APPENDIX J2

EPA MONITORING DATA

River and Code: **BOYNE** 07B04

Tributary of: OS Catchment No: 159

OS Grid Ref of confluence: O 091 751

Biological Quality Ratings (Q Values)

Station Nos.	1971	1973	1974	1975	1977	1979	1981	1986	1990	1994	1997	2000	2003	2004	2005	2006	2007	2008	2009	2012
0100	4-5	-	-	-	-	-	3-4	4	4	-	3	3-4	3	-	-	-	-	-	-	-
0160	-	4-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0200	2-3	3-4	-	3-4	3	4	4	4	3	4	2-3	3-4	3	-	-	4	-	-	4	3-4
0300	2-3	2-3	-	2	1-2	2-3	4	4	-	3	2	1-2	3	-	-	3-4	-	-	3-4*	3-4
0400	4-5	3	-	-	4-5	4	4	4	4	4	3	3	4	-	-	4	-	-	4	4
0500	-	-	-	-	4-5	-	4	-	4	-	-	-	-	-	-	-	-	-	-	-
0600	4-5	-	4	-	4	4	4	4-5	4	4	3-4	3	3	-	-	3-4	-	-	3-4	3-4
0700	-	-	-	-	-	-	3-4	4	3-4	-	-	-	-	-	-	-	-	-	-	-
0800	4-5	-	3	-	-	4	4-5	4-5	4	4	3-4	3-4	4	-	-	4	-	-	4-5	-
0900	5	-	3-4	-	-	4-5	5	5	4	4	4	4	3-4	-	-	4	-	-	-	-
1000	5	-	4	-	-	4	5	5	3-4	3-4	4	3-4	4	-	-	4	-	-	4	-
1100	5	-	-	-	-	3-4	4	4	3-4	-	-	-	-	-	-	-	-	-	-	-
1200	-	-	4-5	-	-	-	4	4-5	3-4	3-4	4	3-4	3-4	-	-	4	-	-	3-4	-
1300	4-5	-	-	-	-	3-4	4	4	3-4	-	-	-	-	-	-	-	-	-	-	-
1400	-	-	4	-	-	3-4	3-4	4	3-4	3-4	3	3	3-4	-	-	4	-	-	3-4	3-4
1500	5	-	4-5	-	-	4-5	5	4	3-4	3-4	3-4	3-4	3-4	-	-	3-4	-	-	3-4*	3-4
1600	-	-	-	-	-	-	4	4-5	3-4	3-4	3-4	3-4	3-4	-	-	-	-	-	-	-
1700	5	-	4	-	-	3-4	4	4-5	3-4	-	-	-	-	-	-	3-4	-	-	3-4	3-4
1800	-	-	-	-	-	4	4-5	4-5	3-4	3-4	3-4	3-4	3-4	-	-	-	-	-	-	-
1900	4	4	-	4	3-4	3	3-4	4	2-3	3	2-3	3-4	3-4	-	-	-	-	-	-	-
2000	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	4	3-4	3-4	3	3-4	3-4	-	-	3-4	-	-	3-4	4
2100	4-5	4-5	-	4	4	4	4-5	4	4	3-4	3	3-4	3-4	3-4	3-4	3-4	3-4	3-4	4	-
2150	-	-	-	-	-	-	-	-	4-5	3-4	3-4	4	3-4	-	-	3-4	-	-	4	-
2200	5	4-5	-	3-4	4	4	4	4	-	-	3-4	3-4	3-4	-	-	3-4	-	-	3-4	-

Assessment: No current assessment

Station No.	***Station Location***	***National Grid Ref. X***	***Y***	***Discovery Series No.***	***County Code***
0100	River Br	266855	232768	49	KE
0160	Kishawanny Br	264567	233456	49	OF
0200	Boyne Br	263605	234529	49	OF
0300	Kinnafad Br	261428	235002	49	OF
0400	Ballyboggan Br	263807	240222	49	MH
0500	Leinster Br	266554	243756	49	MH
0600	Ashfield Br	268374	244832	49	MH
0700	Stonyford Br	268939	247361	49	MH
0800	Inchamore Br	271089	250000	42	MH
0900	Scarriff Br	273445	252734	42	MH
1000	Derrinydaly Br	276708	253872	42	MH
1100	D/s Athboy R confl	0	0	42	
1200	West Br Trim	279790	257004	42	MH
1300	Newtown Trim Br	281648	256859	42	MH
1400	u/s Knightsbrook R confl (RHS)	282514	256693	42	MH
1500	Bective Br	286038	259705	42	MH
1600	Ballinter Br	289519	262675	42	MH
1700	Kilcarn Old Bridge	288535	265524	42	MH
1800	Railway Br Navan	287430	267428	42	MH

1900	2km d/s Navan (LHS)	288493	269122	42	MH
2000	Broadboyne Br	291863	271315	42	MH
2010	d/s Broadboyne Br (RHS)	292440	271435	43	MH
2100	Slane Br	296414	273631	43	MH
2150	Ford S of Broc Ho	300003	271834	43	MH
2200	Obelisk Br	304510	276200	43	MH

River and Code: CASTLEJORDAN **07C04**

Tributary of: 07Y02 YELLOW (CASTLEJORDAN) OS Catchment No: 159

OS Grid Ref of confluence: N 592 378

	Biological Quality Ratings (Q Values)										
Station Nos.	**1976**	**1981**	**1985**	**1990**	**1994**	**1997**	**2000**	**2003**	**2006**	**2009**	**2012**
0010	-	-	-	3	-	-	-	-	-	-	-
0040	-	-	-	-	-	-	-	-	-	-	3
0050	-	-	-	-	-	-	-	-	2-3	3	-
0060	-	-	-	3-4	2-3	2-3	3	-	-	-	-
0100	-	4-5	3-4	4	3-4	3-4	4	3	3-4	3-4	3-4
0190	-	-	-	4	3-4	3-4	4	3	4	4	4
0200	4-5	4	3-4	-	-	-	-	-	-	-	-

Assessment: The upper reaches (0050, 0100) of the Castlejordan River remained in an unsatisfactory ecological condition when surveyed in 2009. Poor ecological conditions remain downstream of Rochfortbridge stream (0050) from suspected sewage discharges. The macroinvertebrate fauna indicated continued satisfactory ecological conditions in the lower reaches at Castlejordan (0190) although enhanced macrophyte growth and siltation was noted .

Station No.	*Station Location*	*National X*	*Grid Ref. Y*	*Discovery Series No.*	*County Code*
0010	Mongagh Br	0	0	48	
0040	Br SE of Rochfortbridge	0	0	49	
0050	Br to SW of Rahinine	247273	240476	48	
0060	SE of Rahinine	247546	240452	48	MH
0100	Baltinoran Br	255347	240809	49	OF
0190	Castlejordan Br	259054	238765	49	MH
0200	0.5km d/s Castlejordan Br	0	0	49	

River and Code: **YELLOW (CASTLEJORDAN)** **07Y02**

Tributary of: 07B04 BOYNE OS Catchment No: 159

OS Grid Ref of confluence: N 612 372

	Biological Quality Ratings (Q Values)										
Station Nos.	**1976**	**1981**	**1985**	**1990**	**1994**	**1997**	**2000**	**2003**	**2006**	**2009**	**2012**
0060	-	-	-	-	4	4	4	3	-	-	-
0070	-	-	-	-	-	-	-	3	4	4	4
0100	-	3-4	4	3-4	4	3-4	3	3-4	3-4	3-4	3-4
0200	4-5	4-5	4	3-4	-	-	-	-	-	-	-
0300	4-5	4-5	4	4	4	4	4	4	4	4	4

Assessment: The Yellow (Castlejordan) River was in a satisfactory ecological condition in the upper (0070) and lower reaches (0300) in September 2012, however the dominance of pollution tolerant macroinvertebrate species indicated continuing unsatisfactory ecological conditions at Garr Bridge (0100) .

Station No.	*Station Location*	*National X*	*Grid Ref. Y*	*Discovery Series No.*	*County Code*
0060	Nr Derryarkin	247910	236210	48	OF

0070	Br d/s Big R confl	249710	236492	48	OF
0100	Garr Br	253177	236902	49	OF
0200	Sheep Br	0	0	49	
0300	Clongall Br	259439	237542	49	OF

APPENDIX J3

SAC SITE SYNOPSIS

SITE SYNOPSIS

SITE NAME: RIVER BOYNE AND RIVER BLACKWATER

SITE CODE: 002299

This site comprises the freshwater element of the River Boyne as far as the BoyneAqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site. Towns both small and large, include Slane, Navan, Kells, Trim, Athboy and Ballivor. The site is a candidate SAC selected for alkaline fen and alluvial woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Atlantic Salmon, Otter and River Lamprey. The main areas of alkaline fen are concentrated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough. The hummocky nature of the local terrain produces frequent springs and seepages which are rich in lime. A series of base-rich marshes have developed in the poorly-drained hollows, generally linked with these three lakes. Open water is usually fringed by Bulrush (Typha latifolia), Common Club-rush (Scirpus lacustris) or Common Reed (Phragmites australis) and this last species also extends shorewards where a dense stand of Great Fen Sedge or Saw Sedge (Cladium mariscus) frequently occurs. This in turn grades into a sedge and grass community (Carex spp., Molinia caerulea) or one dominated by the Black Bogrush (Schoenus nigricans). An alternative direction for the aquatic/terrestrial transition to take is through a floating layer of vegetation. This is normally based on Bogbean (Menyanthes trifoliata) and Marsh cinquefoil (Potentilla palustris). Other species gradually become established on this cover, especially plants tolerant of low nutrient status e.g. bog mosses (Sphagnum spp.). Diversity of plant and animal life is high in the fen and the flora, includes many rarities. The plants of interest include Narrow-leaved Marsh Orchid (Dactylorhiza traunsteineri), Fen Bedstraw (Galium uliginosum), Cowbane (Cicuta virosa), Frogbit (Hydrocharis morsus-ranae) and Least Bur-reed (Sparganium minimum). These species tend to be restricted in their distribution in Ireland. Also notable is the abundance of aquatic Stoneworts (Chara spp.) which are characteristic of calcareous wetlands. The rare plant, Round-leaved Wintergreen (Pyrola rotundifolia) occurs around Newtown Lough. This species is listed in the Red Data Book and is protected under the Flora Protection Order, 1999, and this site is its only occurrence in Co. Meath. Wet woodland fringes many stretches of the Boyne. The Boyne River Islands are a small chain of three islands situated 2.5 km west of Drogheda. The islands were formed by the build up of alluvial sediment in this part of the river where water movement is sluggish. All of the islands are covered by dense thickets of wet, Willow (Salix spp.) woodland, with the following species occurring: Osier (S. viminalis), Crack Willow (S. fragilis), White Willow (S. alba), Purple Willow (Salix purpurea) and Grey Willow (S. cinerea). A small area of Alder (Alnus glutinosa) woodland is found on soft ground at the edge of the canal in the north-western section of the islands. Along other stretches of the rivers of the site Grey Willow scrub and pockets

of wet woodland dominated by Alder have become established, particularly at the river edge of mature deciduous woodland. Ash (Fraxinus excelsior) and Birch (Betula pubescens) are common in the latter and the ground flora is typical of wet woodland with Meadowsweet (Filipendula ulmaria), Angelica (Angelica sylvestris), Yellow Iris, Horsetail (Equisetum spp.) and occasional tussocks of Greater Tussocksedge (Carex paniculata). The dominant habitat along the edges of the river is freshwater marsh - the following plant species occur commonly here: Yellow Flag (Iris pseudacorus), Creeping Bent (Agrostis stolonifera), Canary Reed-grass (Phalaris arundinacea), Marsh Bedstraw (Galium palustre), Water Mint (Mentha aquatica) and Water Forget-me-not (Myosotis scorpioides). In the wetter areas of the marsh Common Meadow-rue (Thalictrum flavum) is found. In the vicinity of Dowth, Fen Bedstraw (Galium uliginosum), a scarce species mainly confined to marshy areas in the midlands, is common in this vegetation. Swamp Meadow-grass (Poa palustris) is an introduced plant which has spread into the wild (naturalised) along the Boyne approximately 5 km south-west of Slane. It is a rare species which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic is from a site in Co. Monaghan. The secondary habitat associated with the marsh is wet grassland and species such as Tall Fescue (Festuca arundinacea), Silverweed (Potentilla anserina), Creeping Buttercup (Ranunculus repens), Meadowsweet (Filipendula ulmaria) and Meadow Vetchling (Lathyrus pratensis) are well represented. Strawberry Clover (Trifolium fragiferum), a plant generally restricted to coastal locations in Ireland, has been recorded from wet grassland vegetation at Trim. At Rossnaree river bank on the River Boyne, is Round-Fruited Rush (Juncus compressus) found in alluvial pasture, which is generally periodically flooded during the winter months. This rare plant is only found in three counties in Ireland. Along much of the Boyne and along tributary stretches are areas of mature deciduous woodland on the steeper slopes above the floodplain marsh or wet woodland vegetation. Many of these are planted in origin. However the steeper areas of King Williams Glen and Townley Hall wood have been left unmanaged and now have a more natural character. East of Curley Hole the woodland has a natural appearance with few conifers. Broad-leaved species include Oak (Quercus spp.), Ash (Fraxinus excelsior), Willows, Hazel (Corylus avellana), Sycamore (Acer pseudoplatanus), Holly (Ilex aquifolium), Horse chestnut (Aesculus sp.) and the shrubs Hawthorn (Crataegus monogyna), Blackthorn (Prunus spinosa) and Elder (Sambucus nigra). South-west of Slane and in Dowth, the addition of some more exotic tree species such as Wych Elm (Ulmus glabra), Beech (Fagus sylvatica), and occasionally Lime (Tilia cordata), are seen. Coniferous trees, Larch (Larix sp.) and Scots Pine (Pinus sylvestris) also occur. The woodland ground flora includes Barren Strawberry (Potentilla sterilis), Enchanter's Nightshade (Circaea lutetiana) and Ground-ivy (Glechoma hederacea), along with a range of ferns. Variation occurs in the composition of the canopy, for example, in wet patches alongside the river, White Willow and Alder form the canopy. Other habitats present along the Boyne and Blackwater include lowland dry grassland, improved grassland, reedswamp, weedy wasteground areas, scrub, hedge, drainage ditches and canal. In the vicinity of Lough Shesk, the dry slopes of the morainic hummocks support grassland vegetation which, in some places, is partially colonised by Gorse (Ulex europaeus) scrub. Those grasslands which remain unimproved for pasture are species-rich with Common Knapweed (Centaurea nigra), Creeping Thistle (Cirsium arvense) and Ribwort Plantain (Plantago lanceolata) commonly present. Fringing the canal alongside the Boyne south-west of Slane, are Reed Sweet-grass (Glyceria maxima),

Great Willowherb (Epilobium hirsutum) and Meadowsweet. The Boyne and its tributaries is one of Ireland's premier game fisheries and it offers a wide range of angling from fishing for spring salmon and grilse to seatrout fishing and extensive brown trout fishing. Atlantic Salmon (Salmo salar) use the tributaries and headwaters as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. Atlantic Salmon run the Boyne almost every month of the year. The Boyne is most important as it represents an eastern river which holds large three-sea-winter fish from 20 –30 lb. These fish generally arrive in February with smaller spring fish (10 lb) arriving in April/May. The grilse come in July, water permitting. The river gets a further run of fish in late August and this run would appear to last well after the fishing season. The salmon fishing season lasts from 1st March to 30th September. The Blackwater is a medium sized limestone river which is still recovering from the effects of the arterial drainage scheme of the 70's. Salmon stocks have not recovered to the numbers pre drainage. The Deel, Riverstown, Stoneyford and Tremblestown Rivers are all spring fed with a continuous high volume of water. They are difficult to fish in that some are overgrown while others have been affected by drainage with the resulting high banks. The site is also important for the populations of two other species listed on Annex II of the E.U. Habitats Directive, namely River Lamprey (Lampetra fluviatilis) which is present in the lower reaches of the Boyne River while the Otter (Lutra lutra) can be found throughout the site. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. Common Frog, another Red Data Book species, also occurs within the site. All of these animals with the addition of the Stoat and Red Squirrel, which also occur within the site, are protected under the Wildlife Act. Whooper Swans winter regularly at several locations along the Boyne and Blackwater Rivers. Parts of these areas are within the cSAC site. Known sites are at Newgrange (c. 20 in recent winters), near Slane (20+ in recent winters), Wilkinstown (several records of 100+) and River Blackwater from Kells to Navan (104 at Kells in winter 1996/97, 182 at Headfort in winter 1997/98, 200-300 in winter 1999/00). The available information indicates that there is a regular wintering population of Whooper Swans based along the Boyne and Blackwater River valleys. The birds use a range of feeding sites but roosting sites are not well known. The population is substantial, certainly of national, and at times international, importance. Numbers are probably in the low hundreds. Intensive agriculture is the main landuse along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out. Fishing is a main tourist attraction on the Boyne and Blackwater and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The Eastern Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Parts of the river system have been arterially dredged. In 1969 an arterial dredging scheme commenced and disrupted angling for 18 years. The dredging altered the character of the river completely and resulted in many cases in leaving very high banks. The main channel from Drogheda upstream to Navan was left untouched, as were a few stretches on the Blackwater. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area. Drainage of the adjacent

river systems also impacts on the many small wetland areas throughout the site. The River Boyne is a designated Salmonid Water under the EU Freshwater Fish Directive. The site supports populations of several species listed on Annex II of the EU Habitats Directive, and habitats listed on Annex I of this directive, as well as examples of other important habitats. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species. 6.10.2006