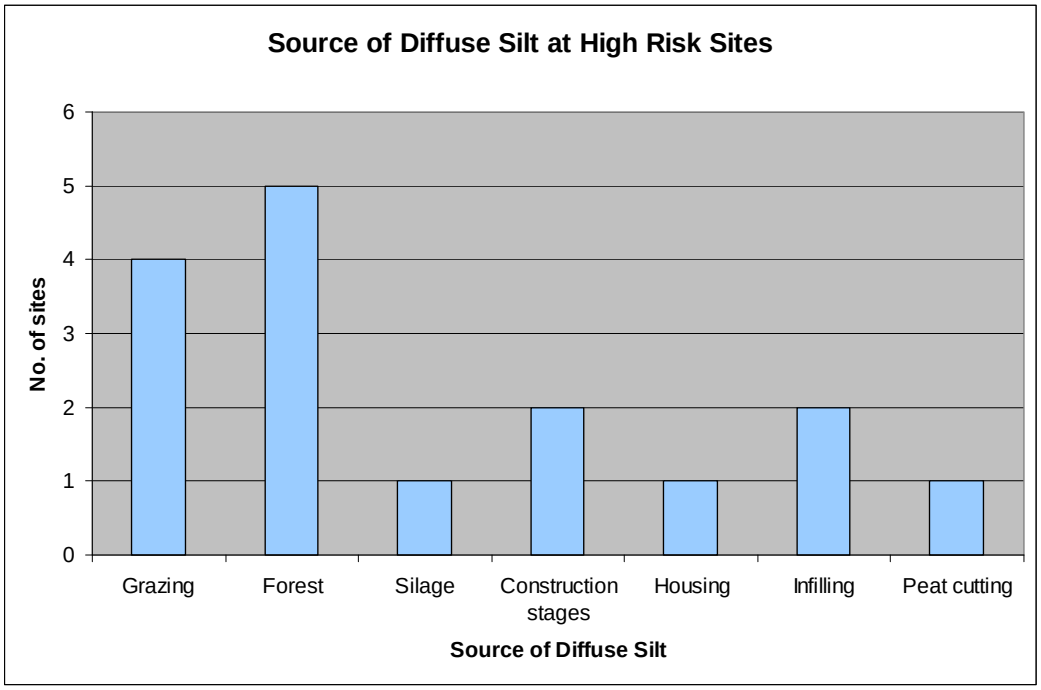
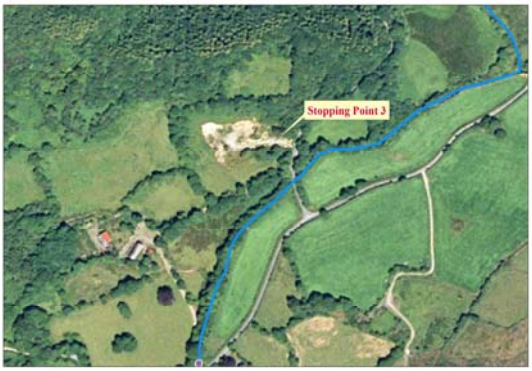
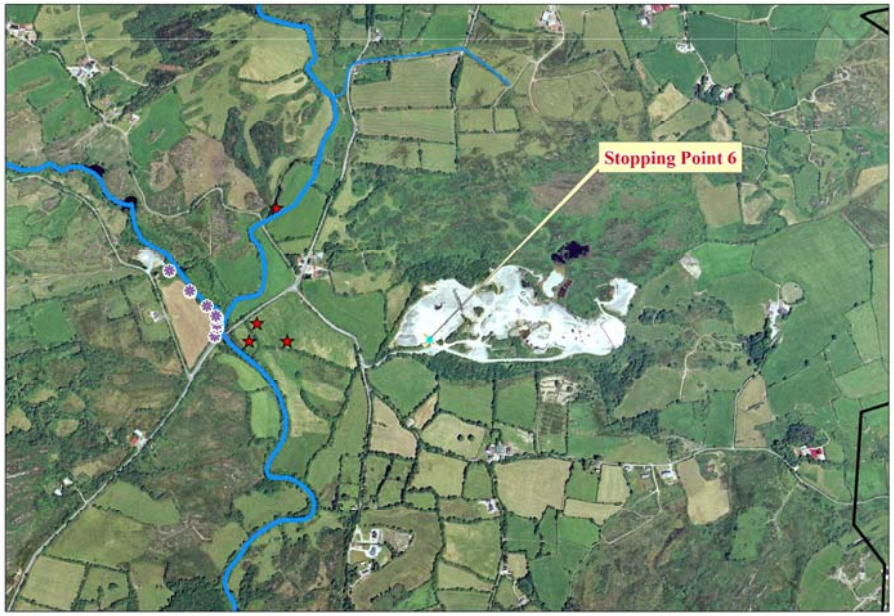


Figure 5 Source of Diffuse Silt at high risk sites

3.2 Quarries

Four quarries were identified and located within the Bandon catchment during the course of the catchment walkover risk assessments at stopping points 3, 4, 5 & 6 as indicated on Figure 2. The quarry located at Stopping point 3 appears to be a small, occasionally used quarry, however, the Upper Caha channel is located directly across from the entrance to the site. **Mid Cork Stone Quarries** is located at stopping point 4. It is a large quarry which currently does not appear to be used on a frequent basis. It is approximately 800m (as the crow flies) from the Lower Caha. At present it does not appear to be registered with Cork County Council. Mid Stone Quarries has a second location approximately 700m away from the site at stopping point 3. Again, this looks largely unused at the moment. However, a small tributary runs along adjacent to the site. As with the previous Mid Cork Stone quarries site it is recorded as invalid or not registered by Cork CoCo. The fourth quarry is located at stopping point 6 in the Ardcahan area. It is a significant quarry which is currently active. On the day in which the survey took place sprinklers were active on the spoil heaps.

Stopping point 3	**Stopping point 3**
	
Stopping point 4	**Stopping point 4**
	
Stopping point 5	**Stopping point 5**
	

Stopping point 6 	**Stopping point 6** 

4.0 CONCLUSIONS

Five sites were surveyed in locations where Freshwater Pearl Mussel populations have been recorded, of these five risk assessments four were recorded as high risk with one medium risk location. Several sites were surveyed in the upper reaches of this catchment including tributaries of the main Caha and Bandon rivers; it is evident that the Bandon catchment is in a poor condition in terms of morphology. The lack of an effective riparian buffer zone is having a significant impact on the catchment particularly in relation to intensifying the impacts of diffuse silt, nutrient and erosion. Along many of the recorded river stretches macrophyte growth was excessive with "choked" channels recorded in a number of instances. This is as a direct result of the morphological alterations which have taken place together with the on going release of silt into the channel due to bank erosion, trampling and poaching.

A number of new one-off houses were recorded along river banks with extensive culverts being put in place. Again high levels of silt were recorded within and coming from these.

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 Bandon 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 Name	Location	X	Y	Photo No.	Bank Erosion	Diffuse Nutrient	Diffuse Silt	Field Drainage	Outfalls	Abstraction	Barriers to Migration	Current Riparian Zone	Overall Risk*	Pressure/Photo Details
1	Bandon_Caha	Long Bridge	124061	53017	1	Medium	Low	Low	High	Low	Low	Medium	High	High	Side channel feeding in from lake to main channel
1	Bandon_Caha	Long Bridge	124061	53017	2	Medium	Low	Low	High	Low	Low	Medium	High	High	Culverted channel
1	Bandon_Caha	Long Bridge	124053	52920	3	Medium	Low	Low	High	Low	Low	Medium	High	High	Inlet Screen
1	Bandon_Caha	Long Bridge	124060	52902	4	Medium	Low	Low	High	Low	Low	Medium	High	High	Tide Flex Valve
1	Bandon_Caha	Long Bridge	124060	52902	5	Medium	Low	Low	High	Low	Low	Medium	High	High	Bridge Structure
1	Bandon_Caha	Long Bridge	124148	52971	6	Medium	Low	Low	High	Low	Low	Medium	High	High	40m from bridge, structure on RB
1	Bandon_Caha	Long Bridge	124112	52932	7	Medium	Low	Low	High	Low	Low	Medium	High	High	Mid Channel Island
1	Bandon_Caha	Long Bridge	124108	52916	8	Medium	Low	Low	High	Low	Low	Medium	High	High	Right channel around mid channel island
1	Bandon_Caha	Long Bridge	124108	53014	9	Medium	Low	Low	High	Low	Low	Medium	High	High	View between embankments
1	Bandon_Caha	Long Bridge	124108	53014	10	Medium	Low	Low	High	Low	Low	Medium	High	High	View from bridge, excessive *Ranunculus* growth
1	Bandon_Caha	Long Bridge	124108	53014	11	Medium	Low	Low	High	Low	Low	Medium	High	High	View from bridge, excessive *Ranunculus* growth
2	Bandon_Caha	Bridge at Keelrootha	123701	50193	1	Low	Medium	Low	Medium	Low	Low	Medium	Medium	Medium	Right bank cleared for access
2	Bandon_Caha	Bridge at Keelrootha	123701	50193	2	Low	Medium	Low	Medium	Low	Low	Medium	Medium	Medium	Main channel- heavily silted
2	Bandon_Caha	Bridge at Keelrootha	123701	50193	3	Low	Medium	Low	Medium	Low	Low	Medium	Medium	Medium	Looking downstream in main channel
2	Bandon_Caha	Bridge at Keelrootha	123701	50193	4	Low	Medium	Low	Medium	Low	Low	Medium	Medium	Medium	Bridge apron downstream of bridge
2	Bandon_Caha	Bridge at Keelrootha	123701	50193	5	Low	Medium	Low	Medium	Low	Low	Medium	Medium	Medium	Agricultural landuse downstream on left bank
2	Bandon_Caha	Bridge at Keelrootha	123701	50193	6	Low	Medium	Low	Medium	Low	Low	Medium	Medium	Medium	Farmyard on right bank of river
Stopping Point 1	Bandon_Caha		118237	48129	1										New forestry stand - intact
Stopping Point 1	Bandon_Caha		118237	48129	2										New forestry stand - intact
Stopping Point 1	Bandon_Caha		118237	48129	3										Felled area facing Maulanimirish mountain
4	Bandon_Caha	Brewer River	122227	51259	1	High	Medium	High	Medium	Low	Low	Medium	High	High	Site notice to demolish 2 houses and construct vehicular bridge over Brewer River***
4	Bandon_Caha	Brewer River	122227	51259	2	High	Medium	High	Medium	Low	Low	Medium	High	High	Site notice to demolish 2 houses and construct vehicular bridge over Brewer River***

4	Bandon_Caha	Brewer River	122227	51259	3	High	Medium	High	Medium	Low	Low	Medium	High	High	Upstream of bridge, in coming channel is split
4	Bandon_Caha	Brewer River	122227	51259	4	High	Medium	High	Medium	Low	Low	Medium	High	High	Upstream of bridge, bank fenced but cattle still have access
4	Bandon_Caha	Brewer River	122227	51259	5	High	Medium	High	Medium	Low	Low	Medium	High	High	Right bank clearance works
4	Bandon_Caha	Brewer River	122227	51259	6	High	Medium	High	Medium	Low	Low	Medium	High	High	Split in channel
4	Bandon_Caha	Brewer River	122227	51259	7	High	Medium	High	Medium	Low	Low	Medium	High	High	View looking upstream from bridge
4	Bandon_Caha	Brewer River	122227	51259	8	High	Medium	High	Medium	Low	Low	Medium	High	High	Banks shored up using steel girders
4	Bandon_Caha	Brewer River	122227	51259	9	High	Medium	High	Medium	Low	Low	Medium	High	High	Banks shored up using steel girders
5	Bandon_Caha	Trish Bridge	118266	50974	1	High	High	High	Medium	Low	Low	High	Medium	High	Overhanging vegetation
5	Bandon_Caha	Trish Bridge	118266	50974	2	High	High	High	Medium	Low	Low	High	Medium	High	Trampling on right bank
5	Bandon_Caha	Trish Bridge	118266	50974	3	High	High	High	Medium	Low	Low	High	Medium	High	Perforated land drain on left bank
5	Bandon_Caha	Trish Bridge	118188	50991	4	High	High	High	Medium	Low	Low	High	Medium	High	Right bank clearance of trees for road works
5	Bandon_Caha	Trish Bridge	118142	51024	5	High	High	High	Medium	Low	Low	High	Medium	High	Right bank clearance & infill falling in from road works.
5	Bandon_Caha	Trish Bridge	118138	51026	6	High	High	High	Medium	Low	Low	High	Medium	High	Culverted tributary under the road entering on right bank
5	Bandon_Caha	Trish Bridge	118138	51026	7	High	High	High	Medium	Low	Low	High	Medium	High	Culverted tributary
5	Bandon_Caha	Trish Bridge	118138	51026	8	High	High	High	Medium	Low	Low	High	Medium	High	Infill material on right bank falling into river
5	Bandon_Caha	Trish Bridge	118138	51026	9	High	High	High	Medium	Low	Low	High	Medium	High	Infill material on right bank falling into river
5	Bandon_Caha	Trish Bridge	118138	51026	10	High	High	High	Medium	Low	Low	High	Medium	High	Mid Channel Island
5	Bandon_Caha	Trish Bridge	118082	51051	11	High	High	High	Medium	Low	Low	High	Medium	High	Yellow perforated pipe land drain on right bank
5	Bandon_Caha	Trish Bridge	118083	51058	12	High	High	High	Medium	Low	Low	High	Medium	High	Natural bedrock barrier
5	Bandon_Caha	Trish Bridge	118083	51058	13	High	High	High	Medium	Low	Low	High	Medium	High	Natural bedrock barrier
5	Bandon_Caha	Trish Bridge	118083	51058	14	High	High	High	Medium	Low	Low	High	Medium	High	Road structure
5	Bandon_Caha	Trish Bridge	118083	51058	15	High	High	High	Medium	Low	Low	High	Medium	High	End point
6	Bandon_Caha	Tributary of the Bandon	115795	54099	1	Low	Low	Medium	High	Low	Low	Medium	Low	High	Unmanaged Land Drain
6	Bandon_Caha	Tributary of the Bandon	115795	54099	2	Low	Low	Medium	High	Low	Low	Medium	Low	High	Box culvert bridge
6	Bandon_Caha	Tributary of the Bandon	115795	54099	3	Low	Low	Medium	High	Low	Low	Medium	Low	High	Bridge Structure
6	Bandon_Caha	Tributary of the Bandon	115790	54094	4	Low	Low	Medium	High	Low	Low	Medium	Low	High	Incoming unmanaged land drain
6	Bandon_Caha	Tributary of the Bandon	115789	54091	5	Low	Low	Medium	High	Low	Low	Medium	Low	High	Upstream on right bank

6	Bandon_Caha	Tributary of the Bandon	115799	54147	6	Low	Low	Medium	High	Low	Low	Medium	Low	High	Unmanaged Land Drain entering on LB
6	Bandon_Caha	Tributary of the Bandon	115826	54204	7	Low	Low	Medium	High	Low	Low	Medium	Low	High	Taken from RB looking upstream
6	Bandon_Caha	Tributary of the Bandon	115826	54204	8	Low	Low	Medium	High	Low	Low	Medium	Low	High	Taken from RB looking downstream
6	Bandon_Caha	Tributary of the Bandon	115826	54204	9	Low	Low	Medium	High	Low	Low	Medium	Low	High	Barrier to migration
6	Bandon_Caha	Tributary of the Bandon	115826	54204	10	Low	Low	Medium	High	Low	Low	Medium	Low	High	Silt build up on Right Bank
6	Bandon_Caha	Tributary of the Bandon	115830	54237	11	Low	Low	Medium	High	Low	Low	Medium	Low	High	Unmanaged land drain
6	Bandon_Caha	Tributary of the Bandon	115833	54253	12	Low	Low	Medium	High	Low	Low	Medium	Low	High	Heavy siltation entering from unmanaged land drain
7	Bandon_Caha	Farnanes Bridge	116629	55150	1	High	High	Medium	Low	Low	Low	Low	Medium	High	Siltation looking downstream from left bank
7	Bandon_Caha	Farnanes Bridge	116629	55150	2	High	High	Medium	Low	Low	Low	Low	Medium	High	Ranunculus growth, over deepended looking upstream from left bank
7	Bandon_Caha	Farnanes Bridge	116629	55150	3	High	High	Medium	Low	Low	Low	Low	Medium	High	Poor/No buffer on both Left & Right Bank
7	Bandon_Caha	Farnanes Bridge	116629	55150	4	High	High	Medium	Low	Low	Low	Low	Medium	High	Excessive Ranunculus growth
7	Bandon_Caha	Farnanes Bridge	116541	55125	5	High	High	Medium	Low	Low	Low	Low	Medium	High	Confluence of tributaries
7	Bandon_Caha	Farnanes Bridge	116541	55125	6	High	High	Medium	Low	Low	Low	Low	Medium	High	Mid-channel slump, deposition
7	Bandon_Caha	Farnanes Bridge	116541	55125	7	High	High	Medium	Low	Low	Low	Low	Medium	High	Deepended channel
7	Bandon_Caha	Farnanes Bridge	116541	55125	8	High	High	Medium	Low	Low	Low	Low	Medium	High	Erosion on right bank
7	Bandon_Caha	Farnanes Bridge	116541	55125	9	High	High	Medium	Low	Low	Low	Low	Medium	High	Erosion on right bank
7	Bandon_Caha	Farnanes Bridge	116541	55125	10	High	High	Medium	Low	Low	Low	Low	Medium	High	Trampling on right bank
7	Bandon_Caha	Farnanes Bridge	116541	55125	11	High	High	Medium	Low	Low	Low	Low	Medium	High	Confluence of tributaries
7	Bandon_Caha	Farnanes Bridge	116522	55138	12	High	High	Medium	Low	Low	Low	Low	Medium	High	Manure spread in piles on field
Stopping Point 2	Bandon_Caha		117142	55698	1										New forestry stand & recent peat cutting
Stopping Point 2	Bandon_Caha		117142	55698	2										New forestry stand & recent peat cutting
Stopping Point 2	Bandon_Caha		117142	55698	3										New forestry stand & recent peat cutting
8	Bandon_Caha	Trib of Bandon	115104	57518	1	High	Low	High	High	Medium	Low	Medium	High	High	Tributray culverted under road
8	Bandon_Caha	Trib of Bandon	115104	57518	2	High	Low	High	High	Medium	Low	Medium	High	High	Excessive silt in channel
8	Bandon_Caha	Trib of Bandon	115104	57518	3	High	Low	High	High	Medium	Low	Medium	High	High	Culverted channel
8	Bandon_Caha	Trib of Bandon	115104	57518	4	High	Low	High	High	Medium	Low	Medium	High	High	Culvert under road entrance to house

8	Bandon_Caha	Trib of Bandon	115047	57531	5	High	Low	High	High	Medium	Low	Medium	High	High	House on bank
8	Bandon_Caha	Trib of Bandon	115034	57542	6	High	Low	High	High	Medium	Low	Medium	High	High	Straightened channel
8	Bandon_Caha	Trib of Bandon	115034	57542	7	High	Low	High	High	Medium	Low	Medium	High	High	Culvert from channel
9	Bandon_Caha	Garrown River	118871	55846	1	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Looking downstream from bridge
9	Bandon_Caha	Garrown River	118871	55846	2	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Reinforced left bank
9	Bandon_Caha	Garrown River	118871	55846	3	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Reinforced right bank
9	Bandon_Caha	Garrown River	118871	55846	4	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Cattle access fenced in for drinking
9	Bandon_Caha	Garrown River	118871	55846	5	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Lack of buffer on right bank
9	Bandon_Caha	Garrown River	118871	55846	6	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Perforated pipe entering on right bank
9	Bandon_Caha	Garrown River	118871	55846	7	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Cattle grazing on left bank, poor buffer zone
9	Bandon_Caha	Garrown River	118871	55846	8	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Cattle grazing on left bank, poor buffer zone
9	Bandon_Caha	Garrown River	118871	55846	9	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Excessive *Ranunculus* growth in channel
9	Bandon_Caha	Garrown River	118871	55846	10	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium	Excessive Ranunculus growth in channel
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	1	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Poaching on right bank, upstream of bridge
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	2	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Poaching on right bank, upstream of bridge
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	3	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Trampling on left bank at unmanaged drain which feeds into main channel
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	4	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Unmanaged drain on left bank
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	5	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Looking downstream from bridge
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	6	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Silt build up from inflowing channel on left bank just downstream of bridge
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	7	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Land clearance in field on left bank downstream of bridge, no fencing
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	8	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Reinforced left & right bank for bridge
10	Bandon_Caha	Tributary of the Dirty River	121858	53953	9	Medium	Medium	Medium	Medium	Low	Low	Low	High	High	Possible tractor abstracting water as it's a high bank
11	Bandon_Caha	Upper Tributary of Bandon	117808	59387	1	High	Medium	High	High	Low	Low	Low	High	High	Looking upstream from bridge
11	Bandon_Caha	Upper Tributary of Bandon	117808	59387	2	High	Medium	High	High	Low	Low	Low	High	High	Over hanging trees, excessive shading
11	Bandon_Caha	Upper Tributary of Bandon	117808	59387	3	High	Medium	High	High	Low	Low	Low	High	High	Forestry on left bank no buffer

11	Bandon_Caha	Upper Tributary of Bandon	117808	59387	4	High	Medium	High	High	Low	Low	Low	High	High	Peat on right bank no buffer
11	Bandon_Caha	Upper Tributary of Bandon	117808	59387	5	High	Medium	High	High	Low	Low	Low	High	High	Siltation on substrate
11	Bandon_Caha	Upper Tributary of Bandon	117808	59387	6	High	Medium	High	High	Low	Low	Low	High	High	Siltation on substrate looking downstream
11	Bandon_Caha	Upper Tributary of Bandon	117830	59431	7	High	Medium	High	High	Low	Low	Low	High	High	Stock piles from site clearance on left bank
11	Bandon_Caha	Upper Tributary of Bandon	117830	59431	8	High	Medium	High	High	Low	Low	Low	High	High	Site clearance plus forestry in background
11	Bandon_Caha	Upper Tributary of Bandon	117830	59431	9	High	Medium	High	High	Low	Low	Low	High	High	Looking up at site from left bank of river
11	Bandon_Caha	Upper Tributary of Bandon	117860	59319	10	High	Medium	High	High	Low	Low	Low	High	High	Removal of bank and riparian zone
11	Bandon_Caha	Upper Tributary of Bandon	117860	59319	11	High	Medium	High	High	Low	Low	Low	High	High	Silt build up in channel as a result of bank side works
11	Bandon_Caha	Upper Tributary of Bandon	117860	59319	12	High	Medium	High	High	Low	Low	Low	High	High	Silt build up in channel as a result of bank side works
11	Bandon_Caha	Upper Tributary of Bandon	117922	59330	13	High	Medium	High	High	Low	Low	Low	High	High	Looking upstream from forestry road, site clearance & forestry
12	Bandon_Caha	Caha River	118990	60284	1	Low	Medium	High	Medium	Low	Low	Low	Low	Medium	Looking upstream from road bridge, siltation & macrophyte growth
12	Bandon_Caha	Caha River	118990	60284	2	Low	Medium	High	Medium	Low	Low	Low	Low	Medium	Looking downstream from bridge, excessive macrophyte growth, Ranunculus & Umbelliferae
12	Bandon_Caha	Caha River	118990	60284	3	Low	Medium	High	Medium	Low	Low	Low	Low	Medium	Excessive Umbelliferae growth
13	Bandon_Caha	Upper Tributary of Caha	118396	61839	1	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Looking upstream from road bridge
13	Bandon_Caha	Upper Tributary of Caha	118396	61839	2	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Looking downstream from road bridge
13	Bandon_Caha	Upper Tributary of Caha	118396	61839	3	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Felled & replanted conifers on right hand side of upstream end
13	Bandon_Caha	Upper Tributary of Caha	118407	61805	4	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Felled & replanted conifers on right hand side of upstream end
13	Bandon_Caha	Upper Tributary of Caha	118407	61805	5	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Felled forestry & replanting - brash
13	Bandon_Caha	Upper Tributary of Caha	118402	61845	6	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Incoming tributary
13	Bandon_Caha	Upper Tributary of Caha	118402	61845	7	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Land clearance, trees cut on left bank

13	Bandon_Caha	Upper Tributary of Caha	118398	61828	8	Medium	Medium	High	Medium	Medium	Low	Low	High	High	Unmanaged land drain entering on right bank
14	Bandon_Caha	Cummernamart River, trib of the Caha	123047	59892	1	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from road bridge
14	Bandon_Caha	Cummernamart River, trib of the Caha	123047	59892	2	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking downstream from road bridge
14	Bandon_Caha	Cummernamart River, trib of the Caha	123069	59914	3	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from 2nd road bridge
14	Bandon_Caha	Cummernamart River, trib of the Caha	123069	59914	4	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking downstream from 2nd road bridge
14	Bandon_Caha	Cummernamart River, trib of the Caha	123069	59914	5	Low	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	House approx. 70m from right bank
15	Bandon_Caha	Poulnabery Bridge, Caha River	121909	59255	1	High	High	High	Medium	Low	Low	Low	High	High	Looking downstream from road bridge
15	Bandon_Caha	Poulnabery Bridge, Caha River	121909	59255	2	High	High	High	Medium	Low	Low	Low	High	High	Looking downstream to altered channel showing forestry in background
15	Bandon_Caha	Poulnabery Bridge, Caha River	121909	59255	3	High	High	High	Medium	Low	Low	Low	High	High	Excessive Ranunculus growth
15	Bandon_Caha	Poulnabery Bridge, Caha River	121909	59255	4	High	High	High	Medium	Low	Low	Low	High	High	Looking upstream from road bridge
15	Bandon_Caha	Poulnabery Bridge, Caha River	121939	59259	5	High	High	High	Medium	Low	Low	Low	High	High	Cattle trampling on left bank
15	Bandon_Caha	Poulnabery Bridge, Caha River	121939	59259	6	High	High	High	Medium	Low	Low	Low	High	High	Bank erosion on left bank
15	Bandon_Caha	Poulnabery Bridge, Caha River	121939	59259	7	High	High	High	Medium	Low	Low	Low	High	High	Small buffer on right bank with cattle grazing
15	Bandon_Caha	Poulnabery Bridge, Caha River	121939	59259	8	High	High	High	Medium	Low	Low	Low	High	High	Forestry downstream from survey point

15	Bandon_Caha	Poulnabery Bridge, Caha River	121939	59259	9	High	High	High	Medium	Low	Low	Low	High	High	Bridge Structure
15	Bandon_Caha	Poulnabery Bridge, Caha River	121939	59259	10	High	High	High	Medium	Low	Low	Low	High	High	Channel realigned/overdeepened
15	Bandon_Caha	Poulnabery Bridge, Caha River	121939	59259	11	High	High	High	Medium	Low	Low	Low	High	High	Flooding area- trash line
15	Bandon_Caha	Poulnabery Bridge, Caha River	121988	59253	12	High	High	High	Medium	Low	Low	Low	High	High	Choked channel, excessive macrophyte growth
Stopping Point 3	Bandon_Caha	Caha River	119091	60532	1										Entrance to small Quarry
Stopping Point 3	Bandon_Caha	Caha River	119091	60532	2										Overgrown on top of Quarry perhaps not used that often but near river
Stopping Point 4	Bandon_Caha	Trib of Caha	124230	59630	1										Licenced Quarry, Reg. No. QR 26
Stopping Point 4	Bandon_Caha	Trib of Caha	124230	59630	2										Extracts Sand & Gravel
Stopping Point 4	Bandon_Caha	Trib of Caha	124230	59630	3										Mid Cork Stone Quarries
Stopping Point 5	Bandon_Caha	Trib of Caha	125369	59335	1										Very poor channel/substrate condition beside dis-used Quarry
Stopping Point 5	Bandon_Caha	Trib of Caha	125369	59335	2										Quarry Reg No. QR25
Stopping Point 5	Bandon_Caha	Trib of Caha	125369	59335	3										Mid Cork Stone Quarries
Stopping Point 5	Bandon_Caha	Trib of Caha	125369	59335	4										Choked channel with macrophytes, rubbish in channel.Nettles along bank, overgrown
16	Bandon_Caha	Caha River	124452	57461	1	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking downstream from start point
16	Bandon_Caha	Caha River	124452	57461	2	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Ranunculus growth in channel
16	Bandon_Caha	Caha River	124452	57461	3	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Over hanging trees, 100% shading
16	Bandon_Caha	Caha River	124449	57475	4	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Unmanaged drain on left bank
16	Bandon_Caha	Caha River	124449	57475	5	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	New fencing to prevent cattle access on left bank
16	Bandon_Caha	Caha River	124418	57554	6	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Looking upstream from bridge
16	Bandon_Caha	Caha River	124418	57554	7	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Mid channel Island downstream from bridge
16	Bandon_Caha	Caha River	124418	57554	8	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Mid channel Island

16	Bandon_Caha	Caha River	124409	57593	9	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Good sheep fencing
16	Bandon_Caha	Caha River	124412	57601	10	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Natural Stone Weir
16	Bandon_Caha	Caha River	124382	57611	11	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Mid Channel Bar
16	Bandon_Caha	Caha River	124375	57623	12	Medium	Medium	Medium	Medium	Low	Low	Medium	Medium	Medium	Forestry upstream of end point
17	Bandon_Caha	Caha River	124012	58787	1	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Downstream end of survey stretch
17	Bandon_Caha	Caha River	124029	58814	2	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Mid Channel Bar
17	Bandon_Caha	Caha River	124035	58829	3	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Looking downstream from left bank
17	Bandon_Caha	Caha River	124035	58829	4	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Confluence of tributaries
17	Bandon_Caha	Caha River	124035	58829	5	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Pt.of confluence, poor substrate condition, FGA covering
17	Bandon_Caha	Caha River	124035	58829	6	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Bridge Apron & culverts associated with Bridge
17	Bandon_Caha	Caha River	124035	58829	7	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Bridge Apron & culverts associated with Bridge
17	Bandon_Caha	Caha River	124035	58829	8	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Forestry upstream of main Caha channel
17	Bandon_Caha	Caha River	124061	58827	9	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Siltation on left bank of trib
17	Bandon_Caha	Caha River	124061	58827	10	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Trampling & poaching on left bank of trib
17	Bandon_Caha	Caha River	124061	58827	11	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Bridge structure & culvert on trib
17	Bandon_Caha	Caha River	124061	58827	12	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Inflowing trib- Ranunculus
17	Bandon_Caha	Caha River	124057	58878	13	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Lack of buffer on left & right bank of tributary
17	Bandon_Caha	Caha River	124055	58875	14	Medium	High	Medium	Medium	Low	Low	Medium	High	High	Approx. 3m buffer on left bank of main Caha
18	Bandon_Caha	Caha River	124210	55713	1	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Looking upstream from bridge
18	Bandon_Caha	Caha River	124210	55713	2	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Excessive Ranunculus growth, foul smell
18	Bandon_Caha	Caha River	124210	55713	3	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Channel choked with excessive macrophyte growth
18	Bandon_Caha	Caha River	124210	55713	4	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Channel choked with excessive macrophyte growth
18	Bandon_Caha	Caha River	124210	55713	5	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Inflowing trib entering on right bank, large concrete pipe culverted under road
18	Bandon_Caha	Caha River	124210	55713	6	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Culvert
18	Bandon_Caha	Caha River	124210	55713	7	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Confluence of Bandon & Caha
18	Bandon_Caha	Caha River	124217	55735	8	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Trash line approx. 1m high, overhanging trees and in channel Salix species
18	Bandon_Caha	Caha River	124216	55743	9	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Bank erosion on right bank
18	Bandon_Caha	Caha River	124217	55760	10	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Mid Channel Island

18	Bandon_Caha	Caha River	124213	55766	11	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Trampling & poaching,silt along edge
18	Bandon_Caha	Caha River	124189	55792	12	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Live Adult Mussel on river substrate .2m from right bank
18	Bandon_Caha	Caha River	124189	55792	13	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Live Adult Mussel on river substrate .2m from right bank
18	Bandon_Caha	Caha River	124189	55792	14	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Eroding channels
18	Bandon_Caha	Caha River	124189	55792	15	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Boulders on bank edge
18	Bandon_Caha	Caha River	124145	55830	16	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Cattle poaching on right bank, 1+ fish at this point
18	Bandon_Caha	Caha River	124144	55833	17	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Stone weir
18	Bandon_Caha	Caha River	124090	55885	18	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	Medium	Septic tank at house end of survey stretch
Stopping Point 6	Bandon_Caha		124775	55704	1										Sprinklers in operation on each stock pile
Stopping Point 6	Bandon_Caha		124775	55704	2										Active Quarry
Stopping Point 6	Bandon_Caha		124775	55704	3										Active Quarry
Stopping Point 6	Bandon_Caha		124775	55704	4										Active Quarry

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			