

**APPENDICES**

**Appendix D**

**Extracts for EPA Kilkenny Regional Inspectorate's Analysis of River Water Quality in South-East  
Ireland 2001**

Summary of River Water Quality in Hydrometric Area 11 – East County Wexford – 2001

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Assaly</b> Trib of Wexford Harbour	1	1		Polluted. Slight loss of quality d/s Johnstown Castle
<b>Aughboy</b> To sea at Courtown Harbour			1	Polluted by sewage from Riverchapel.
<b>Banoge</b> Flows through Gorey, trib of Owenavorrigh		2	1	Seriously polluted at Gorey town. High BOD, ammonia and o-phosphate levels and low DO at times. Nitrates are also elevated.
<b>Blackwater (Wexford)</b> Flows through Blackwater village to sea	2			Water quality has been generally satisfactory in recent years. Slight loss of quality at Blackwater village.
<b>Brackan</b> Trib of Owneavorrigh	2			Satisfactory in 2001. Intermittent agricultural pollution.
<b>Cahore Canal</b> To sea at E Wexford			3	Quality is very poor at all three stations.
<b>Clonough</b> Trib of River Inch	1	3		Receives sewage effluent from Coolgreany and creamery effluent at Inch. Overall unsatisfactory.
<b>Inch</b> To sea at NE Wexford	1	1		Elevated nitrates. Slight loss of quality d/s Clonough River Confluence.
<b>Owenavorrigh</b> To sea at Courtown	1	6		Overall quality is doubtful. Flows through low-lying agricultural land – much of which has drainage channels. The last two sample stations are also affected by the polluted Banoge river (q.v.) from Gorey Town.
<b>Total number of Sampling Stations in each category in Hydrometric Area 11</b>	<b>8</b>	<b>13</b>	<b>5</b>	

Summary of River Water Quality in Hydrometric Area 12 Slaney Catchment – 2001

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Bann (Wexford)</b> Trib of Slaney	9			Elevated nitrates. Doubtful quality d/s Ferns & Camolin at times (indicated by biological assessments). Overall – satisfactory
<b>Boro</b> Trib of Slaney 3 km d/s Enniscorthy	8			Elevated nitrates, otherwise quality is satisfactory.
<b>Chapel Stream</b> Trib of Boro/Slaney			1	Small stream receives sewage effluent from Clonroche. Unsatisfactory quality.
<b>Clody (Bunclody)</b> Trib of Slaney	3			Generally satisfactory.
<b>Clonmore Stream</b> Trib of Derreen	1			Generally satisfactory
<b>Camolin Stream</b>	1			Generally satisfactory
<b>Derreen</b> Trib of Slaney	6			Generally satisfactory
<b>Derry</b> Trib of Slaney	3			Generally satisfactory. (Carlow/Wexford stretch only).
<b>Douglas</b> (Ballon) Flows past Myshall, trib of Slaney	4			Generally satisfactory
<b>Glasha</b> Trib of Slaney S of Clohamon		2		Loss of quality indicated by biological data in 2001.
<b>Lask</b> Trib of Bann/Slaney	1			Nitrates are elevated but otherwise quality is satisfactory
<b>Milltown Stream</b> Trib of Boro/Slaney	1			Quality is generally satisfactory
<b>Slaney</b> The Slaney is a Designated Salmonid river under EU Directive 78/659/EEC	21	2		The Slaney is eutrophic in its lower reaches (between Enniscorthy and Wexford town). Otherwise quality is reasonably satisfactory. (Carlow/Wexford stretch only).
<b>Sow</b> Discharge to the Slaney Estuary at Castlebridge	5			Elevated nitrates. Otherwise generally satisfactory.
<b>Urrin</b> Trib of Slaney S of Enniscorthy	4			Quality is generally satisfactory.
<b>Total number of Sampling Stations in each category in the Slaney Catchment</b>	<b>67</b>	<b>4</b>	<b>1</b>	

Summary of River Water Quality in Hydrometric Area 13 – South Co Wexford – 2001

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Bridgetown</b> Tidal, flows through low lying land and mud flats in S Wexford and into a tidal backwater.	1	3		Significant improvement in 2000 following commissioning of a new sewage treatment plant at Bridgetown. The river is still eutrophic. Tidal at all sampling stations.
<b>Corock</b> To sea at S Wexford	2	1		Elevated nitrates. Slight loss of quality at first station at times (elevated o-phosphate). Otherwise quality is satisfactory. The last station is tidal/brackish.
<b>Duncormick</b> To sea at S Wexford		3	1	Very low flows in summer. Polluted at Taghmon. High nitrates. Overall unsatisfactory.
<b>Mulmontry</b> Trib of Corock	2	1		Nitrates are elevated. Eutrophic at the first sample station. Otherwise quality is satisfactory.
<b>Owenduff</b> To sea at S Wexford	4	1		Elevated nitrates but otherwise quality is reasonably satisfactory. Slight loss of quality at times at the first station. The last station is tidal.
<b>Total number of Sampling Stations in each category in Hydrometric Area 13</b>	<b>9</b>	<b>9</b>	<b>1</b>	

Summary of River Water Quality in Hydrometric Area 14 – Barrow Catchment – 2001

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Aghalona</b> Trib of Burren/Barrow	2	1		Nitrates are high, however concentrations appear to have stabilised in recent years. The Aghalona has also been subject to intermittent agricultural discharges. There are signs of eutrophic conditions.
<b>Barrow</b> The Barrow flows mainly through agricultural areas and through the towns of Portarlinton, Monsterevin, Athy, Carlow, Bagenalstown, Goresbridge, Graiguenamanagh and New Ross. It also receives discharges from Portlaoise via the Triogue River.	24	10	2	There was a serious deterioration in water quality in the river Barrow downstream of the sugar factory at Carlow during the 2000/2001 winter beet campaign – abundant slime growth (sewage fungus) was observed in the river for a distance of at least 20 km. The large growths of slime were not observed in 2001/2002.  Overall water quality in the Barrow is mediocre with a background of slight/moderate pollution from diffuse agricultural sources and sewage discharges from the various towns – especially d/s Portlaoise and d/s Carlow.
<b>Blackwater (Laois)</b> Trib of Owenass/Barrow		1		Overall quality is doubtful/fair.
<b>Burren</b> Trib of Barrow at Carlow town	6			Nitrates are high – but recent data indicate that levels may be decreasing. Enrichment at the middle and lower sections with increased signs of eutrophication in recent years.
<b>Crooked</b> Trib of Stradbally/Barrow	1			Generally satisfactory conditions
<b>Douglas (Laois)</b> Trib of Barrow in E Co. Laois	1	2		Intermittent agricultural pollution. Overall quality is doubtful/fair.
<b>Duiske</b> Graiguenamanagh	2			Reasonably satisfactory quality. Has been subject to intermittent pollution.
<b>Fushoge</b> (W of Carlow town)		1		Intermittent moderate agricultural pollution.
<b>Gowran</b>	3	1		Periodic discharges at Red Mills, Goresbridge.
<b>Killeen (Crumpaun)</b> Small stream, trib of Douglas/Barrow	1			Intermittent moderate agricultural pollution.
<b>Lerr</b> Trib of Barrow on Kildare/Carlow border	1			Nitrates are high d/s intensive tillage area in S Kildare – recent data indicate that nitrate levels may be leveling off or decreasing.

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Mountain</b> (Borris) Trib of Barrow	2			Generally satisfactory
<b>Owenass</b>	2		1	Satisfactory at the first two stations but loss of quality at Mountmellick – high phosphorus in particular.
<b>Pollmouny</b> (Trib of Barrow on Carlow/Wexford border)	2	1		Slight loss of quality d/s fish farm at times.
<b>Stradbally</b> Trib of Barrow	3	1		Slight loss of quality at Stradbally.
<b>Triogue</b>	3		4	Serious pollution d/s Portlaoise.
<b>Total number of Sampling Stations in each category in the Barrow Catchment</b>	<b>54</b>	<b>17</b>	<b>5</b>	

Summary of River Water Quality in Hydrometric Area 15 – Nore Catchment– 2001

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Arrigle</b> (Trib of Nore, 2 km u/s Inistiogue)	2	1		Slightly elevated ammonia d/s fish farm at last station at times. Otherwise satisfactory.
<b>Ballyroan</b> (or Gloreen, Trib of Nore d/s Abbeyleix)		2	1	High ammonia, BOD and phosphate d/s Abbeyleix at times.
<b>Bregagh</b>	1	3		Flows from Ballycallan through agricultural land and Kilkenny City. Very low flows and dry at some locations in summer. Overall quality is poor.
<b>Brownstown</b> or Poccocke, just d/s Kilkenny city	2			Intermittent agricultural pollution – satisfactory in 2001.
<b>Cappanacloghy</b>	1			D/s Coolnamona bog – high colour. This river has been subject to siltation from peat.
<b>Castlecomer Stream</b>	1			Generally satisfactory conditions.
<b>Clogh</b> Trib of Dinin	2	1		Intermittent agricultural pollution
<b>Delour</b> Nore trib. Rises in the Slieve Bloom mountains	2			Generally satisfactory conditions.
<b>Dinin</b> Trib of Nore, two separate branches	11			Eutrophic at some stations. Otherwise quality is generally satisfactory.
<b>Donaghmore</b> Trib of Erkina/Nore	1			Generally satisfactory
<b>Erkina</b> Trib of Nore in S Co Laois	1	3		Indications of eutrophic conditions – intermittent agricultural pollution. Overall mediocre.
<b>Errill</b> Trib of Erkina/Nore	1			Generally satisfactory conditions.
<b>Glory</b> Kilmoganny, Trib of Kings River	2	1	1	Agricultural pollution at the first station.
<b>Goul</b> Trib of Erkina/Nore	2	3		Eutrophic conditions. Unsatisfactory d/s Johnstown.
<b>Gully</b> (Trib. of Nore N of Durrow)	3			Generally satisfactory conditions.
<b>Hollypark Stream</b> Trib of Dinin/Nore in S Co Laois	1	1		Intermittent moderate agricultural pollution
<b>Killeen</b> (S Blooms)	1			Satisfactory quality
<b>King's</b> Trib of Nore flows through Callan & Kells	5	4	1	Unsatisfactory at Callan and downstream in summer. The King's River is eutrophic at places. Conditions fluctuate but overall quality is doubtful/fair.
<b>Little Arrigle</b> Nore trib u/s Thomastown	2			Generally satisfactory conditions. High ammonia during low flow conditions at second station (d/s fish farm).
<b>Mountrath</b> Trib of Nore	3			Generally satisfactory conditions. Colour is naturally high.
<b>Muckalee</b>	3			Muckalee Reservoir is eutrophic. Otherwise conditions are

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
				generally satisfactory.
<b>Munster</b> Trib of Kings R. u/s Callan Two branches	5	2		Very low flows at the upper stations in summer. Poor quality at times in the Tullaroan/Kilmanagh stretch.
<b>Nore</b> The Nore is a Designated Salmonid river under EU Directive 78/659/EEC	20	6		Unsatisfactory in upper reaches (peat extraction in North County Tipperary). Enrichment at some locations in Co Laois but otherwise satisfactory in this stretch. Conditions have deteriorated in Kilkenny City and downstream in recent years – high orthophosphate and eutrophic conditions.
<b>Nuenna</b> (Freshford)	2	1		Slight loss of quality at Freshford and nitrate levels are elevated.
<b>Owveg</b> Trib of Nore on Laois/Kilkenny border	4			Slight loss of quality at first at times but generally satisfactory.
<b>Rathdowney Stream</b>	1			Generally satisfactory conditions. Small stream – rises in Galmoy (near Arcon mines).
<b>Stonyford Stream</b>		2		High o-Phosphate and elevated nitrate.
<b>Tonet</b> Rises in S Blooms trib of Delour/Nore	2			Generally satisfactory conditions.
<b>Total number of Sampling Stations in each category in the Nore Catchment</b>	<b>81</b>	<b>30</b>	<b>3</b>	

Summary of River Water Quality in Hydrometric Area 16 – Suir Catchment – 2001

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Aherlow</b> The Aherlow is a Designated Salmonid river under EU Directive 78/659/EEC	5	2	2	Poor quality in upper reaches – mainly as a result of high ammonia at times; run-off from land after slurry spreading plus effluents at Galbally.
<b>Anner</b> Two braches (Drangan and Mullinahone), trib of Suir	5	6		Pollution due to very low flows in summer, inadequate sewage treatment at Mullinahone and Drangan and to agricultural effluents. Satisfactory in lower reaches (d/s confluence of the two branches).
<b>Ara</b> Trib of Aherlow/Suir		5	2	Seriously polluted at Tipperary Town. Also subject to agricultural pollution. Eutrophic in lower reaches. Overall unsatisfactory quality.
<b>Arglo</b> Suir trib N of Cashel	2			Quality is generally satisfactory
<b>Black Stream</b> Trib of Suir	1			Small stream receives sewage discharge at Cashel. Improvement noted in 2001.
<b>Blackwater</b> (Kilmacow)	5			Generally satisfactory. The last section is tidal.
<b>Breaghagh (Tipperary)</b> Trib of Suir	4			Flows through Littleton Bog – colour is high.
<b>Burncourt</b> Rises in the Galtees, Trib of Tar/Suir	2			Quality is generally satisfactory.
<b>Carrickphilip Stream</b> Small stream feeding Knockaderry Reservoir	1			Nitrate levels are elevated and colour is high. Low dissolved oxygen at times is probably due to the proximity to the source. Otherwise quality is satisfactory.
<b>Clashawley</b> Two branches meet in Fethard, Trib of Anner	3	2	1	Low flows at times. Unsatisfactory in the east branch (d/s of Killenaule). Quality is generally satisfactory in the west branch and d/s of Fethard.
<b>Clodiagh (Tipperary)</b> Trib of Suir	3			Flows through agricultural land W of Thurles Quality is generally satisfactory
<b>Clodiagh (Waterford)</b> Trib of Suir, flows through Portlaw	6	1		Polluted (high ammonia) in Canal (north branch at Portlaw) otherwise satisfactory.
<b>Dawn</b> (including Ballyshonnock Reservoir. Trib of Suir near Adamstown.	5	1		Elevated ammonia at times at Carrolls Cross (tributary). Otherwise – generally satisfactory.
<b>Drish</b> Trib of Suir	3	2	1	Downstream from bog – coloured and elevated ammonia. New sample stations were added in 1999 d/s of the

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
				Minorco lead and zinc mine at Lisheen. Nitrate is elevated d/s Lisheen Mine and discoloured/turbidity event.
<b>Duagh</b> Trib of Tar/Suir, flows through Ballyporeen	3			Quality is fair. Ammonia is elevated at times and there have been pollution incidents.
<b>Fidaghta</b> Trib of Suir at E of Tipperary town	3			Biological data indicates doubtful/fair conditions. However the chemical monitoring is generally satisfactory. This is indicative of intermittent agricultural pollution.
<b>Fishmoyne</b> Trib of Clodiagh/Suir	2	1		Quality is reduced d/s of Borrisoleigh especially during periods of low flow.
<b>Glenary</b> Suir trib. SW Clonmel	2			Water quality satisfactory.
<b>Glenbrook</b> Trib of Suir at Carrick-on-Shannon		2		Water quality is doubtful/fair. The Glenbrook was previously polluted by discharges from the cattle mart at Carrick-on-Suir.
<b>Lingaun</b> Tipperary/Kilkenny border, Suir trib.	7			Generally satisfactory conditions.
<b>Moyle</b> Trib of Anner/Suir		2	2	Very low flow in summer when the first two stations are often dry. The Moyle is seriously polluted by Ronan's offal rendering plant at Rosegreen and agricultural discharges.
<b>Multeen</b> Suir trib – two branches	10	1		Quality is generally satisfactory. Slight loss of quality at one sample station at times.
<b>Nier</b> Rises in the Commeragh's, trib of Suir near Ballymacarbry	3			Water quality is satisfactory.
<b>Outeragh Stream</b> Trib of Suir	1	1		There is a loss of quality at the upper station (d/s New Inn) especially during periods of low flow in summer.
<b>Pollanassa</b> Trib of Blackwaater (Kilmacow)	2			Slight loss of quality at times due to intermittent agricultural discharges – satisfactory 2001.
<b>Rockwell Stream</b> Trib of Suir	2			Satisfactory in 2001, had been seriously polluted d/s Rockwell College in 2000.
<b>Rossestown</b> Trib of Suir N of Thurles		1	2	Very high ammonia d/s Templetuohy with carry over effects at downstream sampling locations.
<b>St John's</b> Waterford City (including the Lisduggan Stream)	1		8	Flows through Waterford City. Seriously polluted by landfill leachate and industrial discharges from IDA

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
				Industrial Estate.
<b>Suir</b>	19	15	1	<ul style="list-style-type: none"> <li>▪ Quality is unsatisfactory in the reach d/s of Templemore and d/s Thurles sewage treatment plant – especially in summer;</li> <li>▪ Quality is satisfactory at stations 1300 to 2500 inclusive;</li> <li>▪ Quality is unsatisfactory again d/s Clonmel at times (d/s Ronan’s Tannery plus d/s WWTP);</li> <li>▪ There are indications of enrichment leading to eutrophication at Carrick-on-Suir and between Fiddown and Waterford City.</li> </ul>
<b>Tar</b> Trib of Suir	6			Quality is generally satisfactory.
<b>Thonoge</b> Trib of Suir	3			Quality is generally satisfactory. Very low flows at times in summer.
<b>Whelans Bridge</b> First station is Knockaderry Reservoir. Trib of Suir	3	1		Intermittent pollution at station 300.
<b>Total number of Sampling Stations in each category in the Suir Catchment</b>	<b>116</b>	<b>43</b>	<b>20</b>	

Summary of River Water Quality in Hydrometric Area 17 – South County Waterford – 2001

River	Number of Sampling Stations in each category			Remarks
	Generally Satisfactory Quality	Moderately Polluted at times	Seriously Polluted at times	
<b>Brickey</b> Discharges to the SW of Dungarvan Harbour	1	1		The upper reaches of the Brickey have been drained and now comprise mainly slow flowing drainage ditches and sluices. There is abundant weed growth and nitrate levels are elevated. Low DOs in the upper reaches.
<b>Colligan</b> (including two sampling locations in Dungarvan Harbour)	6	1		High ammonia in the vicinity of Ballyneety landfill site. Otherwise quality is generally satisfactory. Water quality in Dungarvan Harbour improved significantly since 1996 after the tannery in the town closed and again in 1998 after the closure of Waterford Co-Op Creamery.
<b>Dalligan</b> To sea at Ballyvoyle Head (E of Dungarvan)	2			Water quality is generally satisfactory.
<b>Kilmurrin Cove Stream</b> To sea Kilmurrin Cove	2	1		Elevated phosphate at times. Receives effluent from Kill Village and may also be affected by intermittent agricultural discharges.
<b>Mahon</b> Flows through Kilmacthomas to the sea at Bunmahon	2	2		Loss of quality d/s Kilmacthomas.
<b>Tay</b> Rises in the Monavullagh Mountains and flows to the sea at Stradbally	4			Water quality is generally satisfactory.
<b>Total number of Sampling Stations in each category in Hydrometric Area 17</b>	<b>17</b>	<b>5</b>	<b>-</b>	