
Water Level at Lady's Island Lake, 2006.

Jim Hurley



SWC Promotions - December 2007

Summary

Lady's Island Lake is a natural heritage site in south County Wexford in the extreme southeast corner of Ireland. It is the largest and one of the most important lagoon habitats in Ireland. It is also of international importance; it is a priority habitat type annexed in the EU Habitats Directive (92/43/EEC) and it supports one of the most important breeding colonies of Roseate Terns in Europe. The lake is drained regularly to prevent and/or to relieve flooding. This drainage activity results in significant changes in water level. These changes in water level have consequent impacts on the area's natural heritage resource values. The report titled *Water Level at Lady's Island Lake, 1984-1996* (Hurley, 1997) presented water level data collected during the 12-year period from September 1984 to September 1996 together with an overview of the natural history of the site and other relevant items with regard to the state of the environment. The impacts of water level changes on the natural heritage resource values were discussed from a nature conservation and resource management point-of-view and in a contextual framework with regard to the South Wexford Coast heritage coastline. The report was a contribution towards the advancement of the sustainable development of the area in that it laid the foundation for the drafting of both water level and water quality management plans. It also laid the foundation for an integrated coastal zone management strategy for Lady's Island Lake, its catchment and the coastal cell that supports the barrier-lagoon-catchment system.

The above-mentioned report (Hurley, 1997) was updated via subsequent annual reports (Hurley, 1998 - Hurley, 2006). This report (Hurley, 2007) provides an update for the calendar year 2006. Each section of this report may contain up to five of the following items, as appropriate.

Earlier reports: Page numbers are given to reference entries in earlier reports. Brief over-views, consolidations and/or syntheses may be included.

Page links: Section references or page references may be given providing links to other relevant entries in the report.

Corrigenda: Errors and/or inaccuracies in the earlier reports may be listed.

Addenda: Relevant information not included in, or that came to hand subsequent to the publication of, the earlier reports may be given.

Updates: Significant developments that occurred during the previous calendar year may be detailed in diary style.

Web links: Links may be given to the Internet for relevant web sites/pages.

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1 ACKNOWLEDGEMENTS

References to earlier reports

- Hurley, 1997 page 13.
- Hurley, 1998 page 11.
- Hurley, 1999 page 15.
- Hurley, 2000 page 17.
- Hurley, 2001 page 13.
- Hurley, 2002 page 15.
- Hurley, 2003 page 15.
- Hurley, 2004 page 15.
- Hurley, 2005 page 15.
- Hurley, 2006 page 15.

Update

Inputs in the compilation of this report via 'personal communication' by the many individuals, organisations, agencies and public bodies named below are gratefully acknowledged.

As always, I am again especially grateful to my wife, Rose, who continued to facilitate my fieldwork, research and writing at all stages and who provided invaluable and unflagging logistic support at all times.

Jim Hurley
December 2007

2 INTRODUCTION

Reference to earlier report

- Hurley, 1997 pages 15-19 is the sole entry. It details the background to these reports.

3 SURVEY METHOD

Reference to earlier report

- Hurley, 2005 page 17 consolidates all previous entries.

Page links: Section 7 with regard to the staff gauge is relevant together with Section 14.1.1 where water level data collected are presented.

4 INFORMATION DISSEMINATION

Reference to earlier report

- Hurley, 1997 page 20 sets out how information was disseminated in the period 1984-1996.

Update: Since 1997 information was disseminated via annual reports and on request as the need arose.

5 DESCRIPTION OF THE REPORT AREA

5.1 Introduction

An overview is given (Section 5.1.1) together with details with regard to human geography (Section 5.1.2), especially population (Section 5.1.2.1), and air quality (Section 5.1.3).

5.1.1 Overview

References to earlier reports

- Hurley, 1997 page 21 gives the context very briefly. (Note, too, that Hurley, 1997 page 28 sets the South Wexford Coast in its geomorphological context.)
- Hurley, 1998, pages 13-17 lists 18 environmental studies commissioned by the Electricity Supply Board (ESB) in the late 1970s with regard to the Board's proposed nuclear power station at Carnsore Point.
- Hurley, 1999 page 17 mentions aerial photographic fieldwork for the National Coastline Survey.
- Hurley, 2000 page 37 details, with an illustration (Figure 8 on page 38), three biogeographical regions with regard to the distribution of breeding seabird colonies.
- Hurley, 2001 pages 15-16 defines the study area as part of a distinct geomorphic region.
- Hurley, 2002 page 27 (Section 5.9.2 re Climate Change) classifies two bioclimatic zones on the South Wexford Coast.
- Hurley, 2003 page 18 gives a new southern boundary for the Irish Sea as defined by the Irish Sea Pilot.
- Hurley, 2004 pages 18-19 has an addendum with regard to GPS stations at Carrigaderragh Hill and Rosslare Harbour, and an update with regard to the initial characterisation of Hydrometric Area No 13 under the Water Framework Directive.
- Hurley, 2005 page 18 updates with regard to a Joint Nature Conservation Committee (JNCC) report on marine nature conservation and sustainable development in the Irish Sea.
- Hurley, 2006 pages 17-18 updates with regard to an old post card showing Main Street, Lady's Island.

Page links: Section 5.9.2 with regard to climate change. References to earlier reports in Section 5.11.1 define the boundaries of the South Wexford Coast. Section 6.4.8

refers to the Water Framework Directive. Section 6.6.1 refers to maps of the South Wexford Coast. Section 17.5 refers to Integrated Coastal Zone Management (ICZM).

Update: The following woodcut shows Lady's Island in 1833 (Figure 1) (Anon, 2006 pages 12-13).

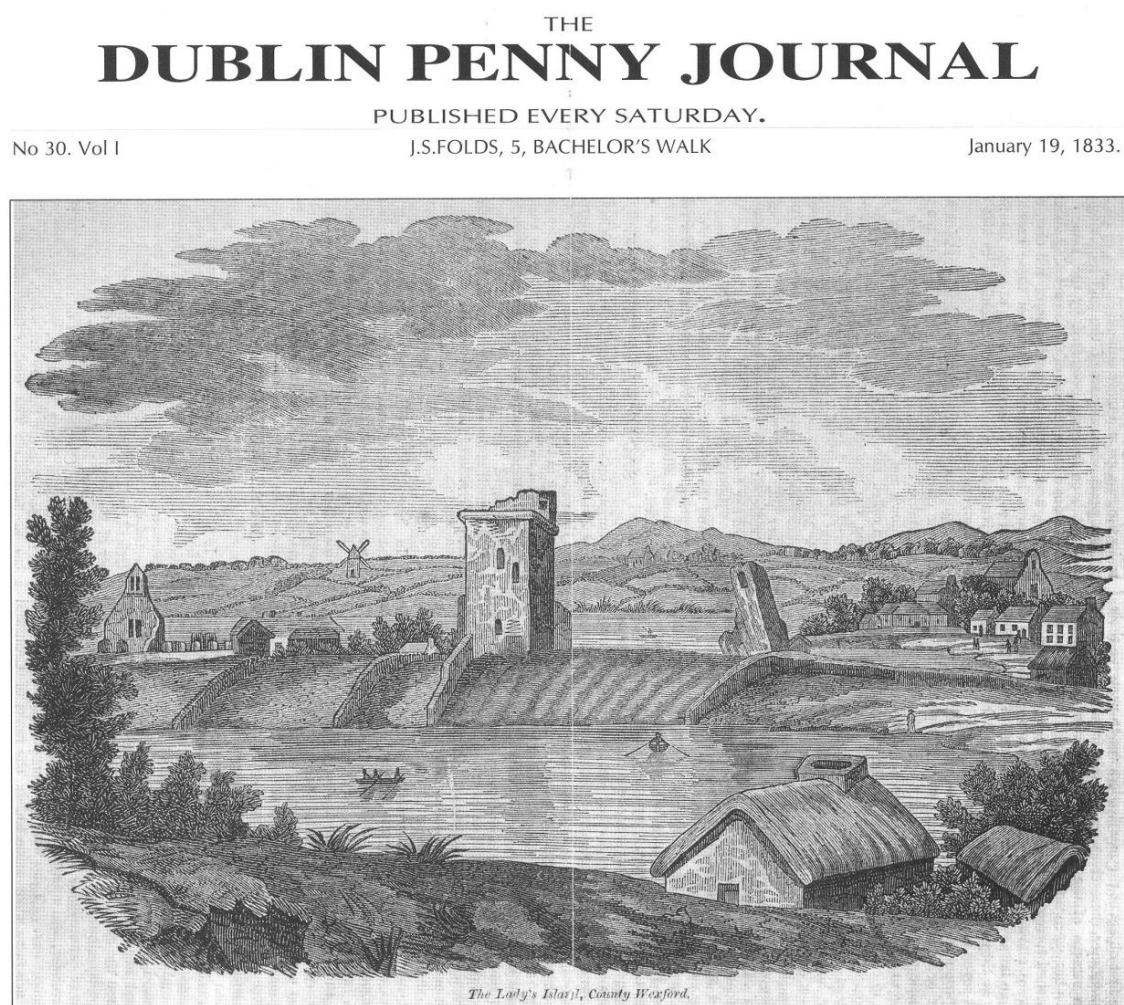


Figure 1: Woodcut showing Lady's Island in 1833.

(Source: Anon, 2006 pages 12-13)

Web links: Ordnance Survey of Ireland (OSi) at <http://www.osi.ie/> for viewing and/or ordering maps, for updates with regard to co-ordinate positioning, for access to their on-line co-ordinate converter and for data with regard to IRENET95 control point station description sheets. Data with regard to Hydrometric Area No 13 are available at <http://www.serbd.com/>. The website of the Irish Sea Pilot is at <http://www.jncc.gov.uk/irishseapilot>. The JNCC report with regard to marine nature conservation and sustainable development in the Irish Sea is available for download at http://www.jncc.gov.uk/Marine/irishsea_pilot/pdfs/finalreports_2004/pilot/default.htm.

5.1.2 Human geography

Updates

Settlement strategy. Due to the combination of their location on both a regional road and the Rosslare-Limerick rail line, Wellingtonbridge and Bridgetown are Strategic Growth Areas. District Growth Areas exist at Fethard, Carrick and Kilmore Quay. Duncormick is a Local Growth Area (WCC, 2006 pages 32, Table 2.1 and Map No 1; also Map No 3 on the CD).

Placenames. The Department of the Gaeltacht is nearing completion of a five-year examination of the Irish names of the 2,300+ townlands in County Wexford. The study was carried out by Dr Conchubhar Ó Cruaíaoich an expert in Old Irish than has not been spoken since the ninth century (*Wexford People*, issue dated 29 March 2006, page 28).

5.1.2.1 Population

References to earlier reports

- Hurley, 2000 pages 19-21 gives data in the form of text, a table (Table 1) and a map (Figure 1).
- Hurley, 2003 page 19 updates with regard to the holding of a census on 28 April 2002 and a web link to 901 census data for Wexford.
- Hurley, 2004 pages 20-21 update with regard to Census 2002 and the areas of the District Electoral Divisions (DEDs).
- Hurley, 2006 pages 18-21 has an addendum with regard to population in the past and updates with regard to the 1831 census, population decline at Kilmore Quay, and the boundaries of the electoral divisions in south Wexford.

Update. A census of the population was carried out on 23 April 2006 and the following preliminary figures were published in July of that year (Central Statistics Office *Preliminary Report*, July 2006, and *New Ross Standard*, issue dated 26 July 2006, pages 22-25).

DED No	DED Name	Area (ha)	1986	1991	1996	2002	2006
088	Templetown	2135	451	441	464	461	574
075	Fethard	1599	783	755	789	862	918
089	Tintern	3708	1237	1189	1190	1252	1429
097	Bannow	2394	915	929	985	982	1087
101	Duncormick	1492	484	463	462	503	530
108	Killag	1901	284	276	312	347	398
111	Kilmore	2632	1764	1782	1800	1913	1919
122	Tomhaggard	1616	489	491	484	561	586
120	Tacumshin	1723	391	365	349	385	460
114	Lady's Island	1360	528	522	527	582	570
	Totals	20560	9312	9204	9358	9850	10477

Table 1: Census of the population, 2006.

(Source: Hurley, 1991 for 1986 data, and Central Statistics Office for 1991-2006)

Web links: The Central Statistics Office website is at <http://www.cso.ie/> and has demographic data. Joan Rolfes' website is at <http://www.leitrim-roscommon.com/1901census/>; the database is searchable by civil parish and in 2003 it was c25% complete for County Wexford.

5.1.3 Air quality

References to earlier reports

- Hurley, 2001 page 16 gives the overview.
- Hurley, 2003 page 19 refers very briefly to the Environmental Protection Agency (EPA) series of annual reports with regard to Air Quality Monitoring in Ireland.
- Hurley, 2004 page 21 has updates with regard to zones and agglomerations, air quality monitoring in County Wexford, and transboundary pollution.
- Hurley, 2005 page 19 has updates with regard to a proposed waste to energy plant at Belview, Waterford, and limit values for air pollutants.
- Hurley, 2006 page 22 has addenda with regard to atmospheric pollutants and their limit values, and an update with regard to an EPA mobile unit monitored air quality in Wexford town.

Page link: Section 5.17 refers to lichens as indicators of air quality.

Updates

ACRG container. Jim Hurley emailed Dr S. J. O' Doherty of the Atmospheric Chemistry Research Group (ACRG) at the University of Bristol enquiring with regard to their white container at Carnsore Point. Dr O' Doherty replied *"Sorry for the slow reply to your e-mail, I have been out of the lab for a while. The mobile laboratory contains automated sampling equipment that monitors the levels of ozone depleting and greenhouse gases in the atmosphere. We have a more permanent site at Mace Head on the west coast, but have set up this temporary site to allow us to assess the levels of gases we are interested in (CFCs, replacement CFCs etc) and from this information evaluate the levels of these gases emitted into the atmosphere in Ireland (from use of refrigerators and foam blowing, microchip etching etc) and also assess the amount of these gases transported to Ireland from other location in the UK and Europe. This kind of information is useful to ensure that governments are meeting their reduction targets. The Green container is owned by the Environmental Protection Agency (Irish EPA) and is used to monitor aerosols (particles) in the atmosphere. These particles have implications for human health. I hope this helps, thanks for your interest"*.

Ozone levels. Real-time ozone data are gathered by the European Environment Agency (EEA) and may be assessed on their website at

www.eea.europa.eu/maps/ozone. The facility went live in August 2006 (*The Irish Times*, issue dated 9 October 2006, page 6).

Web links: The Environmental Protection Agency (EPA) website gives results of monitoring of air pollutants at <http://www.epa.ie/OurEnvironment/Air/>; interactive maps are under construction. The text of the consultation paper on the government's strategy to reduce emissions of four transboundary air pollutants by 2010 is available at <http://www.environ.ie/>. The EU Commission's Air Quality homepage is at <http://europa.eu.int/comm/environment/air/index.htm>.

5.2 Earth movements

References to earlier reports

- Hurley, 1997 page 21 introduces the topic.
- Hurley, 2000 page 22 gives more detail including a note on pages 53-54 with regard to a seismic recorder washed ashore at Grogan Burrow, Tacumshin Lake.
- Hurley, 2001 page 16 refers very briefly to a gravity anomaly map of South Wexford.
- Hurley, 2003 pages 20-21 details a freak wave at Kilmore Quay in 1854 and the worst earthquake to strike Britain that occurred September 2002.
- Hurley, 2005 pages 20-21 updates with regard to the 1854 tsunami at Kilmore Quay, the 1762 earthquake, the 1841 tsunami, Robert Mallet, and a mention of freak waves at a Eurocean conference.

- Hurley, 2006 pages 23-24 has updates with regard to the 1854 tsunami at Kilmore Quay, freak waves at Kilmore Quay, Robert Mallet's life and works, a seismic survey off Hook Head, the December 2005 earthquake, and Ireland's seismic tsunami alert system.

Page link: Section 9.4 refers to sea waves, surges and swells. Section 5.20.5 with regard to drift seeds.

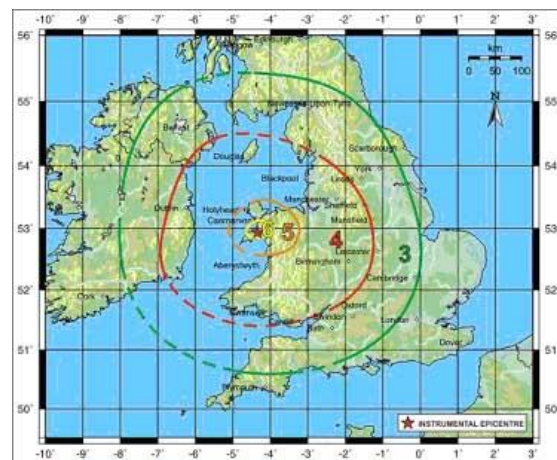
Addendum. In April 2000 the seismometers and amp-mods were removed from the pits at the ECP (Carnsore Point) and WCB (Carrickbyrne Hill). Instead, it is planned to install a digital recording station at Tara Hill (ETA). Bob Miller died on 6 July 2000. He took care of the seismic station at Carnsore Point since ENET was established in the late 1970s (Jacob *et al.*, 2001). The reason for the closure at Carnsore Point was anticipated impacts due to the proximity of the proposed wind turbines.

Updates

Tsunami alert system. A new proposal for an early warning system for tsunamis and other seismic events is being co-ordinated by the Geological Survey of Ireland. Professor Alan Jones of the DIAS welcomed the proposal and was reported as saying that their equipment was "*antiquated*". He also stated that the tsunami from the Lisbon earthquake "*reached our western coastline within four hours, and is thought to have generated waves of up to 12 metres high*" (*The Irish Times*, issue dated 31 January 2006, page 9).

Bray earthquake. An earthquake that occurred off Bray Head is described by Brian McConnell as follows. "An earthquake measuring 2.8 on the Richter scale occurred in the Irish Sea off Bray Head at 3.30a.m. on 14th December 2005. The epicentre (Lat: 53.0° North, Long 5.64° West; Grid Reference 155.7km E, 351.1km N) was in an area not too far from a magnitude 3.7 magnitude event recorded in 1951.

The largest recorded earthquake in the Irish Sea area measured 5.4 on the Richter scale and had its epicentre on the Llyn Peninsula in Wales on 19th July 1984 (see map). Many geologists on the east coast of Ireland remember the day! Although relatively large, the focus of the earthquake was quite deep, about 20km, and so structural damage was minor, and it was only weakly felt in Ireland. Two other recent earthquakes have occurred in the same area, in 1994 (magnitude 2.9) and 1999 (magnitude 3.2).



This cluster is located along the Menai Straits fault zone, a major fault structure that runs across the Irish Sea to pass south of Carnsore Point. The fault dates back to the assembly of Ireland and Britain during the Caledonian orogeny (at least 400 million 17 years old and perhaps as old as 520 million years) and it is probably a terrane boundary, that is, a fault zone separating two different blocks of the Earth's crust. Such major faults remain seismically active over geological time." (McConnell, 2006 pages 16-17).

Web links: The Geophysics Section of the School of Cosmic Physics at the Dublin Institute of Advanced Studies website at <http://www.geophysics.dias.ie/> has information with regard to the national network of seismic stations. Images of historical earthquakes are given on the National Information Service for Earthquake Engineering (nisee) web pages on the University of California, Berkeley, website at http://nisee.berkeley.edu/jpg/8253_3202_2964/IMG0066.jpg. Some of the

presentations made at the Eurocean conference held in Galway in May 2004 were posted at www.eurocean2004.com.

5.3 Bedrock geology

This section is revised to avoid overlap with a 188-page interpretative guide to the bedrock geology of the South Wexford Coast (Hurley, 2005).

5.3.1 Overview

References to earlier reports

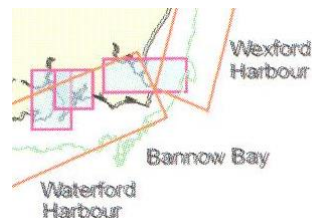
- Hurley, 1999 pages 22-23 gives details with regard to the boulder field at Carnsore Point.
- Hurley, 2000 pages 24-30 explores the origin of the placename 'Carnsore'.
- Hurley, 2001 page 17 gives further information on placenames (Giant's Grave and Kemp's Park).
- Hurley, 2002 page 19 gives some further information with regard to St. Vogue.
- Hurley, 2003 page 22 has a note with regard to the building stones used to construct St. Mary's, the parish church at Lady's Island.
- Hurley, 2004 page 22 updates with regard to the production of a seamless map in a Geographic Information System (GIS).
- Hurley, 2005 pages 22 and 23 updates with regard to (1) planning permission to retain the quarry at Ballyconnick, (2) a television documentary about Mars filmed at Hook Head in connection with Patrick Ganley, and (3) an exposure of gneiss on the lower shore at Ballygrangans.

Page link: Section 5.12.3 with regard to placenames. Section 6.3.6 refers to areas of landscape importance. Section 6.4.8 refers to the EU Water Framework Directive (WFD) with regard to groundwater.

Updates

Bedrock mapping. Work started in the GSI on a 1:50,000 scale map series and a pilot version for part of County Wexford was produced for evaluation (GSI, 2006 pages 5 and 20-21).

Seabed mapping. RV Celtic Voyager spent 45 days surveying off the east and south coast (see map), including data acquisition for the IMAGIN project supported by INTERREG and led by the Coastal and Marine Resource Centre at University College Cork (GSI, 2006 pages 5 and 20-21).



Web link: Geological Survey of Ireland (GSI) at <http://www.gsi.ie/> for its bedrock programme. The website of the Granite Research Group at the Geology Department NUI Cork is at <http://www.ucc.ie/>.

5.3.2 Interpretation

This section is revised to consolidate the various interest groups.

References to earlier reports

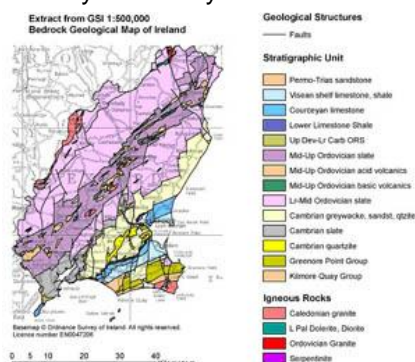
- Hurley, 2000 page 29 is the principal entry.
- Hurley, 2001 page 17 has a very brief update with regard to the GSI guide book and a longer update with regard to activities at the Hook Head visitor centre during 2000.
- Hurley, 2003 page 22-23 updates for 2001 and 2002 in the context of geoparks nationally.
- Hurley, 2005 pages 23-25 updates with regard to (1) a proposed interpretative guide to the geology of the South Wexford Coast, (2) a travelling 'Ireland's Geological Heritage' exhibition, (3) plans to exhibit information on the local geology at the Hook Head visitor centre, and (4) three factors that contribute to the variety of rock types found along the South Wexford Coast.
- Hurley, 2006 pages 26-27 has an addendum with regard to a GSI travelling exhibition and updates with regard to (1) GSI News, (2) a possible link between Hook Head and Mars, (3) GSI seamless mapping, and (4) a 188-page interpretative guide to the bedrock geology of the South Wexford Coast.

Updates

New maps. The first updated bedrock geology map of the island of Ireland since 1928 was launched jointly by the Geological Survey of Ireland and the Geological Survey of Northern Ireland (*The Irish Times*, issue dated 27 June 2006, page 2). The first map, Sheet 77 featured south-east Wexford, in the new 1:50,000 bedrock series was also produced.

Synopsis. In November, a geological synopsis of County Wexford was published (*Geology Matters*, Issue 5, Autumn 2006). The following is an extract.

"The geology of County Wexford is a record of more than 400 million years of the earth's 4,600 million year history. Some of the oldest rocks in Ireland are found in the Rosslare Complex in



the south east of the county (The Greenore Point and Kilmore Quay Groups are older than 620 million years). Some of the youngest rocks too are found in the southeast, the Permian to Triassic aged Killag Formation (Permo-Trias sandstone on map) date from some 250 million years ago. The bulk of the geology of the county comprises Ordovician slates and volcanics dating back to a vanished ocean bed, which was approximately 450 million year old. Overlying the Ordovician there is a succession of Devonian sandstones (ORS) passing up into Carboniferous Limestones and up into the Permo-Trias rocks. Fossil Localities: Hook Head, spectacular

fossil assemblages occur in the Carboniferous limestones.

Tintern Abbey, Co Wexford, is a Cistercian monastery, built on land bequeathed by William Marshall, Earl of Pembroke, in thanks for landing safely in Bannow Bay after being threatened with shipwreck in 1200. A red-coloured sandstone (Old Red Sandstone) containing large quartz pebbles was used for the quoins, or cornerstones, and carved work of the abbey. (Photo: Detail of the cornerstones where quartz pebbles can be seen).

Dundry stone from near Bristol was also used for carved detail and mouldings. The bedrock beneath the Abbey is known as the Booley Bay Formation, made up of grey to black mudstones with siltstones. The bedrock is buried beneath Quaternary deposits, and was not used in the construction of the main part of the Abbey. The masonry used for the castle is likely to have been brought in by boat from somewhere else along the coast."



Web link: The Geological Survey of Ireland (GSI) at <http://www.gsi.ie/> for its geological heritage programme. Its 1:100,000 series of bedrock geology maps may be accessed at http://193.178.1.182/website/gsi_multi/viewer.htm. Hook Head lighthouse website is at <http://www.hooklighthouse.com/>. County Wexford Partnership at <http://www.wexfordpartnership.ie/> for details of its work.

5.4 Minerals

References to earlier reports

- Hurley, 1997 page 23 refers specifically to the Lady's Island area.
- Hurley, 2000 page 31 refers to the South Wexford Coast in general, and the Barrystown Ore Body and the Duncormick Deposit in particular.
- Hurley, 2001 page 18 refers very briefly to the Barrystown Ore Body.

Web link: The Geological Survey of Ireland at <http://www.gsi.ie/> for its minerals programme.

5.5 Fossils

References to earlier reports

- Hurley, 1997 page 23 is the sole entry, is very brief and refers only to the Lady's Island Lake area.
- Hurley, 2003 page 23 has an addendum with regard to the destruction of fossils at Hook Head and a call for legislation to protect geological sites from the Royal Irish Academy's National Committee for Geology.

Addendum. A news feature carried by *The Sunday Times* was picked up by, and reported in, the local press [*Wexford Echo*, issue dated 7 April 1994 and *New Ross Standard*, issue dated 14 April 1994, page 10 (copy below)]. The removal of fossils again in 1998 was a matter of "grave concern" to members of the Hook Tourist Association (*New Ross Standard*, issue dated 23 December 1998, page 15).

Claim fossil thieves plundering the Hook

LARRY LARKIN

Staff Reporter

ACCORDING TO the Easter edition of *The Sunday Times*, thieves have stolen some of Ireland's most ancient treasure from Hook Head and have sold it for rich pickings.

While locals are unaware of the fossil-plundering, two of the prestigious paper's reporters - Ian Burrell and Cyril Dixon - say that a fossilised colony of anemone-like crinoids more than 300m years old have been

taken from Hook Head.

They claim that gangs of thieves, armed with dynamite, mechanical diggers and power tools, are scouring the countryside both here and in England for dinosaur fossils to rip up and sell on a booming international blackmarket.

They say that their prices have soared in the wake of the success of Jurassic Park, the Stephen Spielberg movie, which has promoted a sharp increase in the number of collectors.

In Britain, the Heritage Min-

ister, Iain Sproat, is to impose export controls on fossils in an attempt to curb an illegal international trade in remnants of the extinct.

Sproat decided to act after learning that delicate fossils, whose preservation in the earth's crust has revealed many of the secrets of evolution, climate and the environment, are being ruthlessly sold for thousands of pounds to international collectors in Canada, Germany, Japan and the USA.

At Easter, the report stated, police were investigating the theft of a 120m-year-old dinosaur footprint on the Isle of Wight. Last September, a bone from such a dinosaur disappeared from an archaeological site on the Island, while police also recovered an iguanodon print from a local resident on the Isle of Wight.

Down Hook Head way, however, no one seemed to realise that they were sitting, or standing, on a fortune.

Figure 2: Press cutting with regard to fossil collecting.

(*New Ross Standard*, issue dated 23 December 1998, page 15)

Web links: The Geological Survey of Ireland at <http://www.gsi.ie/>. Both <http://www.ukfossils.info/> and <http://www.discoveringfossils.info/> are aimed at fossil collectors in Britain.

5.6 Nearshore marine geology

References to earlier reports

- Hurley, 1997 page 23 introduces the topic (Note: Figure 18b is on page 98).
- Hurley, 1999 pages 24-26 gives data with regard to nearshore sediment transport off the Lady's Island Lake barrier.
- Hurley, 2000 page 32 mentions broad-scale seabed mapping of the national territory.
- Hurley, 2001 pages 18-22 gives information with regard to the generalised solid geology, sea bed sediments and four submarine fibre optics telecommunications cables on the South Wexford Coast.
- Hurley, 2005 page 25 updates with regard to coast protection works at Ballygrangans.

Page links: Section 5.10.1 with regard to nearshore water characteristics and coastal hydrography. Section 5.13 with regard to salinity in the nearshore sea. Section 9.6 with regard to bedform close to the barrier.

Web links: For its marine geology programme, see the websites of the Geological Survey of Ireland at <http://www.gsi.ie/>, <http://www.gsiseabed.ie/> and <http://www.eurogeosurveys.org/>. An inventory of submarine cables may be accessed at http://www.iscpc.org/cabledb/atlan_page.htm. The Department of the Marine website at www.dcmnr.gov.ie has details of foreshore leases granted.

5.7 Groundwater

This section covers the groundwater resource in general (Section 5.7), springs and drilled wells (Section 5.7.1), piped potable water (Section 5.7.2) and protection regulations (Section 5.7.3). Groundwater is an important component of water supplies and "groundwater bodies" are the management units of the River Basin District (RBD) projects currently being processed under the EU Water Framework Directive (WFD).

Page links: Section 6.4.8 with regard to the Water Framework Directive and Section 11.1 with regard to monitoring of groundwater quality.

5.7.1 Springs and drilled wells

References to earlier reports

- Hurley, 1997 page 24 refers to the Lady's Island area.
- Hurley, 2001 page 23 refers to Ballyhealy South, Kilmore.
- Hurley, 2006 page 28 updates with regard to a drilling rig working at Inish and Ballyteige Slob.

Update: The Geological Survey of Ireland (GSI) was consulted with regard to springs at the Saltee Islands. Caoimhe Hickey of the GSI's Groundwater Section replied as follows.

"Thank you for your enquiry on the 19th of February and the 23rd of January requesting groundwater information for the Saltee Islands, Co. Wexford. I do apologise for this not being dealt with before now. I thought somebody had got back to you about this. Unfortunately we have very little information for the Saltee Islands. As the Groundwater Protection Scheme has not been done for Co. Wexford, very little hydrogeological work has been carried out here. As can be seen from our website at http://193.178.1.182/website/gwps_multi/viewer.htm the aquifer classification (using national as map theme) for the Saltees is PI - which means it is a poorly productive bedrock aquifer (see <http://www.gsi.ie/workgsi/groundwater/gwpsfra.htm> for further information on this). We have no information at all in our well database of any springs or wells on the Islands at all, so you actually have more information than us. If you could send in the information you have to us, that would be great in keeping our databases up to date. As the islands are small the groundwater resources are expected to be minimal - which would explain why in dry periods the springs go dry (very low storage capacity due to short flow paths) and would also explain why they are drawing in sea water - especially if they are being pumped.

A hydrogeological company called O'Callaghan Moran carried out 'extreme vulnerability' mapping as part of the Water framework directive and the Islands are not classified as extreme

(see our website again for vulnerability categories), which means there must be sufficient subsoil thickness to protect the aquifer.

I hope this is some help to you and sorry we do not have any additional information. Hoping to hear from you soon, with the spring data. Please don't hesitate to contact me with any further queries."

Web link: The Geological Survey of Ireland at <http://www.gsi.ie/> for its groundwater programme. Data with regard to aquifer classification are at http://193.178.1.182/website/gwps_multi/viewer.htm and <http://www.gsi.ie/workgsi/groundwater/gwpsfra.htm>.

5.7.2 Piped potable water

Reference to earlier report

- Hurley, 1999 pages 27-28 gives the overview with regard to the Lady's Island area.
- Hurley, 2003 page 24 refers to the switch over in November 2002 of the water supply to the new water treatment plant at Mayglass.
- Hurley, 2004 page 25 updates with regard to charting pipe locations and the Mayglass Water Treatment Plant.
- Hurley, 2006 page 29 has an addendum with regard to groundwater abstraction and updates with regard to a pond at Petittstown, Ballycogley, and lime in the water at Mayglass.

Update. Wexford County Council installed a new water supply monitoring system (*New Ross Standard*, issue dated 7 June 2006, page 21).

New drive to improve water supply

WEXFORD County Council is introducing a new initiative to improve the reliability of the water supply in seven of the major water treatment plants in the county.

Once it is on stream it will enable the council to quickly react if a pump supplying a reservoir shuts down, and will monitor a variety of levels and parameters.

The contract, called SCADA-Telemetry, involves monitoring water supply parameters such as flow, pH, ammonia, nitrates, chlorine, reservoir levels and pumps.

The equipment will be provided by E.M.R., Dunboyne, County Meath in a new €860,000 contract, carried out under the Water Conservation Project.

Installation begins this month and will be completed in March, 2007. The contract documents were signed on Tuesday in the Council Chamber, County Hall, Wexford.

The equipment will alert Council staff to problems such as decreases in reservoir levels and fluctuations in water quality. This will radically improve the reaction time to water supply issues, thus ensuring a higher quality of service to the customer.

The water schemes included are Bunclody, Gorey, New Ross, Enniscorthy, Taylorstown (supplying Hook Head, Arthurstown, Wellingtonbridge, and parts of Kilmore Quay) and Kilmallock (supplying Curracloe, Blackwater and Castlebridge area).

Figure 3. Press cutting with regard to improved water supply.

(*New Ross Standard*, issue dated 7 June 2006, page 21)

Web links: The web pages of the Water Services section of Wexford County Council are at <http://www.wexford.ie/Water>. A map showing all the water schemes in County Wexford may be accessed at <http://www.wexford.ie/Water/images/waterSchemes.gif>.

5.7.3 Protection regulations

References to earlier reports

- Hurley, 2000 pages 32-33 gives the overview.
- Hurley, 2001 page 23 updates with regard to action taken by the EU Commission against Ireland.
- Hurley, 2004 page 26 updates with regard to continued breaches of the EU Groundwater Directive and a Groundwater Protection Scheme for County Wexford.

Page links: Section 6.4.8 with regard to the Water Framework Directive. Section 11.5.1 with regard to water pollution.

5.8 The glacial legacy

References to earlier reports

- Hurley, 1997 page 24 refers to glaciations in the Lady's Island Lake area.
- Hurley, 1999, page 29 gives an overview for the Irish Sea area.

Page link: Section 6.4.8 with regard to the Water Framework Directive (WFD) gives a physical description of the area.

Web link: The Geological Survey of Ireland at <http://www.gsi.ie/> for its quaternary programme; path The Work of the Survey / Survey Programme Areas / Quaternary.

5.9 Climate and Weather

This section gives climatological data for the synoptic meteorological station at Rosslare Harbour (Section 5.9.1), has notes with regard to on-going climate change (Section 5.9.2) and details some historical records of extremes of weather (Section 5.9.3).

5.9.1 Climatological data

References to earlier reports

- Hurley, 1997 page 25 gives the climatological characteristics of the study area. Summary 30-year average climatological data for the synoptic meteorological station at Rosslare Harbour are tabulated on page 26 for the period 1957-1980.
- Hurley, 2000 page 35 (Section 5.9.2) updates and page 34 tabulates climatological data for Rosslare Harbour for the period 1961-1990.
- Hurley, 2001 page 23 gives a brief addendum with regard to the synoptic meteorological station at Rosslare Harbour and an equally brief update with regard to ice on part of Lady's Island Lake in December 2000.
- Hurley, 2002 pages 22-25 updates with regard to weather data for Rosslare Harbour for the year 2000 both in annual summary and with monthly details.
- Hurley, 2003 pages 25-31 updates with regard to data for Rosslare Harbour for the years 2001 and 2002, and has details with regard to a lightning strike at Hook Head in June 2002.
- Hurley, 2004 pages 27-30 has a correction, a summary of the climate of Ireland from a biological perspective, and updates with regard to data for Rosslare Harbour for the year 2003.
- Hurley, 2005 pages 27-30 has an addendum with regard to the jet stream, and updates with regard to data for the M5 buoy and Rosslare Harbour for the year 2004.
- Hurley, 2006 pages 30-35 update with regard to sunshine at Rosslare Harbour, Nash Bridge, a reported waterspout, thirty-year monthly and annual mean and extreme values recorded at Rosslare Harbour for the period 1961-1990, the North Atlantic Oscillation, data for the M5 buoy for 2005, together with climatological data for Rosslare Harbour for the year 2005.

Page links: Section 5.10.1 refers to the characteristics of the inshore waters. Section 5.10.2 with regard to marine climatology. Section 5.14 with regard to soil-water relations. Section 5.35.2 refers to angling. Section 14.1.1 has a chart showing monthly rainfall data for Rosslare Harbour.

Updates

Mini-tornado. On 30 September and 1 October, a mini-tornado reportedly passed through south Wexford (*New Ross Standard*, issue dated 4 October 2006, page 2).

Maria **PEPPER**

A MINI-TORNADO passed through south Wexford last weekend shocking many local people.

The twister struck early on Saturday morning and there were sightings of it in many areas, including Bannow, Ballycullane, Saltmills and Ballyhack.

There were several reports of damage following the mini-tornado and at South East Vegetables in Bealístown, Ballycullane two new sheds which had just recently been erected were blown down with the force of the twister.

Noel Hayes, manager of South East Vegetables in Bealístown, Ballycullane, was in the yard of the premises on Saturday morning when the twister struck.

A shower of torrential rain was followed by the appearance of a dark cloud and suddenly, wooden pallets and sheets of galvanise were whipped up into the air.

Two new sheds which had just recently been erected were blown down with the force.

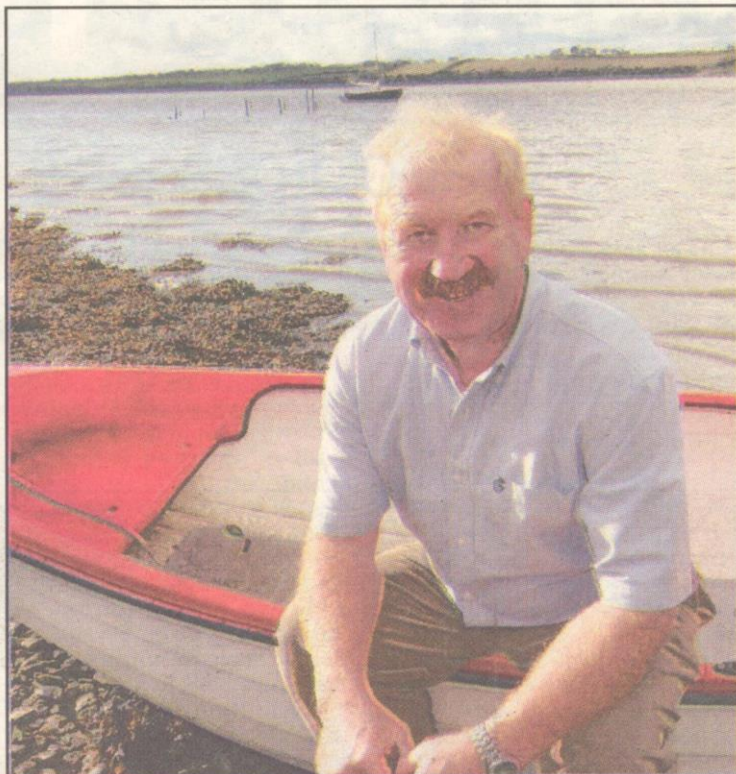
'The whole place darkened up and it got very noisy', said Noel. 'You could hear the rattling of all the stuff it was blowing around. It was scary'.

Noel got into the jeep and tried to move the vehicle but it wouldn't budge against the strength of the wind.

Meanwhile, Oliver Williams of Barrystown, Wellington-bridge got a perfect view of the twister from his boat in Bannow Estuary on Saturday morning.

He was sailing towards Tintern Bridge in Saltmills when he saw the mini-tornado over Saltmills shortly after 10 a.m.

'There was a very heavy shower of rain and when it stopped, everything went very dark. I saw a black cloud with a



■ Oliver Williams, who witnessed the twister from his boat.

funnel leading to it. It was revolving in a clockwise direction'.

'It was moving towards Tintern', said Oliver, adding that according to local lore, the last sighting of a tornado in the area was in Arthurstown about 40 years ago.

'When I saw it first, I thought someone was lighting a bonfire with tyres. Then I realised it was a tornado. I was only about half a mile from it', he said.

After the deluge of rain, the waves in the estuary died down and the water became very calm.

'It was quite a frightening thing. The vortex was substantial enough. I was out on the water and I was very exposed. I couldn't help thinking what would have happened if it had

come towards me'

Afterwards, Oliver heard reports of damage to premises around the area although he was surprised that more damage wasn't caused.

Twisters or mini-tornadoes are not as unusual an occurrence in Ireland as people think, according to a spokesman at the Meteorological Office.

However, from the description given by local people, the twister in south Wexford last Saturday, was about 'as bad as it gets in Ireland', he said.

Irish twisters usually happen when heavy rain conditions develop into thunder storms which can become very intense.

The most recent Irish report of a twister was in Sligo on September 23.

Temperature anomalies. December 2006 was the warmest December since global surface records began in 1880 for combined global land and ocean surface temperatures, with an overall value of 0.74°C above normal for the 1961-1990 period. The previous warmest December was in 2003 (Source: *Monthly Weather Bulletin* No 248, page 2; charts: NOAA/NCDC, U.S. Department of Commerce). Global temperature anomalies were in the range -5°C to +5°C with respect to the 1961-1990 base period. From the chart, the anomaly for south-east Ireland appears to be +2°C.

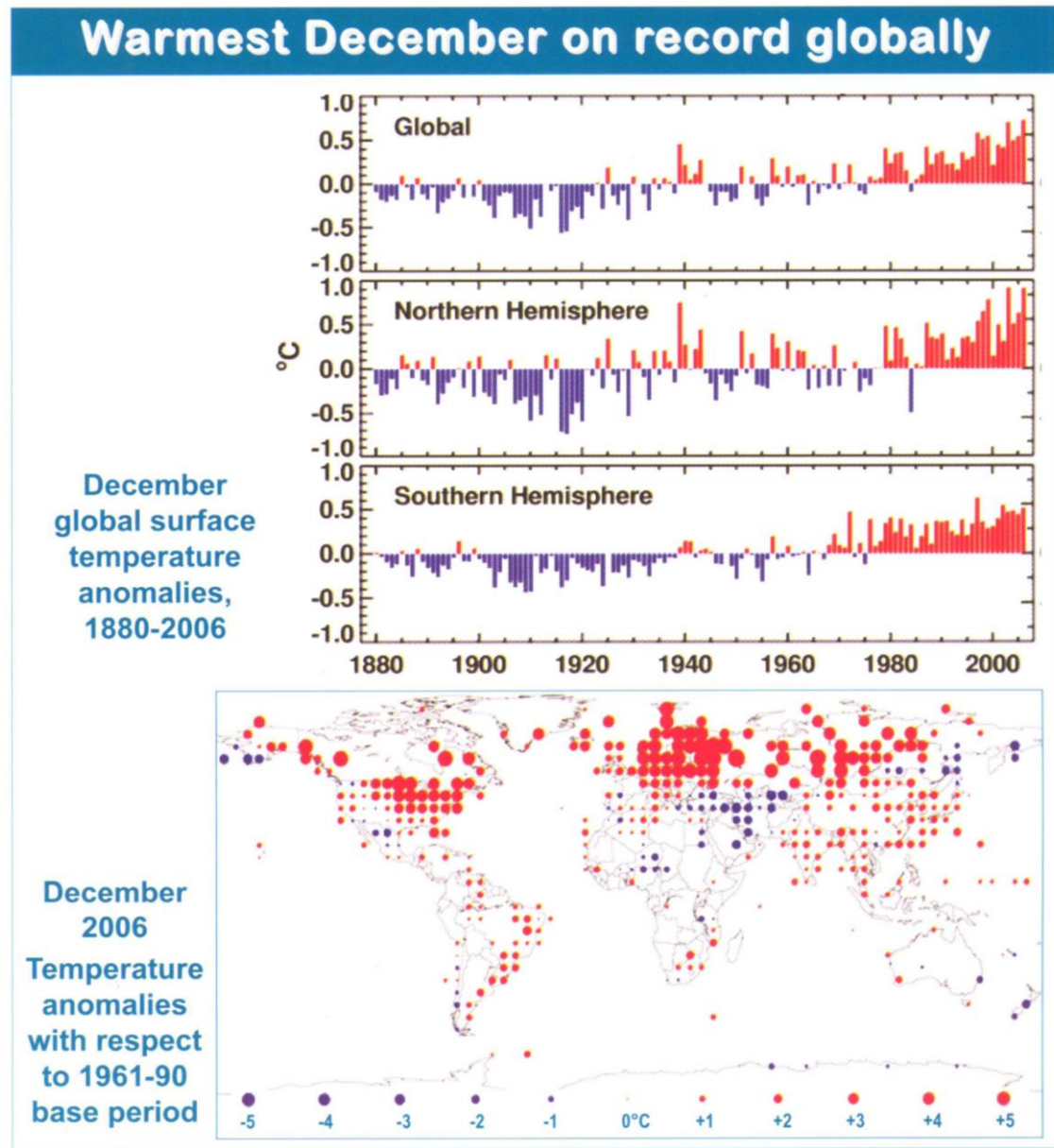


Figure 4. Charts with regard to temperature anomalies.

(Source: *Monthly Weather Bulletin* No 248, page 2; charts)

Weather in Wexford. On 1 November 2006 Brendan McWilliams delivered the Dr George Hadden Memorial Lecture for the Wexford Historical Society; his lecture title was 'Weather in Wexford'. Points made by him were as follows.

- The Little Ice Age occurred in the period 1350-1850.

- The winter of 1739/1740 was the worst winter in Ireland. It was the year of The Great Frost. The harsh weather continued into 1740 with drought causing the Forgotten Famine.
- 6/7 January 1839 was The Night of the Big Wind. The *Tuam Herald* carried a review of the impact around the country and reported that the storm was not too severe in County Wexford (*Tuam Herald*, issue dated 19 January 1839).
- The period 1860-1940 brought a rise in mean temperature followed by a fall in the period 1940-1970 followed by a rise again since then. The rise in mean temperature since 1970 is attributed to the impact of global warming.
- Most weather systems tend to track across Ireland from the southwest to the northeast. This, together with the distribution of mountains along the western seaboard tends to concentrate wet and windy weather in the west and northwest with a gradient of improvement extending towards the southeast implying that the South Wexford Coast enjoys the most favourable weather in the country.
- The impact of global warming on Ireland is predicted to bring wetter winters to the west and northwest but not so much to the southeast. Summers in the southeast are likely to be drier with more droughts due to a decrease of perhaps up to 10% in summer rainfall. Overall, the main impact of global warming on the southeast is likely to be an increase in the frequency of extreme events. The predicted rise in sea level may not in itself pose a problem; the problem will be the increased vulnerability of low-lying coastal areas to flooding due to the combination of elevated sea level and the possibility of astronomical forcings coinciding with extreme events of increased frequency.
- The Stern report says nothing new about global warming; rather it is the first time that concerns about global warming was put in an economic context.

Buoy M5: Records for 2006 for marine weather buoy M5 are set out below (Table 2).

Parameter by Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea surface temp. (°C)	9.9	9.1	8.8	9.5	11.3	13.3	16.6	15.6	15.5	14.9	13.5	11.7
Mean wind speed (knots)	16.8	17.5	18.7	14.5	14.8	11.4	12.0	13.0	14.2	16.3	18.5	20.4
Max. wind speed (knots)	32	35	32	28	31	34	29	24	37	38	40	43
Mean wave height (m)	1.6	1.6	1.9	1.0	1.4	1.8	1.2	1.2	2.0	2.0	2.4	3.2
Max wave height (m)	4.2	3.9	4.0	3.2	4.1	7.5	4.3	2.6	5.2	7.1	7.9	8.1

Table 2: Marine weather data for 2006 from the M5 buoy.

(Source: *Monthly Weather Bulletin* Nos 237-248, page 5)

Potential Evapotranspiration. Values for Rosslare Harbour were first reported in January 2006. The values are totals for the month in millimetres using the Penman formula.

PE	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	12	26	35	70	79	111	115	84	54	26	13	8

Table 3: Potential Evapotranspiration (PE) at Rosslare Harbour.

(Source: *Monthly Weather Bulletin* Nos 237-248, page 7)

Climatological data: Data for Rosslare Harbour for the years 2000-2006 are summarised below (Table 4) together with 30-year averages for the period 1961-1990. Also detailed are weather data, by month, for 2006 (Table 5).

Parameter with value by year	Avrg	2000	2001	2002	2003	2004	2005	2006
Total rainfall (mm)	877.1	1066.6	869.1	1241.1	889.6	878.8	853.5	904.5
% of average rainfall	100	122	99	142	101	99	97	102
Most rain in a day (mm)	79.1	37.6	46.6	80.0	41.5	44.7	51.6	32.3
Date of most rainfall	July	7 Dec	7 Oct	24 Oct	2 May	22 Oct	24 Jul	15 Nov
Mean temperature (°C)	10.1	10.7	10.8	11.3	11.3	11.2	11.2	11.4
Difference from average	0.0	+0.6	+0.7	+1.2	+1.2	+1.0	+1.1	+1.3
Highest temperature (°C)	26.2	23.9	23.7	22.9	24.9	25.5	22.5	23.3
Lowest temperature (°C)	-4.4	-1.7	-1.4	0.4	-0.5	-3.3	0.0	-2.3
Daily mean sunshine (hours)	4.33	4.72	4.84	4.37	5.18	4.87	4.43	4.85
% of average sunshine	100	109	112	101	120	109	102	108
Most sunshine in a day (hours)	15.9	14.9	14.8	15.2	15.5	15.6	15.6	15.5
Date of most sunshine	July	21 Jul	1 Jul	5 Jun	24 Jun	14 Jun	11 Jul	2 Jun
Number of days with rain	176	214	195	215	162	165	183	168
Number of days with snow	10.7	1	3	0	1	3	8	3
Number of days with air frost	8.0	5	5	0	3	6	0	5
Number of days with hail	11.8	6	5	4	9	8	12	6
Number of days with thunder	6.7	5	6	3	6	4	4	7
Number of days with fog	38.5	35	46	39	33	29	27	25
Number of days with gale gusts		60	84	116	104	108	107	113

Table 4: The weather at Rosslare Harbour, 2000-2006.

[Source: <http://www.met.ie/climate/rosslare.asp> for 30-year average for the period 1961-1990, and, for annual updates, Met Éireann's *Monthly Weather Bulletin* No 176, page 13 (2000); No 188, page 16 (2001); No 200, page 16 (2002); No 212, page 16 (2003); No 224, page 16 (2004); No 236 page 16; and No 248 page 16.]

Notes on Table 5 below (with references to both the issue number and the page number in Met Éireann's *Monthly Weather Bulletin*).

a Driest April since 1980 (No 240, page 10).

Web link: Met Éireann website at <http://www.met.ie/> for an overview of the climate of Ireland and climatological data for Rosslare Harbour (monthly data for rainfall and temperature together with 30-year averages for the period 1961-1990).

Parameter by month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature												
Mean maximum (°C)	8.9	8.3	8.9	12.1	14.2	17.7	19.6	18.9	18.2	15.6	12.3	10.4
Mean minimum (°C)	5.0	4.8	4.4	6.4	8.8	12.3	14.2	13.1	14.0	11.1	7.0	6.2
Mean (°C)	7.0	6.6	6.7	9.3	11.5	15.0	17.0	16.0	16.1	13.4	9.7	8.3
Deviation from 1961-1990 average	0.9	0.7	-0.2	0.9	0.9	1.7	1.9	0.8	2.4	1.9	1.4	1.3
Highest maximum (°C)	12.7	11.0	13.5	15.4	18.8	22.0	23.3	23.0	21.0	17.3	14.4	13.2
Date of highest maximum (°C)	18 th	15 th	8 th	25 th	12 th	4 th	19 th	5 th	2 nd	6 th	7 th	4 th
Lowest minimum (°C)	1.4	2.1	-2.3	1.9	4.0	9.1	11.0	9.4	10.1	6.9	3.1	2.5
Date of lowest minimum (°C)	9 th	10 th	2 nd	8 th 10 th	23 rd	1 st	11 th	30 th	16 th	24 th	19 th	16 th
Lowest grass minimum (°C)	-4.9	-3.5	-4.6	-0.5	0.6	6.2	7.5	7.2	4.1	2.0	0.0	-1.9
Date of lowest grass minimum (°C)	9 th	18 th	1 st	10 th	23 rd	6 th	17 th	30 th	16 th	10 th	19 th	23 rd
Rainfall												
Total amount (mm)	42.4	39.5	106.2	20.9 ^a	108.3	17.1	49.2	67.2	83.1	111.9	117.2	141.5
% of average	45	56	159	37	197	34	96	95	115	118	120	144
Most in a day (mm)	12.7	12.9	18.4	5.8	19.3	7.1	26.1	19.0	16.7	22.8	22.8	22.7
ditto: date of	9 th	13 th	26 th	8 th	7 th	11 th	3 rd	15 th	30 th	25 th	15 th	2 nd
Sunshine												
Daily mean (hours)	1.83	2.71	3.15	6.74	5.76	8.19	9.12	5.88	5.31	3.67	3.61	2.15
% of average	95	110	81	118	84	125	145	100	111	113	145	123
% of possible	22	27	26	49	37	49	56	40	42	34	41	28
Most in a day (hours)	7.6	8.5	10.3	12.7	15.0	15.5	15.2	13.1	12.2	9.8	8.6	6.6
ditto: date of	29 th	28 th	10 th	27 th 28 th	31 st	2 nd	17 th	7 th	7 th	9 th	4 th	16 th
Number of days with												
Rain (i.e., >0.2mm per day)	10	10	18	10	21	10	6	11	16	15	19	19
Wet (i.e., >1mm per day)	9	6	16	6	19	3	5	9	13	13	13	17
Air frost	0	0	5	0	0	0	0	0	0	0	0	0
Ground frost	4	4	7	2	0	0	0	0	0	0	0	4
Snow	0	1	2	0	0	0	0	0	0	0	0	0

... / continued

Snow lying	0	0	0	0	0	0	0	0	0	0	0	0
Hail	1	1	2	1	0	0	0	0	0	0	0	1
Thunder	0	0	0	1	0	0	3	1	1	0	1	0
Fog	2	0	4	2	4	2	2	1	2	3	1	2
Mean soil temperature (°C) at 0900 hours UTC												
at a depth of 10 cm	5.5	5.1	5.5	9.4	12.4	17.6	19.1	16.9	15.7	12.2	7.8	6.7
at a depth of 20 cm	6.3	5.9	6.2	9.4	12.2	16.9	18.6	17.0	15.9	13.0	8.8	7.5
at a depth of 30 cm	7.7	7.5	7.6	10.4	13.2	16.8	18.2	17.5	16.5	14.0	9.9	8.1
Wind												
Mean speed (knots)	10.5	12.3	12.1	9.2	10.1	8.3	9.0	9.3	10.5	10.2	10.7	12.8
Maximum 10-minute mean direction (°)	190	040	050	030 040	200	200	030	030	150	210	200 190	190
Maximum 10-minute mean speed (knots)	30	37	27	28 28	28	29	25	24	33	28	35 35	40
Date and hour of the maximum 10-minute mean direction and speed	12 th 10	25 th 16	18 th 14	4 th 18 8 th 18	18 th 12	20 th 13	3 rd 12	17 th 12	21 st 20	21 st 20	19 th 19 30 th 16	3 rd 01
Maximum gust direction (°)	190	200	170	200 230	200	210	200 240	220	150	190	190	190
Maximum gust speed (knots)	47	48	46	41 41	47	41	41 41	34	59	48	63	64
Date and time of the maximum gust direction and gust speed	12 th 0810	14 th 2051	13 th 1319	1 st 1349 2 nd 0703	18 th 1410	20 th 1545	8 th 1747 9 th 0858	31 st 0130	21 st 1906	21 st 1906	30 th 1532	2 nd 2346
Number of days with gales	0	4	0	0	0	0	0	0	0	0	2	2
Number of days with gale gusts	10	13	16	8	10	2	4	1	9	9	15	16
Number of hours with gale gusts	92	140	152	43	69	11	16	1	53	51	105	229

Table 5: Monthly weather data for 2006 for Rosslare Harbour.

(Source: Tables in Met Éireann's *Monthly Weather Bulletin*, Nos 237-248)

See above for Notes on this Table.

5.9.2 Climate change

References to earlier reports

- Hurley, 1997 page 25 (last two paragraphs) gives the overview.
- Hurley, 1998 page 18 gives a correction of a spelling error.
- Hurley, 2000 pages 35-36 has updates with regard to the anticipated level and possible impacts of global warming.
- Hurley, 2001 page 24 has updates with regard to the Kyoto protocol and increased storminess.
- Hurley, 2002 pages 26-27 deals with global temperature rise, global sea level change, impacts of these global events on Ireland, the Kyoto protocol and nature conservation. Ballyteige Burrow is mentioned as a case study site.
- Hurley, 2003 pages 32-33 updates with regard to the main global conclusions of the Third Assessment Report (2001) of the IPCC, impacts on Ireland and the Kyoto protocol.
- Hurley, 2004 page 31 updates with regard to global land and ocean temperature anomalies, breeding birds, a report with regard to climate change in Ireland, the National Climate Change Strategy, and the Kyoto protocol.
- Hurley, 2005 page 31 updates with regard to (1) the most recent state of the environment report; (2) the abandonment of plans to introduce a carbon tax, and (3) an estimate of anticipated a rise in sea level.
- Hurley, 2006 page 36 updates with regard to both the Kyoto Protocol and Ireland's place in global predictions with regard to climate change.

Page links: Section 5.1.1 with regard to a description of the South Wexford Coast. Section 6.2.6 with regard to the Climate Change Convention. Section 8 with regard to water level inside the barrier and Section 9.2 with regard to water level outside the barrier. Section 17.5 refers to Integrated Coastal Zone Management (ICZM). Section 17.17.2 mentions savings on CO₂ emissions made at the ESB wind farm at Carnsore Point.

Update

Marine environment. Predictions of climate-induced impacts on Ireland's marine environment stem from the following assumptions (Boelens *et al.*, 2005 page 1).

- Global warming, driven primarily by emissions of carbon dioxide (CO₂) to the atmosphere, will continue;
- Temperatures on land by 2055 will show increases up to 1.5°C in winter and 2.0°C in summer;
- A change in average rainfall by 2055 of +10% in winter and -10% to -40% in summer (greatest decrease in the south-east);
- An increase in sea levels similar to the global mean prediction of 0.49 ±0.08m by the end of the century; and
- An increase in the number of extreme events (e.g. more intense storms, hotter summers).

Web links: The Government's National Climate Change Strategy (November 2000) and the Progress Report (June 2002) on its implementation are available at <http://www.environ.ie> (Publications/Environment Division/Air Quality/Climate Change Section). Copies of both the summary and the full MONARCH reports are available on the UPCIP website at <http://www.ukcip.org.uk>. A copy of the report *Scenarios for Climate Change for Islands within the British Irish Council (BIC) Region* may be accessed at <http://www.metoffice.com/>. For news of global climate change issues and links to other Internet websites see the portal <http://www.climateark.org/>. The web pages of the Climate Research Unit (CRU) at the University of East Anglia (UEA) are at <http://www.cru.uea.ac.uk/>. The Boelens *et al.*, 2005 report is at <http://www.marine.ie/NR/rdonlyres/113A2AB9-1A83-4E91-B256-A3BDE5DE19D1/0/ClimateChangeImplications.pdf>.

5.9.3 Extremes of weather

5.10 Coastal hydrography

5.10.1 Characteristics of the inshore waters

References to earlier reports

- Hurley, 1997 page 27, first and second paragraphs introduce the topic.
- Hurley, 2000 page 36 has some data with regard to sea temperatures and marine research buoys.
- Hurley, 2001 pages 24-25 refers to the Celtic Sea Front with a map.
- Hurley, 2004 page 32 updates with regard to the Celtic Sea Front.
- Hurley, 2005 page 32 has an addendum with regard to the Nymph Bank and the East Bank.

Page links: Section 5.6 with regard to nearshore marine geology. Section 5.9.1 with regard to weather data from marine buoys, Section 5.10.2 with regard to marine climatology, Section 5.13 with regard to salinity, Section 5.15.3 with regard to algal blooms, Section 5.20.5 with regard to drift seeds, and Section 9.2 with regard to oceanic and coastal water parameters.

5.10.2 Marine climatology

Reference to earlier report

- Hurley, 2001 pages 25-26 gives the overview very briefly.
- Hurley, 2004 page 32 has an addendum with regard to four waterspouts seen off the Saltee Islands and an update with regard to the M5 buoy.

Page links: Section 5.9.1 with regard to climatological data for Rosslare Harbour and marine weather buoy M5. Section 5.10.1 with regard to the characteristics of the inshore waters. Section 9.2 with regard to water level outside the barrier.

Web links: The Met Éireann website at <http://www.met.ie/> gives details with regard to the role of the Marine Unit in the areas of forecasting and climatology in Irish coastal waters. The Marine Institute website at <http://www.marine.ie/> describes the marine research buoys that collect and transmit data for use in weather forecasting, shipping bulletins and gale and swell warning.

5.11 The barrier

5.11.1 Overview

References to earlier reports

- Hurley, 1997 pages 27-28 introduces three barriers, describes the associated groynes, embayments and sediment compartments and defines the boundaries of the South Wexford Coast.
- Hurley, 1998 page 18 clarifies a point with regard to the length of a barrier.
- Hurley, 2000 page 37 gives additional detail with regard to defines the boundaries of the South Wexford Coast.

Page links: Section 5.1.1 gives a description of the report area.

5.11.2 Structure of the barrier

References to earlier reports

- Hurley, 1997 pages 28-29 gives the overview.
- Hurley, 1999 page 30 refers to grain size.
- Hurley, 2000 pages 39-40 also refers to particle size and source.

5.11.3 Origin of the barrier

Reference to earlier report

- Hurley, 1997 pages 29 is the sole reference.

5.11.4 Transgressive nature of the barrier

References to earlier reports

- Hurley, 1997 pages 29-30 is the primary reference. It explains the transgressive nature of the barrier.
- Hurley, 1999 page 30 provides an update with regard to the retreat rate of the barrier.

Addendum

Overwashing and overtopping. The differences between these two processes are described as follows in the online *Dictionary of Physical Geography* (David *et al.*, 2000) retrieved from <http://www.credoreference.com/entry/bkphsgeo/overtopping> via the Wexford Public Library Service.

Overwashing is the process by which storm-generated swash flows transport beach face sediment over the top of the beach ridge and deposit it on the back slope. The definition of a coastal barrier is that it should exhibit some form of landward-dipping back slope; therefore overwash should be recognized as a major contributor to the creation and renewal of the back slope of a barrier. Overwash is regarded as a dominant process by which sand barrier islands are generated (with aeolian deposition as a co-dominant process; Leatherman 1976). Transport is often constrained sufficiently to cut through the crest via an overwash throat. Back slope deposition often occurs in the form of discrete washover fans, but washover can occur along a broad front parallel to the barrier crest. This has been described as the result of sluicing overwash (Orford and Carter 1982) and leaves no obvious sign of overwash throats. Note that 'overwash' is the process and 'washover' the sedimentary result. Fan volume generally correlates with the height of the breaking wave (controlled for sediment size). Some washover fans may exhibit a longshore periodicity. Spatially periodic overwash has been related to the presence of transverse or edge waves (prestorm or during the storm) influencing the morphology of the beach (Orford and Carter 1984). In particular, high-level periodic cusps on the beach (formed by edge wave interaction) channel and spatially constrain overwash, hence imparting the same periodicity to washover fans. The reflective nature of gravel-dominated barriers tends to increase the likelihood of periodic fans, whereas the dissipative nature of low angle sand barriers militates against periodic overwash flows. Continual overwashing erodes a barrier's seaward side and extends the landward side. Over time, a barrier appears to be rolling onshore as sediment on the backslope is buried by subsequent overwash and eventually exhumed on the seaward barrier slope as the form of the barrier gradually retreats over its washover foundation. Overwash works towards a reduction of barrier height. The counter process which builds up the barrier crest is known as barrier overtopping.

Overtopping is the process by which coastal barrier crests are built up as swash flows, of insufficient magnitude to reach across the crest and cause overwash, terminate on top of the crest. Sediment carried in overtopping flows is deposited at the swash limit and hence increments the barrier crest height. There should be a relationship between barrier crest height and the return period of storms generating the swash flows. Any increase in storm return period would be associated with a reduction in barrier crest height as increasing wave height would generate flows capable of forming overwash down the back of the barrier eroding material from the crest in the process. Therefore, overtopping is part of a continuum of cross-barrier flow types, merging into overwash as the magnitude of the flow increases (Orford and Carter 1982). The balance between overtopping and overwashing controls the instability and migration of gravel barriers, whereas on sand barriers aeolian deposition is a more effective control on barrier crestal elevation than wave-generated overtopping.

Update. On 20 February 2006, Jim Hurley noted a deposit at S 948 050 on the upper foreshore at Ballyteige Burrow that appeared to be similar to fragments of lagoon bed seen at Lady's Island Lake emerging on the beach face from under the transgressive barrier.

5.11.5 Impacts of the barrier

References to earlier reports

- Hurley, 1997 page 30 refers to the impact of the barrier on water level in the back-barrier lagoon and the importance of the barrier/lagoon system as an ecosystem.
- Hurley, 1998 page 18 provides a very brief update.

Page links: Section 1 with regard to nature conservation and Sections 7 and 9.2 with regard to water level inside and outside the barrier respectively.

5.11.6 Coastal erosion and protection

References to earlier reports

- Hurley, 2001 page 26 suggests that the transgressive nature of the barrier coastline may be interpreted as a form of coast erosion.
- Hurley, 2002 page 29 mentions accretion and land reclamation at Kilmore Quay.
- Hurley, 2005 page 38 updates with regard to a report on coastal erosion on the South Wexford Coast.

Page link: Section 9.5 refers to the submarine bedform.

Addendum. Changes in beach level at Ballyhealy during 1993-1994 are shown below (Figure 5) (Hurley, 1994 Appendix 6.6).

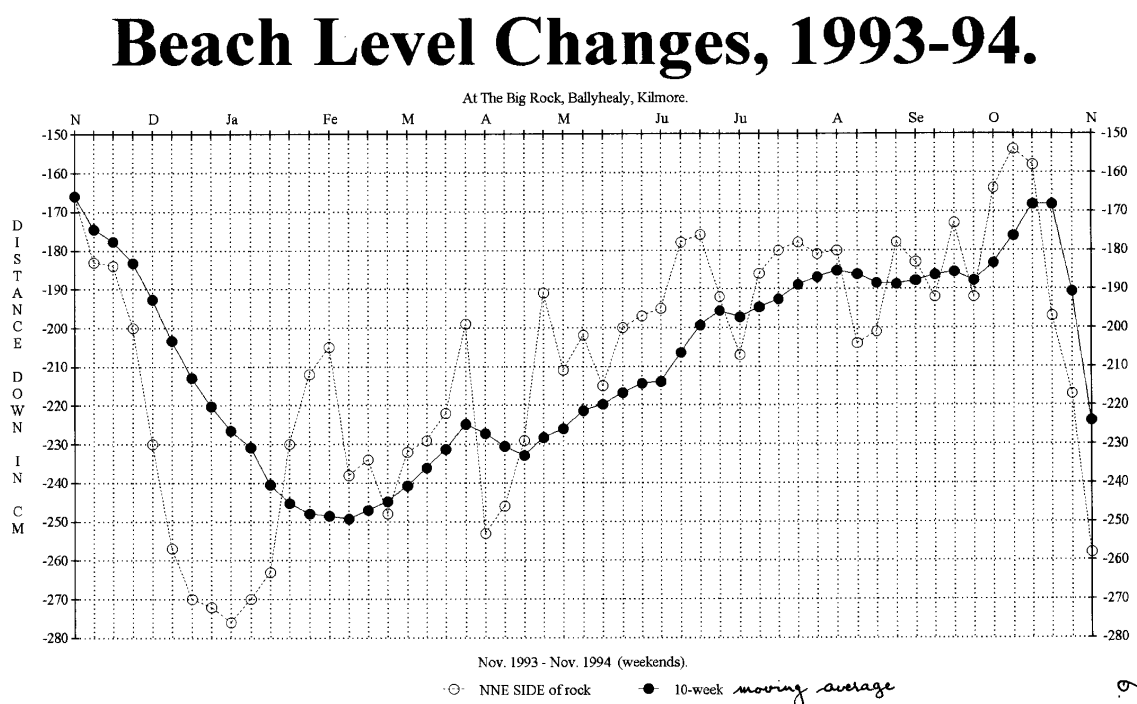


Figure 5: Beach level changes at Ballyhealy, 1993-1994.

(Source: Hurley, 1994 Appendix 6.6)

Web link: The *Maritime Boundaries (County of Wexford) (No. 2) Order, 1999* may be accessed at <http://www.irishstatutebooks.ie/ZZS145Y1999.html>.

5.12 Geomorphology

5.12.1 Description of the lagoon

References to earlier reports

- Hurley, 1997 pages 30-31 (Section 5.12) gives a basic description of the lagoon. Page 32 (Section 5.12.6) gives some further detail with regard to the extent of the wetland.
- Hurley, 1999 page 31 (Section 5.12) places the lagoon in context of the national inventory of such habitat types and gives an independent site description. Pages 34-35 (Section 5.12.6) describe water depths.
- Hurley, 2000 page 41 (Section 5.12) and page 42 (Section 5.12.6) gives some details with regard to the extent of the lagoon as defined by the Special Protection Area (SPA) classification.
- Hurley, 2001 pages 26-27 describes Lady's Island Lake as an 'isolated lagoon' under the JNCC classification of lagoon types found in the UK.
- Hurley, 2203 page 35 updates with regard to a hydrological survey of the lagoons at Lady's Island and Tacumshin conducted in the spring of 2002.
- Hurley, 2204 pages 34-35 updates descriptions of the lagoons at Lady's Island Lake and Tacumshin Lake.

Page link: Section 5.21 with regard to the invertebrate fauna of the lagoon.

Web links: The JNCC website gives a classification of lagoon types at <http://www.jncc.gov.uk/Publications/JNCC312/habitat.asp?FeatureIntCode=1150>.

5.12.2 Origin of the lagoon

References to earlier reports

- Hurley, 1997 page 31 suggests the probable origin of the lagoon.
- Hurley, 1999 pages 32-33 gives an update and refers to probable ancient shorelines.

5.12.3 Origin of the placename

References to earlier reports

- Hurley, 1997 pages 31-32 introduces the topic.
- Hurley, 1998 page 19 gives a brief addendum.
- Hurley, 1999 page 34 gives a further brief addendum.
- Hurley, 2000 pages 41-42 details centres of worship at Carnsore Point.
- Hurley, 2001 page 27 develops points with regard to worship at Carnsore Point.
- Hurley, 2005 page 34-35 update with regard to the name 'Cluain na mBan' and placenames in south Wexford in general.

5.12.4 Islands in the lagoon

Reference to earlier report

- Hurley, 1997 pages 32-33, together with the map on page 34, is the sole reference.

5.12.5 Associated wetlands

Reference to earlier report

- Hurley, 1997 page 33 is the sole reference.

5.13 Salinity

References to earlier reports

- Hurley, 1997 pages 36-37 is the primary reference and gives an overview.
- Hurley, 1998 page 19 gives some further data.
- Hurley, 1999 pages 36-37 gives EPA field data for 29 April 1998.
- Hurley, 2000 pages 42-43 summarises EPA field data for the period 1990-1998 and refers to salinity in the near-shore sea.

- Hurley, 2001 page 30 has a correction with regard to a date.
- Hurley, 2005 pages 35-36 with regard to weekly monitoring, May-October 2004.

Page link: Section 5.6 with regard to nearshore marine geology. Section 5.10.1 with regard to coastal hydrography, the characteristics of the inshore waters and the Celtic Sea Front. Also, Section 9.3 with regard to tides and marine chemistry and the Celtic Sea Front.

5.14 Soils

References to earlier reports

- Hurley, 1997 page 38 describes, with a map, the soil series found in the study area.
- Hurley, 1999 page 38 describes soil-water relations with a chart on page 39. Page 40 quantifies the pollution run-off risk.
- Hurley, 2000 page 43 quantifies annual sulphur inputs.
- Hurley, 2001 pages 27-28 refers very briefly to soil parent materials.
- Hurley, 2002 page 30 has an addendum with regard to less severely disadvantaged on the South Wexford Coast.
- Hurley, 2003 page 36 has a further addendum with regard to less severely disadvantaged on the South Wexford Coast.

Page link: Section 5.9.1 with regard to climatological data for Rosslare Harbour.

Update. A national baseline database of soil geochemistry was established (*The Irish Times*, issue dated 6 December 2006, page 5; copy attached).

Web links: Great Soil Groups in Ireland are mapped in colour on the Teagasc website at http://www.teagasc.ie/johnstowncastle/research/qt_soil_gr.htm.

5.15 Kingdom Algae

5.15.1 Introduction to the group

References to earlier reports

- Hurley, 1999 page 118, Section 11.16 introduces the group and gives some information with regard to three groups of planktonic algae: diatoms, green algae and cyanobacteria.
- Hurley, 2000 page 126 has an update with regard to toxins produced by cyanobacteria.
- Hurley, 2003 page 36 has an addendum with regard to the extent of the stonewort flora.
- Hurley, 2005 page 37 updates with regard to Foxtail Stonewort *Lamprothamnium papulosum* being a lagoonal specialist.

Page link: Section 5.10.1 with regard to the characteristics of the inshore waters. References to stoneworts or charophytes are also made under seed plants, Section 5.20.

Web links: An introduction to the world of algae is given at <http://www.botany.uwc.ac.za/algae/>. The European Register of Marine Species (ERMS) has checklists for browsing at <http://erms.biol.soton.ac.uk/>

Soil data to clarify effects of global warming

SEÁN MAC CONNELL,
AGRICULTURE CORRESPONDENT

A national baseline database of soil geochemistry has been established in Ireland for the first time and will help scientists understand the impact of global warming.

It includes maps of well-known elements like potassium, phosphorous and magnesium, as well as less-known elements like gallium, tungsten and vanadium.

The database project was conducted by Johnstown Castle in association with NUI Galway and Sligo IT, and part-funded by the Environmental Protection Agency (EPA), to develop a national baseline database for soils geochemistry in Ireland.

The study also looked at the microbial population of soils and could be used as a database on which future studies on the effects of global warming can be measured. The study also developed a national soil archive, comprising soil samples and a nucleic acids archive, valuable resources for soil research in Ireland.

Dr Deirdre Fay of Teagasc Johnstown Castle Environment Research Centre, who led the team which carried out this work, said 1,310 soil samples were collected and subjected to chemical and microbiological analyses.

"We have generated a national baseline database of soil geochemistry, as well as a nucleic acids archive. The data were evaluated and interpreted with respect to geology, glacial history and soil types of Ireland," she said.

"The National Soil Database will provide a starting point of reference in underpinning Ireland's response to European directives. While the implementation of agricultural and environmental legislation is critical in achieving the sustainable management of soil, the benefits of disseminating the findings cannot be over emphasised," she added.

but the web site has not being updated since 29 October 2002 pending the outcome of the ENBI project negotiations. The AlgaeBase searchable database of species is at <http://www.algaebase.org/>.

5.15.2 Algal blooms in the lagoon

References to earlier reports

- Hurley, 1997 page 38 mentions the topic.
- Hurley, 1999 pages 118-119 gives results of sampling.
- Hurley, 2003 page 37 has an addendum with regard to the extent of the desmid flora.

Page link: Section 11.2.1 with regard to the results of water quality monitoring.

5.15.3 Algal blooms in the sea

References to earlier reports

- Hurley, 1997 page 38 mentions a bloom of planktonic algae outside the barrier on 7 February 1995.
- Hurley, 1999 page 40 refers to the mapping of regularly occurring blooms.
- Hurley, 2000 pages 44-45 highlights the importance of the Celtic Sea Front with regard to algal blooms and lists records of blooms.
- Hurley, 2001 page 28 has a brief addendum with some more detail with regard to the Celtic Sea Front.
- Hurley, 2002 page 31 adds that the bloom mentioned in Hurley, 1997 page 38 extended from Bastardstown to Carnsore Point and updates that *Gyrodinium aureolum* is now known as *Karenia mikimotoi*.
- Hurley, 2003 page 37 has an addendum with regard to the extent of the marine phytoplankton flora.
- Hurley, 2005 page 38 updates with regard to a *Phaeocystis* bloom at Cullenstown in May 2004 and two incidents of bioluminescence.
- Hurley, 2006 page 41 updates with regard to *Karenia mikimotoi*.

Page link: Section 5.10.1 with regard to the Celtic Sea Front.

Addendum. In 1994, Jim Hurley sent the following report to Dr. Terry Mac Mahon. On Friday 26 August 1994, Mr Dermot Browne, Cullenstown, Duncormick, telephone (051) 6 13 41, reported to me that there was an exceptionally high incidence of dead lugworms at the Cockle Strand (the extreme south-eastern corner of Bannow Bay; map attached). I visited the site at low water on Monday 29 August 1994 and walked the route marked on the attached map from 7.50pm to 8.45pm BST. The entire area of exposed sand flat, with some patched of soft mud, was remarkable in that it was almost devoid of casts of the lugworm *Arenicola* sp. There were several thousands of lugworms slowly writhing in the tide pools as if they were dying (from my local knowledge it is very rare to see lugworms exposed in the pools and the area is usually rich in casts). A local man, Mr Dan Corcoran, was digging bait. He said the death of the lugworms was first noted on Wednesday 24 August 1994 when very large numbers of birds arrived to scavenge their remains. I collected three 250ml samples of seawater from the surface of shallow tide pools at the points marked (1), (2) and (3) on the attached map. The sample bottles were rinsed *in situ* before the samples were taken. I did not see any evidence of any changes in populations of bivalve molluscs (Common Cockle *Cardium edule*, Thin Tellin *Tellina tenuis* or Peppery Furrow Shell *Scrobicularia plana*). The sand had been raked extensively in one place where someone had harvested cockles between the tides. On Tuesday 30 August 1994 the seawater samples were sent by Iarnród Éireann FASTRACK (A/C No. 1016253) to Dr. Terry Mac Mahon, Fisheries Research Centre, Abbotstown, Castleknock, Dublin 14, telephone (01) 821 0111.

On 9 August 1990, Mr Michael O'Morchoe, Kiltra, Wellingtonbridge, telephone (051) 6 12 80, reported a very similar incident to me. Mr Dan Duggan, then Senior Executive Engineer - Environment, Wexford County Council was alerted and he said he would ask the Eastern Fisheries Board to investigate.

Web links: The Marine Institute's website at <http://www.marine.ie/> maintains a Harmful Algal Blooms (HABs) database.

5.15.4 Seaweeds

References to earlier reports

- Hurley, 1997 page 39 gives four literature references with regard to biogeographical survey work prior to 1997.
- Hurley, 2000 pages 45-46 mentions some notable species and refers to seaweed harvesting on the South Wexford Coast.
- Hurley, 2002 page 32 notes that the alien brown seaweed Wireweed *Sargassum muticum* was recorded growing at the marina at Kilmore Quay in August 2001.
- Hurley, 2003 page 37 has an addendum with regard to the extent of the macro-algae flora.
- Hurley, 2004 pages 37-38 updates with regard to Wireweed *Sargassum muticum* at Ballygrangans.
- Hurley, 2006 page 41 updates with regard to the extent of the macro-algae flora of Ireland.

Update: Under the Biodiversity Fund 2006, Coastwatch Ireland received a grant of €7,000 from the Heritage Council for a project titled “*Sargassum muticum* (Jap weed) survey and control trial in Bannow Bay – Co. Wexford” (Government press release dated 24 April 2006 and *New Ross Standard*, issue dated 19 April 2006, page 10). The objectives of the study were given as follows: “Biodiversity, Biodiversity Plan and site Context The invasive alien seaweed *Sargassum muticum* -- commonly known as ‘Jap weed’ after its origin in the sea of Japan, was discovered growing in one area of Bannow Bay Co Wexford in August 05. It is considered to be a threat to both biodiversity and ecological quality of waters under the WFD. The two introduction routes most commonly quoted are accidental carriage with oyster spat and passive floating brought by tides and winds. Boat ballast waters are also implicated for ‘germling transport’. Objectives 1. Organise a summer boat based survey of the bay with local community expertise to locate growing *Sargassum* plants and get basic growth information - single plants, clusters, size of clusters, size of plants. 2. Organise a linked land survey for local landowners, children and summer visitors to report *Sargassum* swept up onto the tidemark. In certain areas with suitable sediment and salinity surveyors will also look for growth on intertidal mudflats/stones. 3. Hold a results event for surveyors, their associations, press and relevant official bodies (including Fisheries board, BIM, DoMNR, NPWS, Wexford and Waterford County Council) where findings are presented and information exchanged, as well as the draft removal of *Sargassum* plans laid out as planned jointly by fishermen, boat club and Coastwatch. 4. Carry out a manual removal trial, with fishermen and other local boat users, with video recording of method and impacts, to establish whether control of the established weed by manual removal in an area south of ‘The Hurl’ in an important habitat and bird area of Bannow Bay is feasible in terms of effort and environmental impact 5. Make recommendations as to future bay management with regard to this alien invasive species. 6. Publish findings in daily media as well as specialist press such as The Skipper and Inshore Ireland to raise wider awareness” (The Heritage Council website at http://www.heritagecouncil.ie/grants/06_lists/biodiversity_06_list.html). Survey work was carried out by members of the St Kearns Rowing Club (*New Ross Standard*, issue dated 28 June 2006, page 28). Surveyors found a rare glasswort (*New Ross Standard*, issue dated 05 July 2006, page 7). The survey results were launched by Minister for the Marine John Browne at a function in the Colclough Hall (*New Ross Standard*, issue dated 02 August 2006, page 2).

Web links: For information on Wireweed, its biology and life history see the MarLIN (Marine Life Information Network for Britain & Ireland) website at <http://www.marlin.ac.uk/>. The extent of the macro-algae flora of Ireland is detailed at <http://www.botanicgardens.ie/herb/census/resource.htm>.

5.16 Kingdom Fungi

References to earlier reports

- Hurley, 1999 pages 40-41 gives the results of a survey of fungi at Carnsore Point.
- Hurley, 2002 page 32 gives a record of a White Truffle *Tuber magnatum* at Taulaght, Saltmills.
- Hurley, 2003 page 37 has an addendum with regard to the Irish fungus flora.
- Hurley, 2005 page 39 has an addendum with regard to recommended English names for fungi and an update with regard to points made by Howard Fox.
- Hurley, 2006 page 41 updates with regard to the extent of the fungus flora of Ireland.

Web links: For an overview of slime moulds (Myxomycetes) see the USA-based MyxoWeb, a virtual field guide to the group, at <http://www.myxoweb.com/> and http://www.discoverlife.org/nh/tx/Slime_Molds. For an approved list of English names for fungi may be downloaded as a MS word document at <http://www.plantlife.org.uk/> via Species & Habitat Conservation.

5.17 Lichens

References to earlier reports

- Hurley, 1997 page 39 gives a brief overview for Co Wexford.
- Hurley, 1999 page 40 mentions fieldwork conducted in 1978 at Carnsore Point and in 1998 at Lady's Island.
- Hurley 2000 page 46 details a survey of air quality carried out by students in forty schools in southeast Ireland in 1985.
- Hurley, 2003 page 38 has an addendum with regard to the Irish lichen flora.
- Hurley, 2005 page 40 updates with regard to an updated checklist of 1254 taxa produced by Howard Fox.
- Hurley, 2006 page 41 has an addendum with regard to the extent of the lichen flora of Ireland and updates with regard to the LichenIreland project.

Page link: Section 5.1.3 refers to air quality in general.

Web links: The British Lichen Society is at <http://users.argonet.co.uk/users/jmgray/>. There is an online guide to identifying lichens on twigs via a fully illustrated multi-access key at <http://www.nhm.ac.uk/botany/lichen/twig/>. And the herbarium maintained by the Norwegian Lichen Database may be accessed at <http://www.toyen.uio.no/botanisk/lav/FRONT.HTM>.

5.18 Mosses and Liverworts Phylum Bryophyta

References to earlier reports

- Hurley, 2000 page 46 mentions field recording in south Wexford in August 1999.
- Hurley, 2001 page 29 gives preliminary reports on the August 1999 fieldwork.
- Hurley, 2002 page 33 mentions that work continued towards the publication of a Red Data Book for Irish bryophytes.
- Hurley, 2003 page 38 has an addendum with regard to the Irish bryophyte flora.
- Hurley, 2005 page 40 updates with regard to a survey of rare and threatened bryophytes and the publication of a second edition of a moss flora.
- Hurley, 2006 page 42 updates with regard to the extent of the bryophyte flora of Ireland.

Page link: Section 6.3.7 refers to red lists.

Update: The extent of the bryophyte flora of Ireland is further updated as 684 taxa comprising 454 mosses, 227 liverworts, and 3 hornworts (Holyoak, 2006 page 225).

Web link: The British Bryological Society (BBS) website at <http://rbg-web2.rbge.org.uk/bbs/bbs.htm> has downloadable lists by vice-county. Census catalogues are given by vice-county at <http://www.botanicgardens.ie/herb/census/resource.htm>.

5.19 Ferns and their allies Phylum Pteridophyta

References to earlier reports

- Hurley, 2003 page 38 has an item with regard to the Irish pteridophyte flora.
- Hurley, 2006 page 42 updates with regard to a census list of the flora of Ireland.

Web link: A census list of the flora of Ireland is available at <http://www.botanicgardens.ie/herb/census/resource.htm>.

5.20 Seed plants Phylum Spermatophyta

Sections follow with regard to surveys, censusing, etc., (Section 5.20.1) and vegetation types in the Lady's Island Lake area (Section 5.20.2). These comprise aquatic, dune, stony lake shore, muddy shore, marsh, stream, and farmland vegetation types. Impacts of water level on vegetation (Section 5.20.2), rare plants (Section 5.20.4) and drift seeds (Section 5.20.5) are also addressed.

References to earlier reports

- Hurley, 2003 pages 38-39 has items with regard to the Irish spermatophyte flora and the felling of a large Monterey Pine *Pinus radiata* that stood near the Community Centre at Lady's Island village.
- Hurley 2005, page 41 updates with regard to Tassleweeds *Ruppia* spp being lagoonal specialists.
- Hurley, 2006 page 43 has a corrigendum and updates with regard to the native flora, Austrian Pine trees planted at Lady's Island village and three South Wexford Coast records for Irish Whitebeam *Sorbus hibernica*.

Page link: Section 5.15.1 with regard to stoneworts or charophytes.

Web link: A census list of the native flora of Ireland is available at <http://www.botanicgardens.ie/herb/census/resource.htm>.

5.20.1 Surveys, censusing, etc.

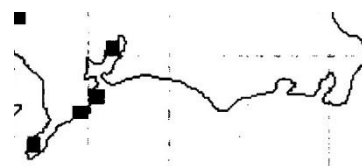
References to earlier reports

- Hurley, 1997 pages 39-40 gives the overview.
- Hurley, 2000 pages 46-49 gives further detail with regard to the above and contains some updates.
- Hurley, 2003 pages 39-40 has an update with regard to an atlas of the flora of the twelve 10km squares that cover South Wexford.
- Hurley, 2005 page 41 has an addendum with regard to some notable vascular plants recorded on the South Wexford Coast, and an update with regard to an assessment of changes in the flora of County Wexford since 1960.
- Hurley, 2006 page 43 updates with regard to a record of White Dead-nettle *Lamium album*.

Page links: Section 12 with regard to Lake Drainage Committee is relevant as a botanical survey of flood zone is proposed.

Update: The following plant records were noted.

- Hybrid Dock *Rumex x pratensis*, see Paul Green's tetrad distribution map (below) (Source: BSBI News, Number 102, April 2006, pages 30-31).
- Cabbage-palm *Cordyline australis*. Self-sown tree several years old recorded in gravel on waste ground in the store yard for fishing equipment at Kilmore Quay (S 96 03), 22 July 2005, new county record (Source: BSBI News, Number 102, April 2006, page 51 and Green, 2006 page 260).
- Trailing Bellflower *Campanula poscharskyana*. Several flowering clumps on roadside wall, Ingard Point (S 805 051), 8 December 2005, new county record (Green, 2006 page 260).
- German-ivy *Delairea odorata*. Abundant in hedges and amongst scrub along top of sea cliff, Ingard Point (S 804 050), 8 December 2005, new county record (Green, 2006 pages 260-261).
- Giant Viper's-bugloss *Echium piniana*. Single plant self-sown at base of wall on roadside, Millroad (S 977 044), 23 July 2005, new county record (Green, 2006 page 261).



- Hybrid Ragwort *Senecio x albescens*. Three flowering plants among rocks on harbour wall, Kilmore Quay (S 96 03), 22 July 2005, new county record (Green, 2006 page 261).
- Western Marsh-orchid *Dactylorhiza majalis* subspecies *occidentalis*. 40 plants recorded in a wet marsh at S 938 066, Ballyteige Burrow on 20 May 2006 (personal communication, Roy Watson).

Web links: A zipped alphabetical list of English names (with Latin equivalents) of British and Irish plants can be downloaded from <http://www.bsbi.org.uk/>. The Plantlife website is at <http://www.plantlife.org.uk/>. Flora of Northern Ireland is at <http://www.ulstermuseum.org.uk/flora/>. The Botanical Society of the British Isles (BSBI) database at <http://www.bsbi.org.uk/>. Quentin Groom's online identification system for wild flowers is at <http://www.reticule.co.uk/flora/>. A trees and shrubs website may be found at <http://www.saps.plantsci.cam.ac.uk/trees/> and a site devoted to duckweeds is at <http://www.mobot.org/jwcross/duckweed>.

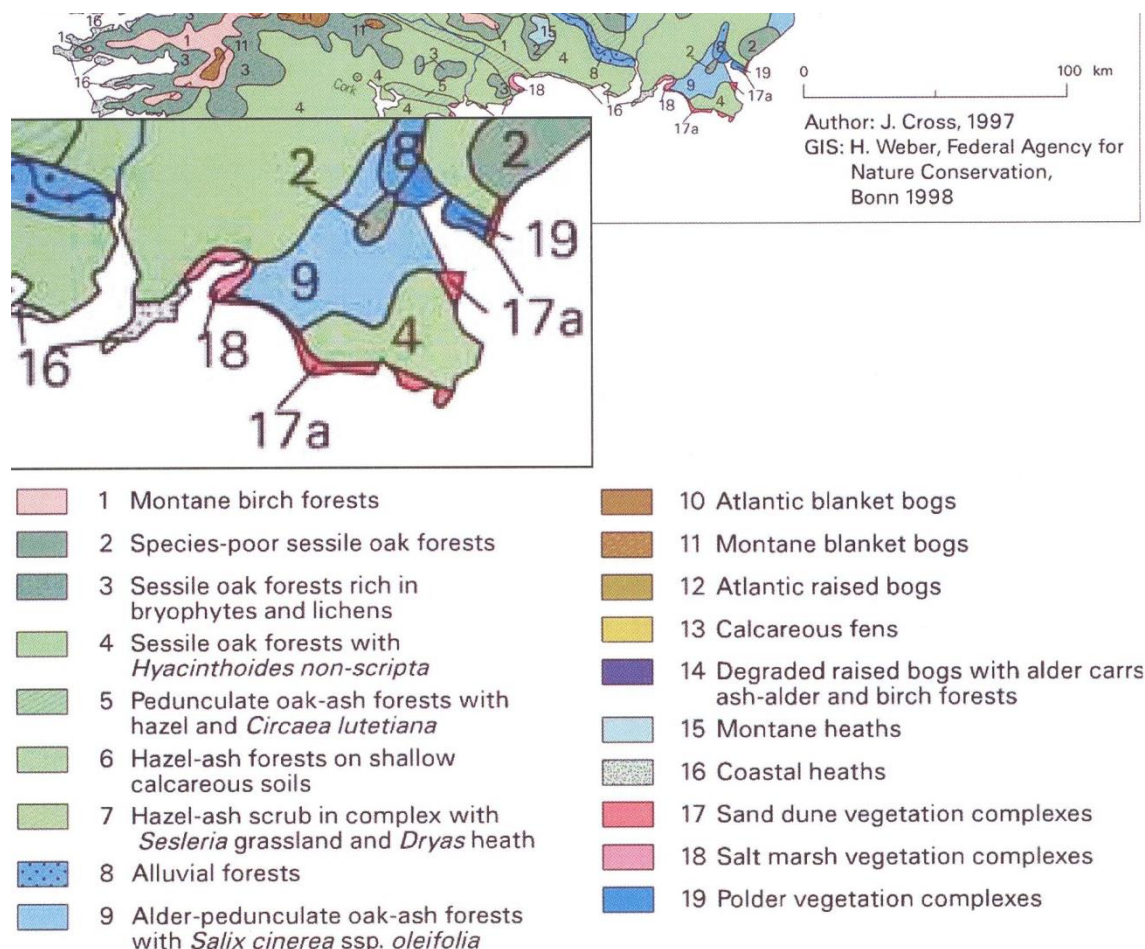
5.20.2 Vegetation types

Vegetation in the study area may be classified into seven broad types (5.20.2.1 to 5.20.2.7).

Reference to earlier reports

- Hurley, 2004 page 39 reports with regard to a vegetation survey conducted by Dr Cilian Roden in 2002-2003.

Update. The potential natural vegetation of the South Wexford Coast is described (Cross, 2006) and is summarised below (*ibid*, pages 72-73).



Page links: Hydrological surveys were conducted to establish the location of the flood zone vegetation; Section 5.12.1 describes these surveys and Section 12.1 refers to the

minutes of meetings of the Lady's Island Lake Drainage Committee.

5.20.2.1 Aquatic vegetation

References to earlier reports

- Hurley, 1997 pages 40-41 is the main reference.
- Hurley, 1999 page 41 gives an update.
- Hurley, 2000 page 49 gives a further brief update with regard to Narrow-leaved Water-plantain *Alisma lanceolatum*.
- Hurley, 2001 page 30 suggests that some marginal vegetation may be regarded as "open-water transition fen".

5.20.2.2 Dune vegetation

Reference to earlier report

- Hurley, 1997 pages 41-42 is the sole reference.

Page links: Both Section 5.20.2 with regard to impacts of water level on vegetation, and Section 13 with regard to breaching the barrier, mention some species noted growing on barrier.

5.20.2.3 Stony lake shore vegetation

References to earlier reports

- Hurley, 1997 page 42 is the main reference.
- Hurley, 1999 page 42 draws attention to a temporary microhabitat within the vegetation type.

5.20.2.4 Muddy shore vegetation

Reference to earlier report

- Hurley, 1997 page 42 is the sole entry.

5.20.2.5 Marsh vegetation

Reference to earlier report

- Hurley, 1997 pages 42-43 is the sole entry.

5.20.2.6 Stream vegetation

Reference to earlier report

- Hurley, 1997 page 43 is the sole entry.

5.20.2.7 Farmland vegetation

Reference to earlier reports

- Hurley, 1997 page 43 is the sole entry.

5.20.3 Impacts of water level on vegetation

References to earlier reports

- Hurley, 1997 pages 43-44 is the main reference.
- Hurley, 1999 page 42 contains a correction and a very brief update with regard to lake shore seed bank.

Page link: Section 13 with regard to breaching the barrier.

5.20.4 Rare plants

References to earlier reports

- Hurley, 1997 pages 44-49 is the main reference.
- Hurley, 1998 page 19 has brief note with regard to the transplanting of Cottonweed *Otanthus maritimus* to another site and a correction with regard to the location of the Nailer's Lane. Hurley, 1998 Annex 1 (pages 84-98) gives a detailed history of the occurrence of Cottonweed *Otanthus maritimus* on the barrier at Tacumshin Lake.
- Hurley, 1999 page 43 has a correction and a very brief update with regard to the boulders surrounding the stand of Cottonweed *Otanthus maritimus* at Lady's Island Lake.
- Hurley, 2000 pages 50-52 reports the presence of Spurge-laurel *Daphne laureola* near Carnsore Point. It contains a correction with regard to the Cottonweed *Otanthus maritimus* plants on the barrier at Tacumshin Lake. It gives an update with regard to the vegetation of that barrier and it suggests possible reasons for the continued survival of Cottonweed *Otanthus maritimus* on the barrier at Lady's Island Lake.
- Hurley, 2001 page 31 gives an update with regard to the last surviving specimen of Cottonweed *Otanthus maritimus* on the barrier at Tacumshin Lake and an addendum with regard to the photograph in Hurley, 1997 page 48, Plate 1.
- Hurley, 2002, page 35 refers very briefly to on-going work towards a revised edition of the Red Data Book for vascular plants.
- Hurley, 2003 page 41 has an addendum with regard to a Ph.D. thesis on Cottonweed *Otanthus maritimus* and the species continued survival on the barrier at Tacumshin Lake. There is also an update with regard to species recovery plans.
- Hurley, 2004 page 41 updates with regard to Cottonweed, Lesser Centaury, Foxtail Stonewort and Perennial Glasswort.
- Hurley, 2005 page 43 has an addendum with regard to an early photograph taken at Lady's Island, and an update with regard to Cottonweed *Otanthus maritimus*.
- Hurley, 2006 page 45 updates with regard to 41 taxa found growing in Ireland but not in Britain.

Page link: Section 6.3.7 refers to red lists.

Update: A report published by Wexford County Council noted that the county supported three very rare plants. One, Short-leaved Water-starwort *Callitriche truncata*, was recorded near Enniscorthy, the remaining two are confined nationally to the South Wexford Coast. The latter two were described as follows (WCC, 2006 page 48).

Cottonweed - Three of our rarest plants, with just two known areas of occurrence each, are the cottonweed, meadow saffron, and Kerry lily. Cottonweed is a perennial herb of sand dunes and stabilised shingle. The centre of distribution of this species is in the Mediterranean and it reaches its northern limit in Ireland. Cottonweed was first recorded here in 1845 at Dungarvan. It is now restricted as a native to just two sites in Co. Wexford, where populations appear to be stable. It was reintroduced into a suitable habitat at a third site in the county in 1997, where it still survives. As well as these sites, it was formerly recorded at two in Waterford and one each in Wicklow and Kerry. It is listed in the Flora Protection Order 1999. Recently plants at Lady's Island have increased their range towards the lake.

Sarcocornia perennis Perennial Glasswort Lus gloine buan (*Arthrocnemum perenne*) This fleshy, slightly woody perennial grows up to 30 cms tall and often extends to form tussocks up to 1 metre in diameter. It occurs in salt-pans in salt marshes and on tidal muds. In Ireland its distribution is restricted to the south-east coast where it is found in saltpans. It has been recorded from a total of three sites, all in Co. Wexford surrounding Bannow Bay, in only one of which is it known to be extant. It is possibly extinct in at least one of the other two sites due to the aggressive spread of *Spartina x townsendii*.

Web links: The Environmental Report 2006 published by Wexford County Council as part of the Strategic Environmental Assessment (SEA) for its Draft Wexford County

Development Plan 2007-2013 is at
<http://www.wexford.ie/wex/Departments/Planning/DevelopmentPlans/CountyDevelopmentPlan2007-2013/Thefile,8252,en.pdf> .

5.20.5 Drift seeds

References to earlier reports

- Hurley, 1997 page 49 introduces the topic very briefly.
- Hurley, 1998 page 19 contains a correction to a reference.
- Hurley, 1999 pages 43-44 gives details of all species found.
- Hurley 2000 pages 53-54 reports on oceanic drift movements.
- Hurley, 2001 page 31 highlights a font correction.

Page links: Section 5.2 with regard to earth movements and seismology, Section 5.10 with regard to the coastal hydrography of inshore waters and Section 9.7 with regard to hurricane Floyd.

5.21 Invertebrates in the lagoon

This is a hold-all section for items of a general nature and/or items not covered by any of the sections below dedicated to particular taxonomic groups.

References to earlier reports

- Hurley, 1997 page 50 (1st paragraph) is the primary reference.
- Hurley, 1998 page 19 gives a brief bibliographic reference.
- Hurley, 1999 page 44 gives a further bibliographic reference.
- Hurley, 2001 page 31 has a brief comment with regard to baseline studies.
- Hurley, 2005 page 44 updates with regard to lagoon specialists.

Page link: Section 5.12.1 with regard to description of the lagoon. Section 5.22 has some statistics with regard to the faunal diversity of miscellaneous invertebrate groups.

5.22 Invertebrates in the sea

This is a hold-all section for items of a general nature and/or items not covered by any of the sections below dedicated to particular taxonomic groups.

References to earlier reports

- Hurley, 1997 page 50 (2nd paragraph) refers to baseline studies at Carnsore Point in 1977 and 1978.
- Hurley, 2000 page 62 comments briefly on the BioMar surveys in the vicinity of the Saltee islands and updates with regard to surveys of marine fauna.
- Hurley, 2001 page 31 mentions the South West Irish Sea Survey (SWISS) briefly.
- Hurley, 2003 pages 42-43 has addenda with regard to the SWISS and the numbers of species of Irish fauna in several invertebrate groups and an update with regard to the Sealife Survey.
- Hurley, 2005 page 44 updates with regard to casts of Lugworms *Arenicola* on the shore.
- Hurley, 2006 page 46 updates with regard to an inventory of Irish marine wildlife publications

Page link: Section 5.21 with regard to invertebrates in the lagoon.

Web links: The marine faunal communities of the 'Saltee Islands area' were investigated in June 1994. The 'Saltee Islands area' of the South Wexford Coast includes the coastal strip running to Carnsore Point. For a map see <http://www.ecoserve.ie/biomar/saltee.html>. The Ulster Museum website hosts an encyclopaedia of marine life of Britain and Ireland at <http://www.ulstermuseum.org.uk/marinelife/species.html>. The website of the National Museums & Galleries of Wales gives details of the SWISS at <http://www.nmgw.ac.uk/biosyb/marinebiodiversity/seasurvey.en.shtml>. The website of the Natural History Museum in London hosts taxonomic information (TaxInfo) and computer-based identification keys and guides for polychaete worms at <http://www.nhm.ac.uk/zoology/taxinf/index2.html>. Other sites of interest include Mara

Beo, the marine aquarium at Dingle <http://www.dingle-oceanworld.ie/>, The BioMarE Project (Marine Biodiversity in Europe) datasets are at <http://www.biomareweb.org/>, the European Register of Marine Species checklists at <http://erms.biol.soton.ac.uk/lists/>, the Marine Life Information Network (MarLIN) at <http://www.marlin.ac.uk/>, and the extensive website of the British Marine Life Study Society (BMLSS) is at <http://ourworld.compuserve.com/homepages/BMLSS/Homepage.html>. The Marine Life Information Network (MarLIN) in collaboration with the World Wildlife Fund (WWF-UK) Sealife Survey to establish a baseline of species distribution against which changes due to climate change may be measured may be accessed at <http://www.marlin.ac.uk/sealifesurvey>.

5.23 Jellyfishes Phylum Cnidaria

References to earlier reports

- Hurley, 2000 pages 62-64 consolidates all previous entries.
- Hurley, 2002 page 36 records as follows: "A significant wreck of By-the-wind-sailor *Verella verella* occurred 22 August 2001 from Windy Gap to Big Burrow (personal communication, Liam Ryan)."
- Hurley, 2003 page 44 updated with regard to a wreck of By-the-wind-sailor *Verella verella*.
- Hurley, 2004 pages 43-44 updates with regard to Moon Jellyfish at Fethard and a survey of jellyfishes at Seaview Strand.
- Hurley, 2005 pages 46-49 updates with regard to the jellyfish survey at Seaview during 2004; also, all known records of By-the-wind-sailor *Verella verella* on the South Wexford Coast are consolidated.
- Hurley, 2006 page 47 updates with regard to a Barrel Jellyfish *Rhizostoma octopus* at Ringbaun.

Page link: Section 5.375.21 with regard to turtle predation.

Updates

Paper published. The results of the 2003-2005 jellyfish survey were published (Houghton *et al.*, 2006).

Verella wreck. A *Verella* wreck occurred near Kilmore Quay, in November 2006.

On Sunday 26 November 2006, there was a significant wreck of By-the-wind-sailors *Verella verella* near Kilmore Quay. To assess the extent of the wreck 6km of shoreline was examined by driving to the following five access points to the beach: Ballyteige Burrow (S 961 033), the Lifeboat Strand (S 967 032), Ballygrangans (S 987 040), Bastardstown (T 001 046), and Ballyhealy (T 011 048). At each of these five locations, a short section of beach was walked both to the east and to the west of the access point. The tide had ebbed. In places, the dead and dying By-the-wind-sailors were so numerous they formed a hazy blue-grey smudge along the most recent tideline. In other places, the strong onshore wind had dried the floats and had blown them around the beach. At Ballyteige Burrow, several dry floats were noted in the sand dune grasses suggesting an earlier wreck. Some patches of beach had no floats; other stretches had dense collections. In places, floats were tightly concentrated in lines and/or dense aggregations; in other places, floats were widely scattered. Many floats were mixed up with seaweeds and other debris cast up on the shore. Counts of the numbers of floats present were made at regular intervals along the most recent tideline at each of the five locations; results ranged from 0/m² to 106/m² with an estimated mean density of 20/m². These results suggested that there may have been 120 000 floats along the section of shore examined. Floats were measured and examined at random; these ranged in size from 29mm to 93mm along the long axis and were all left-sailors, that is, when the long axis of the float was taken to be north-south, left-sailors had their sails set diagonally from north-west to south-east. Most floats had blue tissue attached. Several had short, stubby tentacles hanging below the floats.

Floats were also reported from the White Hole (T 032 053) on 29 November 2006 (personal communication, Paudie Murphy) and Cullenstown (S 874 077) on 1 December 2006 (personal communication, Lucy Ellis).

Web links: For lists of Cnidaria see the European Register of Marine Species (ERMS) at <http://erms.biol.soton.ac.uk/lists/>. Sightings of jellyfish may be reported via an online form at www.turtle.ie.

5.24 Molluscs Phylum Mollusca

References to earlier reports

- Hurley, 2000 pages 64-67 is the primary reference. The source refers to the following topics. Shellfish harvesting on the South Wexford Coast (whelks, winkles and cockles) (pages 64-65). An unusual octopus incident at Hook Head (page 65). Snail farming at Kilmore Quay (page 65). A wreck of the Violet Sea Snail *Janthina janthina* (page 66). A mention of sea slugs at the Saltee Islands (page 66). And, a plan to farm the Japanese Scallop *Patinopecten yessoensis* off Carnsore Point (pages 66-67).
- Hurley, 2001 page has an update with regard to harvesting the Common Whelk *Buccinum undatum* (page 32) and a field study of the population structure and recruitment of *Melarhaphe neritoides* at Carnsore Point (page 32).
- Hurley, 2002 pages 36-37 updated with regard to managing the southeast Ireland fishery for the Great Scallop *Pecten maximus* and a new checklist of the 158 species of non-marine Mollusca known from Ireland.
- Hurley, 2003 page 44 has an addendum with regard to Irish mollusc fauna and updates with regard to scallop processing and shellfish safety.
- Hurley, 2004 pages 45-47 has an addendum with regard to the Irish fauna of land and freshwater molluscs and the management of the King Scallop fishery and updates with regard to (1) EC action against the Irish authorities for failure to designate shellfish waters, and (2) seashells at Seaview.
- Hurley, 2005 page 49 has an addendum with regard to densities of the Edible Periwinkle *Littorina littorea*, and pages 49-50 has updates with regard to (1) designated areas at Bannow Bay for Oyster production, (2) a health warning, and (3) seashells at Seaview.
- Hurley, 2006 pages 47-48 has a corrigendum and updates with regard to the scallop fishery off the Wexford/Waterford coasts, and a Curled Octopus *Eledone cirrhosa* at Rostown.

Page link: Section 9.5 refers to the form of the seabed.

Updates

Scallop fishery: A report was published by Bord Iascaigh Mhara (Tully *et al.*, 2006).

Ship worms: On 20 February 2006, Jim Hurley found a log on the tideline at S 948 050 on the shore at Ballyteige Burrow. The log had holes in it and tunnels made by Ship Worms *Teredo* sp. Photographs were taken.

Mussel seed: Regulations were introduced to conserve mussel seed (*The Irish Skipper*, issue dated September 2006).

Web links: For lists of Mollusca in general see the European Register of Marine Species (ERMS) at <http://erms.biol.soton.ac.uk/lists/>. For a checklist of the 158 species of non-marine Mollusca known from Ireland see the CLECOM website at http://www.gnm.se/clecom/clecom_GBR.htm. The website of the Conchological Society of Great Britain and Ireland is at <http://www.conchsoc.org/2index.htm>. Periwinkle industry in Ireland project information at <http://www.ucc.ie/ucc/research/crc/page/s/projects/periwinkle.htm>. A guide to

DEPARTMENT OF COMMUNICATIONS,
MARINE AND NATURAL RESOURCES
ROINN CUMARSÁIDE,
MARA AGUS ACMHAINNÍ NÁDÚRTHA

The Minister of State at the Department of Communications,
Marine and Natural Resources has made the following
Regulations:

**S.I. 415 OF 2006 – MUSSEL SEED
(CONSERVATION) (NO. 6) REGULATIONS
2006 – PRN.A6/1363**

**S.I. 416 OF 2006 – MUSSEL SEED
(CONSERVATION) (NO. 7) REGULATIONS
2006 – PRN.A6/1364**

The effect of these Regulations is to prohibit fishing for mussel seed in an area of the Irish Sea off Carnsore Point until further notice, for the purposes of mussel seed management and conservation.

The effect of these Regulations is to prohibit fishing for mussel seed in an area of the Irish Sea off Wicklow Head (Six Mile Point to Mizen) until further notice, for the purposes of mussel seed management and conservation.

Copies of the above Regulations are available for purchase from the Government Publications Sales Office, Sun Alliance House, Molesworth Street, Dublin 2 and on the Department's website at www.dcmnr.gov.ie.

Brendan Tuohy
Secretary General
Department of Communications, Marine and Natural Resources
Adelaide Road
Dublin 2

nudibranchs may be accessed at <http://www.pictonb.freemove.co.uk/nudibranchs/goncas.html>. The article on spatial variability in abundance of King Scallops off the southeast coast is at <http://www.irishscientist.ie/2002/contents.asp?contentxml=02p54.xml&contentxml=02pages.xml>.

5.25 Arthropods Phylum Arthropoda

References to earlier reports

- Hurley, 1999 page 44 refers briefly to a study of the micro-arthropoda fauna of the stabilised dunes at Carnsore Point.
- Hurley, 2003 page 45 has an addendum with regard to Irish fauna of this phylum.

5.26 Spiders and their allies Class Arachnida

References to earlier reports

- Hurley, 2000 page 67 mentions the mite fauna of Co Wexford.
- Hurley, 2001 page 33 mentions the spider fauna (126 species) of Carnsore Point.
- Hurley, 2002 page 38 has the following brief entry: "A checklist of spiders recorded from Co Wexford has been published (van Helsdingen, 1996)". The checklist recognises 378 indigenous species in Ireland and catalogues their distribution by county.
- Hurley, 2003 page 45 has an addendum with regard to the chelicerate fauna of Ireland, and three updates: a mention of Leslie Gibson's study of spiders at Carnsore Point, details with regard to the eleven species of harvestmen recorded from the South Wexford Coast and a record of a false-scorpion from Lady's Island.
- Hurley, 2005 page 50 has an addendum with regard to the Lesley Gibson collection.

Web links: For a list of Irish spiders see <http://www.ehnsi.gov.uk/EHSPubs/research/spiders.doc>. For photographs and text with regard to over 700 species of spiders, mites and harvestmen found in north west Europe see <http://www.xs4all.nl/~ednieuw/index.html>.

5.27 Crustaceans Class Crustacea

References to earlier reports

- Hurley, 1998 page 20 refers to opossum shrimps at Lady's Island Lake.
- Hurley, 2001 page 33 gives references to some records of copepods in County Wexford and the amphipod *Gammarus duebenii* at Lady's Island Lake.
- Hurley, 2002 page 38 has the following entry: "Some further records of copepods recorded at the Coningbeg lightship are referenced (Holmes, 2001 pages 19, 22 (pages 27-42 are missing), 44, 46 and 54)."
- Hurley 2003, page 46 has an update with regard to the Irish fauna of some crustacean groups.
- Hurley, 2005 page 51 has an addendum with regard to the Wexford Well Shrimp *Niphargus wexfordensis*.

Web link: For lists of various groups of Crustacea see the European Register of Marine Species at <http://erms.biol.soton.ac.uk/lists/>. Worldwide identification keys and information retrieval systems may be accessed at <http://www.crustacea.net/> and <http://www.amphipoda.com/>.

5.28 Barnacles Subclass Cirripedia

References to earlier reports

- Hurley, 2000 page 62 gives two records of Goose Barnacles *Lepas anatifera*.
- Hurley, 2002 page 38 has the following entry: "On 31 October 2001, 17 large and fresh Goose Barnacles *Lepas anatifera* were noted attached to a PET soft drinks bottle washed up on the strand at Grogan's Burrow (T 065 053), Tacumshin."
- Hurley, 2003 page 46 has the following brief entry: "On 3 February 2002, after a storm, a wooden pallet was washed up on the beach at The Cut, Lady's Island Lake barrier. The pallet had hundreds of tiny Goose Barnacles *Lepas anatifera* attached to it."
- Hurley, 2004, page 48 updates with regard to a record of the burrowing barnacle *Trypetesa nassarioides* southwest of Carnsore Point.

Update: Increases in abundance of the Australian Barnacle *Elminius modestus* were reported (Allen *et al.*, 2006). Results for the South Wexford Coast were as follows (Allen *et al.*, 2006 pages 157-159, Tables 2-4).

Species	Hook Head	Baginbun Head	Cullenstown Reef	Forlorn Point	Carnsore Point
<i>Elminius modestus</i>	Not seen 1958 Rare 2003	Not seen 1958 Not seen 2003	Not seen 1958 Frequent 2003	Rare 2003	Not seen 1958 Not seen 1995 Not seen 2003
<i>Semibalanus balanoides</i>	Abundant 2003	Abundant 2003	Abundant 2003	Common 2003	Recorded 1995 Abundant 2003
<i>Chthamalus montagui</i>	Common 2003	Abundant 2003	Abundant 2003	Abundant 2003	Abundant 2003
<i>Chthamalus stellatus</i>	Not seen 2003	Abundant 2003	Abundant 2003	Common 2003	Abundant 2003

Web link: A paper with regard to increases in abundance of the Australian Barnacle *Elminius modestus* (Allen *et al.*, 2006) is at <http://www.ria.ie/cgi-bin/ria/papers/100580.pdf>.

5.29 Isopods Order Isopoda

Reference to earlier report

- Hurley, 2000 page 61 tabulates the occurrence of 11 of the 28 species of woodlouse found in Ireland by 10km square on the South Wexford Coast.

Web link: The Natural History Museum has an online survey of woodlice at <http://www.nhm.ac.uk/interactive/woodlice/> including distribution maps for Ireland from the 1985 survey.

5.30 Decapods Order Decapoda

The order is divided into swimming decapods Natantia (shrimps and prawns, Section 5.30.1) and walking decapods Reptantia (lobsters, 0, and crabs, 5.30.3).

Reference to earlier report

- Hurley, 2003 page 47 mentions that the Irish Malacostraca fauna comprises 767 species.

5.30.1 Shrimps and prawns Natantia

Reference to earlier report

- Hurley, 2003 page 47 has a brief item with regard to prawn processing at Kilmore Quay.

5.30.2 Lobsters Reptantia

References to earlier reports

- Hurley, 1999 page 58 gives an account of the fishery on the South Wexford Coast.
- Hurley, 2000 page 61 contains an update.
- Hurley, 2002 page 39 has a summary with regard to the South Wexford Lobster Co-operative at Nethertown.
- Hurley, 2003 pages 47-48 has a review of the management of the inshore stocks and further information with regard to the South Wexford Lobster Co-operative at Nethertown and a news item with regard to court action against fishermen for having undersize lobsters on their boat.
- Hurley, 2004 page 49 has an update with regard to over-fishing of lobsters and crabs.
- Hurley, 2006 page 50 has an addendum with regard to catching under-sized lobsters, and updates with regard to noise and odour nuisance, and an application for planning permission to extend shellfish storage facility at Ballyteige Burrow.

5.30.3 Crabs Reptantia

Reference to earlier report

- Hurley, 2000 page 62 refers to an exceptionally large crab.
- Hurley, 2005 page 52 has an addendum and update with regard to crabs on the beach at Bastardstown.

5.31 Insects Class Insecta

This section contains notes with regard to assorted Orders of insects in no particular order. Separate sections are devoted to three other orders: dragonflies and damselflies (5.32), beetles (5.33) and butterflies and moths (5.34).

Reference to earlier report

- Hurley, 2003 page 49 has an addendum with regard to the numbers of species of Irish fauna in a number of major groups.

Web links: For an introduction to insects in general see <http://www.bugbios.com/>.

5.31.1 Mayflies Order Ephemeroptera

References to earlier reports

- Hurley, 2001 page 34 mentions nine species recorded in 1993 in the River Corock.
- Hurley, 2003 page 49 has an addendum with regard to the extent of the Irish fauna.

5.31.2 Grasshoppers and Crickets Order Orthoptera

Reference to earlier report

- Hurley, 2004 page 49 gives a record of a Short-winged Conehead, a bush cricket, at Tacumshin Lake.
- Hurley, 2006 page 51 updates with regard to the Irish fauna and a new vice-county record for Ballyteige Burrow.

Web links: The index to the DragonflyIreland web pages is at <http://www.habitas.org.uk/dragonflyireland/index.html>.

5.31.3 Booklice Order Psocoptera

References to earlier reports

- Hurley, 2001 page 34 mentions five species recorded on the South Wexford Coast.
- Hurley, 2003 page 49 has an addendum with regard to the extent of the Irish fauna.

5.31.4 True Flies Order Diptera

References to earlier reports

- Hurley, 2001 page 34 mentions a source of records for the South Wexford Coast.
- Hurley, 2003 pages 49-50 has an addendum with regard to the extent of the Irish fauna.
- Hurley, 2006 page 51 has an addendum with regard to three species of meniscus midges, and updates with regard to five species of crane fly recorded from the South Wexford Coast.

Update: The following species of Leaf-miners (Family Agromyzidae) were recorded from the South Wexford Coast (O'Connor and Chandler, 2006).

- *Aulagromyza orphana* Fethard (S7905), ♂ 16 June 1990, JPOC, sand-dunes. An external stem miner in cleavers *Galium aparine* L.
- *Cerodontha (Cerodontha) denticornis* Ballyteige (S9504), ♂ 26 May 1987, JPOC. The species mines various species of *Poaceae*.
- *Cerodontha (Cerodontha) fulvipes* Ballyteige (S9504), ♂ 11 June 1982, sand-dunes, JPOC. Rough meadow grass *Poa trivialis* L. is the only confirmed host.

Web links: There is a database with regard to Syrphidae at <http://www.iol.ie/~millweb/syrph/syrphid.htm>.

5.31.5 Bees, Ants and Wasps Order Hymenoptera

References to earlier reports

- Hurley, 2001 page 34 mentions some chalcidoid wasp records for Ballyteige Burrow and Carnsore Point. References are also given for a provisional distribution atlas for aculeates.
- Hurley, 2002 page 40 has the following correction of a typo: Hurley, 2002 page 34, Chalcidoidea, 3rd line, delete 's' in Irelands.
- Hurley, 2003 page-50 has an addendum with regard to the extent of the Irish fauna.
- Hurley, 2004 page 50 updates with regard to records of 15 species of aculeates on the South Wexford Coast.
- Hurley, 2005 pages 53-54 updates with regard to records for the South Wexford Coast.
- Hurley, 2006 page 51 has an addendum with regard to a BWARS field meeting in Wexford.

Updates

The native bee population of Ireland comprises 102 species; these are classified in eight IUCN Regional Red List categories as follows: Regionally Extinct (RE) = 3; Critically Endangered (CR) = 6; Endangered (EN) = 10; Vulnerable (VU) = 14; Near Threatened (NT) = 12; Least Concern (LC) = 38; Data Deficient (DD) = 16; and Not Evaluated (NE) = 3. Four species are recorded from Ballyteige Burrow: *Andrena denticulata* (VU page 12), *Hylaeus hyalinatus* (VU page 19), *Nomada striata* (EN page 23) and *Sphecodes gibbus* (CR page 24) (Fitzpatrick *et al.*, 2006).

Some distribution records for solitary bees and wasps for the South Wexford Coast are given below (Ronayne and O'Connor, 2006).

- *Chrysis rutiliventris*: The Cull embankment (S935068), Ballyteige, ♀ 11 July 1999, investigating cracks and holes in a stone wall, CR, det. M. E. Archer (page 33).
- *Episyrus rufipes*: Ballyteigue (sic) Burrows (sic) (S9306), ♂ 11 July 1999, on the dunes opposite the Cull; Chour (T0904), ♂ 16 August 2001, on an umbellifer at the side of a track near the lakeshore, CR; Same location, 2♂♂ 1 June 2002, on bare sand behind a shingle ridge, CR; Grange Strand (S8006), near Fethard, ♂ 13 July 1999, on an umbellifer in the sand dunes, at the north end of the beach, CR (page 36).

- *Ceropales maculata*: Ballyteigue (sic) Burrows (sic) (S917069), ♂♂♀♀ 12 August 2003, flying among sea-holly (*Eryngium maritimum*) and sea spurge (*Euphorbia paralias*) on the fore dunes, CR (page 37).
- *Ancistrocerus trifasciatus*: Tintern Abbey (S794100), near Saltmills, ♀ 13 July 1999, in an area of hawthorn (*Crataegus monogyna*) scrub north of the abbey, CR (page 39).
- *Podalonia affinis*: Ballyteigue (sic) Burrows (sic) (S9306), ♀ 9 July 1999, the specimen was first heard buzzing in a grass tussock, and then caught as it emerged into the open. Found in a large 'blow-out' with plenty of loose sand in big dunes, no other examples were seen, CR (page 40).
- *Ectemnius (Metacrabro) cephalotes*: Tintern Abbey (S794100), near Saltmills, ♀ 13 July 1999, flying around a standing dead tree. Other females observed emerging from dead wood on a moribund fallen lime (*Tilia* sp.) tree in the same area, CR (page 47).
- *Oxybelus argentatus*: Ballyteigue (sic) Burrows (sic) (S9306), ♂ 11 July 1999, on sea spurge in fore-dunes, CR; Grange Strand, near Fethard (S805066), ♂ 13 July 1999, at wild carrot, CR (page 47).
- *Oxybelus uniglumis*: Grange Strand, near Fethard (S805066), ♂ 13 July 1999, at wild carrot, CR (page 47).
- *Harpactus tumidus*: Ballyteigue Burrows (sic) (S926065), ♀ 12 August 2003, among dune front vegetation, including sea spurge and sea-holly (*Eryngium maritimum*), CR (page 50).
- *Colletes similis*: Ballyteigue Burrows (sic) (S9306), ♀ 9 July 1999, 2♂♂ 11 July 1999, all at umbellifers in high dunes, CR; Chour (T0904), near Lady's Island Lake, ♀ 16 August 2001, at *Leontodon* sp. on a sandy ridge, CR (page 51).
- *Hylaeus (Spatulariella) hyalinatus*: Ballyteigue (sic) Burrows (sic) (S9306), ♂ 11 July 1999, collected at a low stone-faced bank at the edge of the dunes, just south of the pump-house, CR (page 53).
- *Andrena (Melandrena) nigroaenea*: Hook Head lighthouse (X733973), ♂♂ 13 May 1998, flying low over cliff-top thrift (*Armeria maritima*) and dandelions, CR (page 54).
- *Andrena (Cnemidandrena) denticulate*: Ballyteigue (S937067), The Cull, ♀♀ 12 August 2003, common on ragwort growing north of the pump-house, CR (page 54).
- *Andrena (Leucandrena) barbilabris*: Ballyteigue Burrows (sic) (S9306), ♀♀ 9 July 1999, others seen, ♀♀ 11 July 1999, nesting in areas of loose sand, on the land side of the main dune ridge, CR (page 56).
- *Andrena (Micrandrena) semilaevis*: Chour (T099044), Lady's Island Lake, ♀ 12 July 1999, at yellow Compositae on a sandy shingle ridge, CR (page 57).
- *Megachile (Megachile) centuncularis*: Grange Wood (S802060), cliffs, ♀ 13 July 1999, at bramble growing on a clay bank above a low cliff, CR (page 62).
- *Megachile (Delomegachile) willughbiella*: The Cull (S935070), Ballyteigue, ♂ 12 August 2003, at a sand pile close to the pump-house, CR (page 63).
- *Megachile (Xanthosarus) maritima*: Ballyteigue Burrows (sic) NNR (S9306), 11 July 1999, CR; Ballyteigue (S935070), The Cull, ♀ 12 August 2003, at common bird's-foot-trefoil (*Lotus corniculatus*) growing close to a pump-house, CR (page 64).
- *Nomada striata*: Ballyteigue (S937068), The Cull, ♀ 11 July 1999, flying along a low grassy clay bank, in an area of reclaimed polder-land, CR (This specimen was incorrectly identified as *Nomada ruficornis* in Ronayne, 2000) (page 67).

Web links: The Bumblebee Pages at <http://www.mearns.org.uk/mrssmith/bees/> give an introduction to the group. A world list of Bumblebees is given by The Natural History Museum at <http://www.nhm.ac.uk/entomology/bombus/>. Sawflies, woodwasps and horntails (Suborder Symphyta) are introduced, and a classification given, at <http://www.earthlife.net/insects/symphyta.html>.

5.31.6 Springtails Order Collembola

References to earlier reports

- Hurley, 2006 page 52 lists records for hectads S90, T10, and T01.

Web links: The online atlas (Collembola Maps) is at www.stevehopkin.co.uk.

5.32 Dragonflies and Damselflies Order Odonata

References to earlier reports

- Hurley, 1999 pages 44-46 consolidates records to 1998 for 8 of the 10km recording squares on the South Wexford Coast. Figure 13 on page 72 gives the mnemonics used to identify these squares.
- Hurley, 2000 pages 54-56 updates both previous records and the arrangement of species.
- Hurley, 2001 pages 35-50 update previous records. They give reports of two species new to Ireland recorded from the South Wexford Coast (Emperor *Anax imperator* and Migrant Hawker *Aeshna mixta*) and two species new to the South Wexford Coast (Lesser Emperor *Anax parthenope* and Red-veined Darter *Sympetrum fonscolombii*). They also reproduce copies of 13 DragonflyIreland recording cards (SWC01-SWC13) completed by Jim Hurley for the 2000 season.
- Hurley, 2002 pages 40-55 has an addendum with regard to 1995 and updates for the 2001 recording season. It also reproduces copies of 13 DragonflyIreland recording cards (SWC14-SWC26) completed by Jim Hurley for the 2001 season.
- Hurley, 2003 pages 50-53 updates for the 2002 recording season (SWC27 & SWC28).
- Hurley, 2004 pages 51-64 updates for the 2003 recording season with regard to the location of ponds at Tacumshin Lake, the first Irish occurrences of three dragonfly species, recording in South Wexford in general, and the compilation of twelve Recording Cards (SWC29-SWC40).
- Hurley, 2005 pages 54-57 updates with regard to (1) a pond at Seafeld, (2) the DragonflyIreland recording scheme, (3) 2004 records, and (5) all records from the South Wexford Coast.
- Hurley, 2006 pages 53-55 updates for 2004 and 2005.

Addendum: A list of Irish Odonata was compiled based on the most-recently published update (Nelson and Thompson, 2004) (Table 6).

Updates

2006 records: The following were recorded during the season.

- Several (>20) Autumn Hawkers *Aeshna mixta* and darters *Sympetrum* spp. (>50) were seen by Jim Hurley during his I-WeBS core count at Lady's Island Lake on 9 September 2006 together with one Moorland Hawker *Aeshna juncea* at Bunargate Strand (T 088 056).
- During his I-WeBS core count at Lady's Island Lake on 13 October 2006, Jim Hurley saw 8 Autumn Hawkers *Aeshna mixta* and one Moorland Hawker *Aeshna juncea* hawking over the reed swamp at Scallan's Pool (T 090 058) at Bunargate.

The table below (Table 7) is updated for the 2006 season.

Zygoptera / Damselflies	Former name	New name	Status	Page
<i>Calopteryx virgo</i> (Linnaeus, 1758)	Beautiful Demoiselle	Beautiful Jewelwing	resident	76
<i>Calopteryx splendens</i> (Harris, 1782)	Banded Demoiselle	Banded Jewelwing	resident	68
<i>Lestes sponsa</i> (Hansemann, 1823)	Emerald Damselfly	Common Spreadwing	resident	92
<i>Lestes dryas</i> Kirby, 1890	Scarce Emerald Damselfly	Turlough Spreadwing	resident	84
<i>Pyrrhosoma nymphula</i> (Sulzer, 1776)	Large Red Damselfly	Spring Redtail	resident	154
<i>Ischnura elegans</i> (Vander Linden, 1823)	Blue-tailed Damselfly	Common Bluetip	resident	136
<i>Ischnura pumilio</i> (Charpentier, 1825)	Scarce Blue-tailed Damselfly	Small Bluetip	resident	144
<i>Enallagma cyathigerum</i> (Charpentier, 1840)	Common Blue Damselfly	Common Bluet	resident	128
<i>Coenagrion pulchellum</i> (Vander Linden, 1825)	Variable Damselfly	Variable Bluet	resident	120
<i>Coenagrion puella</i> (Linnaeus, 1758)	Azure Damselfly	Azure Bluet	resident	110
<i>Coenagrion lunulatum</i> (Charpentier, 1840)	Irish Damselfly	Irish Bluet	resident	100
Anisoptera / Dragonflies	Former name	New name	Status	Page
<i>Gomphus vulgatissimus</i> (Linnaeus, 1758)	Club-tailed Dragonfly	River Clubtail	19th Century	162
<i>Cordulegaster boltonii</i> (Donovan, 1807)	Golden-ringed Dragonfly	Golden-ringed Spiketail	unconfirmed	332
<i>Brachytron pratense</i> (Muller, 1764)	Hairy Dragonfly	Spring Hawker	resident	214
<i>Aeshna juncea</i> (Linnaeus, 1758)	Common Hawker	Moorland Hawker	resident	182
<i>Aeshna grandis</i> (Linnaeus, 1758)	Brown Hawker	Amber-winged Hawker	resident	174
<i>Aeshna cyanea</i> (Muller, 1764)	Southern Hawker	Southern Hawker	vagrant	168
<i>Aeshna mixta</i> Latreille, 1805	Migrant Hawker	Autumn Hawker	not known	192
<i>Anax imperator</i> Leach, 1815	Emperor	Blue Emperor	not known	200
<i>Anax parthenope</i> Selys, 1839	Lesser Emperor	Yellow-ringed Emperor	vagrant	210
<i>Hemianax ephippiger</i> (Burmeister, 1839)	Vagrant Emperor	Vagrant Emperor	vagrant	222
<i>Cordulia aenea</i> (Linnaeus, 1758)	Downy Emerald	Downy Emerald	resident	226
<i>Somatochlora arctica</i> (Zetterstedt, 1840)	Northern Emerald	Moorland Emerald	resident	236
<i>Libellula depressa</i> Linnaeus, 1758	Broad-bodied Chaser	Broad-bodied Chaser	19th Century	246
<i>Libellula fulva</i> Muller, 1764	Scarce Chaser	Scarce Chaser	19th Century	252
<i>Libellula quadrimaculata</i> Linnaeus, 1758	Four-spotted Chaser	Four-spotted Chaser	resident	258
<i>Orthetrum coerulescens</i> (Fabricius, 1798)	Keeled Skimmer	Heathland Skimmer	resident	276
<i>Orthetrum cancellatum</i> (Linnaeus, 1758)	Black-tailed Skimmer	Black-tailed Skimmer	resident	268
<i>Sympetrum striolatum</i> (Charpentier, 1840)	Common Darter	Common Darter	resident	314
<i>Sympetrum fonscolombii</i> (Selys, 1840)	Red-veined Darter	Red-veined Darter	not known	300
<i>Sympetrum flaveolum</i> (Linnaeus, 1758)	Yellow-winged Darter	Yellow-winged Darter	vagrant	294
<i>Sympetrum sanguineum</i> (Muller, 1764)	Ruddy Darter	Ruddy Darter	resident	306
<i>Sympetrum danae</i> (Sulzer, 1776)	Black Darter	Black Darter	resident	286

Table 6: List of Irish Odonata.

Source: Nelson and Thompson, 2004

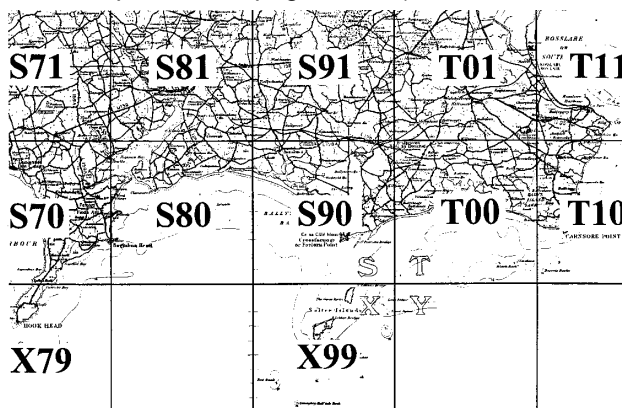
Species by 10km square	S71	S81	S91	T01	T11	S70	S80	S90	T00	T10	X79	X99
Beautiful Jewelwing (Beautiful Demoiselle) <i>Calopteryx virgo</i> Page 83	A	A	B			B 25						
Common Spreadwing (Emerald Damselfly) <i>Lestes sponsa</i> Page 99						A 29 30			A 21	A		
Azure Bluet (Azure Damselfly) <i>Coenagrion puella</i> Page 119	A		A	A		A 29 30		C	A 15	B		
Variable Bluet (Variable Damselfly) <i>Coenagrion pulchellum</i> Page 127				C						B		
Common Bluet (Common Blue Damselfly) <i>Enallagma cyathigerum</i> Page 135	B		A 31	B				A 08 09	A 14 16 19 21	B		
Common Bluetip (Blue-tailed Damselfly) <i>Ischnura elegans</i> Page 143	A		A 31	A		A 29 30		A 08 12	A 14 15 16 19 21	A 03 05 10	A	
Small Bluetip (Scarce Blue-tailed Dam'fly) <i>Ischnura pumilio</i> Page 153				C					B	A 10		
Spring Redtail (Large Red Damselfly) <i>Pyrrhosoma nymphula</i> Page 161	A		A	A	B	A 25		A 01 02 04 06	A H06			
Amber-winged Hawker (Brown Hawker) <i>Aeshna grandis</i> Page 181			A 31	B				H05	A		A	B 26
Moorland Hawker (Common Hawker) <i>Aeshna juncea</i> Page 191						A? 33			H06	A		
Autumn Hawker (Migrant Hawker) <i>Aeshna mixta</i> Page 199						A 34		A 20 24 27 35 37	A 28 H06	A 36 38 H06	A H05	
Blue Emperor (Emperor Dragonfly) <i>Anax imperator</i> Page 209									A 14 16 19 21	A 13		
Yellow-ringed Emperor (Lesser Emperor Dragonfly) <i>Anax parthenope</i> Page 213										A		
Spring Hawker (Hairy Dragonfly) <i>Brachytron pratense</i> Page 221						A		H06	A	A		A H06
Four-spotted Chaser <i>Libellula quadrimaculata</i> Page 267						B 25			A	A		
Yellow-winged Dart <i>Sympetrum flaveolum</i> Page 299									B			

Red-veined Darter <i>Sympetrum fonscolombii</i> Page 305									B	A		
Ruddy Darter <i>Sympetrum sanguineum</i> Page 313								C H05	A 14 16 21 28	A 07 10		
Common Darter <i>Sympetrum striolatum</i> Page 323	A	A	A 31 32	C	C	A 30 34	A	A 11 22 27 H05 H06	A 14 15 16 17 18 19 21 23 28	A 05 07	A	
Species by 10km square	S71	S81	S91	T01	T11	S70	S80	S90	T00	T10	X79	X99
Number of species recorded in the 10km square	6	2	7	8	2	10	1	9	16	15	4	2

Table 7: Dragonflies and damselflies recorded on the South Wexford Coast.

Notes on Table 7 above

- Species names are those given in the most recent checklist with, where relevant, former vernacular names in brackets (Nelson and Thompson, 2004 pages 48-49).
- The Irish National Grid references are for the twelve 10km squares on the South Wexford Coast (see right).
- The code letters used for published distribution records are: A for records validated in the survey period 2000-2003, B for 1980-1999 records, and C for old (pre-1980) records (Nelson and Thompson, 2004).
- Records collected by Jim Hurley during the 2000-2003 survey are given as recording card numbers (by season): 01-13 (2000), 14-26 (2001), 27-28 (2002) and 29-40 (2003).
- Records collected subsequent to the 2000-2003 survey are given as references to Section 5.32 in the relevant annual report, for example, this report (Hurley, 2007) is referred to as H07.
- The record of a Spring Hawker on Saltee Island Great is regarded as “surprising” (Nelson and Thompson, 2004 page 218).
- The first record of an Autumn Hawker in Ireland was at Churchtown, Carne, in August 2000 (Nelson and Thompson, 2004 page 196).
- The record of Yellow-winged Darter at Tacumshin Lake is the only definite record for Ireland (Nelson and Thompson, 2004 page 296-297).
- The largest number of Red-veined Darters seen in Ireland was at Lady’s Island Lake (Nelson and Thompson, 2004 pages 303-304).
- Most of the dragonflies seen around the saline lagoons at Tacumshin Lake and Lady’s Island Lake are considered to be migrants or wandering, non-breeding individuals from nearby freshwater habitats (Nelson and Thompson, 2004 page 343).



Web links: The index to the DragonflyIreland web pages is at <http://www.habitas.org.uk/dragonflyireland/index.html>. The British Dragonfly Society site is at <http://www.dragonflysoc.org.uk/>.

5.33 Beetles Order Coleoptera

References to earlier reports

- Hurley, 1997 page 50 (4th paragraph) very briefly mentions the Green Tiger Beetle *Cicindela campestris*.
- Hurley, 1999 pages 46-52 details fieldwork at Lady's Island Lake and Tacumshin Lake with regard to two families: staphylinid beetles (Staphylinidae) and ground beetles (Carabidae).
- Hurley, 2001 page 51 gives a reference with regard to further studies of the beetle fauna of the South Wexford Coast. 35 species of staphylinids and 11 species of carabids were recorded from drainage channels at Ballyteige Burrow and Inish and Ballyteige Slob. Microenvironments of conservation importance were also recorded.
- Hurley, 2002 page 56 refers to a record of the staphylinid *Philhygra gyllenhalii* at Lady's Island Lake.
- Hurley, 2003 page 54 has an addendum with regard to the beetle fauna of Ireland.

Web links: The Ulster Museum HabitasOnline website at <http://www.habitas.org.uk> has a guide to carabid beetles in Ireland. See also <http://www.coleopterist.org.uk/> for checklists and a photo gallery of 415 species of beetles.

5.34 Butterflies and Moths Order Lepidoptera

References to earlier reports

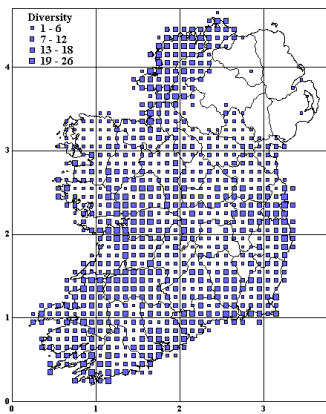
- Hurley, 1999 pages 53-55 gives an overview of the butterfly fauna of the South Wexford Coast and its distribution by 10km square. Map references to page 45, Figure 9 and page 72, Figure 13 are no longer relevant. Pages 56-57 are not relevant either as they are subsumed in Hurley, 2001 pages 52-53.
- Hurley, 2000 pages 57-58 set out a log of butterflies seen in the period April-August 1997 on the promontory of Lady's Island by Nik Aspey, tern warden for 1997. Pages 59-60 supersede Hurley, 1999 pages 56-57.
- Hurley, 2001 page 51 mentions a survey of the Lepidoptera of the South Wexford Coast by Ken Bond and newsletters produced with regard to the Millennium Butterfly Atlas project. Pages 52-53 incorporate Hurley, 1999 pages 56-57 and Hurley, 2000 pages 59-60.
- Hurley, 2002 page 56 has an addendum with regard to a Monarch *Danaus plexippus* recorded at Tacumshin Lake in 1999. Records for Lady's Island for the 2001 season are contained on pages 58-59.
- Hurley, 2003 page 54 has an addendum with regard to the butterfly and moth fauna of Ireland and *Millennium Atlas of Butterflies in Britain and Ireland*.
- Hurley, 2004 page 65 has an update with regard to butterflies at Tintern Abbey.
- Hurley, 2005 page 58 has an addendum with regard to sites surveyed by Ken Bond in 2000, and pages 58-59 update with regard to (1) coverage on the South Wexford Coast during the Butterfly Ireland resurvey, (2) a new website, (3) a remarkable sighting of a swarm of migrating butterflies at Great Saltee, and (4) a Pale Clouded Yellow at Ballyteige Burrow.
- Hurley, 2006 page 56 updates with regard to a Comma Butterfly at Carnsore Point.

Addendum: A cluster of over 20 Herald moths *Scoliopteryx libatrix* hibernated on the concrete ceiling of a shed at Kilmore Central School (S 994 071) during the winter of 1983/84 (personal communication and photo (right), Tomás Hayes).

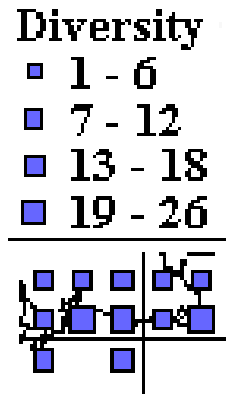
Update: Records for the 2006 season are set out below.

Clouded Yellow. Nine specimens were seen on the pilgrimage route at Lady's Island (T 10 07) on 18 August 2006 and a further 5 were seen shortly afterwards at The Cut (T 094 047). Several were seen all around Lady's Island Lake during an I-WeBS core count on 9 September 2006. Six were recorded during the I-WeBS core count on 13 October 2006 (also 13 Red Admirals and 5 Painted Ladies) and a lone individual was flying at Ballyteige Burrow (S 944 055) on 24 October 2006 (together with 2 Red Admirals). All records by Jim Hurley.





Recording. A butterfly distribution map was published showing all species recorded for the period 2000-2004 by 10km-squares. There are some 850 10km squares in Ireland and records were received for 839 of these. The national mean diversity = 11.6 species/square. Squares on the South Wexford Coast appear to be at or slightly above the national mean (Source: www.butterflyireland.com/allspeciesgmap.htm).



Humming-bird Hawk-moth. One was reported at Taulaght (S 821 112) on 10 September 2006 (personal communication, Jack Rowe).

Small Skipper. A species of butterfly new to Ireland was discovered near Mayglass on the South Wexford Coast in August 2006. The following account of the discovery of was given on the Butterfly Ireland website. "Chris Wilson reported in August the discovery of an unusual butterfly in Co Wexford by Jimmy Goodwin. It was subsequently confirmed by Chris and Jimmy to be the Small Skipper. At least ten adults were seen. Below is an extract from *Gaggle, August 2006*, which can be found at <http://www.wexfordnaturalists.com/gaggle.php>.



"The most astonishing record must go to the find of a colony of Small Skippers found in the south of the County. There are a couple of early 20 Century records of single individuals seen, but this really is a new breeding species for Ireland. How did they get here? How long have they been here? What is the extent of the Colony? There are a lot of questions to be answered, however there is one thing for sure, it is certainly a very important and interesting record for the County and Ireland. The actual location of the find has been kept quiet due to the vulnerability of the find and the wishes of the owner of the land (there is also a real and serious concern in relation to fire). In 2007 it is hoped that the WNFC will be involved in trying to map the distribution of this species and Ken Bond (UCC) will complete genetic research on the species to try and unravel the mysteries and questions currently unanswered".

The Small Skipper is a new species to Ireland, but is widespread in Wales and much of England and spreading northwards in Yorkshire. Its larval food plants are grasses such as Yorkshire-fog *Holcus lanatus*. Edwin Birchall, in 1866, did report the Small Skipper from Cos Wicklow and Cork but as these records were never subsequently confirmed they have been considered to be mistaken."

(<http://www.butterflyireland.com/News&Comments.htm#Skipper>). Other web pages on the same site gave the following details of the dates on which specimens were seen: "Jim Goodwin: Co Wexford, Small Skipper(10), 5/8/06; Small Skipper(3), 7/8; Small Skipper(1), 8/8; Small Skipper(2), 18/8. (<http://www.butterflyireland.com/phenology.htm>).

Web links: The Dublin Naturalists' Field Club (DNFC) hosts the Millennium Butterfly

Atlas project in Ireland. The DNFC website, with photographs by Robert Thompson and distribution maps, is at <http://www.butterflyireland.com>. Adrian Phelan's photographic guide 'Butterflies of Ireland' is at <http://www.irishbutterflies.com/>. The Ulster Museum HabitasOnline website at <http://www.habitas.org.uk> has a guide to the butterflies of Northern Ireland. The U.K. Millennium Butterfly Atlas project is featured on the Butterfly Conservation website at <http://www.butterfly-conservation.org/>. Distribution maps for Britain may be accessed via the NBN (National Biodiversity Network) gateway. With regard to the identification, by family, of 800 species of caterpillars found in Britain and Ireland see <http://www.whatsthis caterpillar.co.uk/index.htm>. The Heritage Council's Wildlife Grants Scheme is detailed at <http://www.heritagecouncil.ie/information/grants/wildlife2000.html>. The European Butterfly Forum for discussing recording is at <http://www.europeanbutterflies.org/>.

5.35 Fish Class Pisces

Reference to earlier report

- Hurley, 2005 page 59 has an addendum with regard to local names of fish used at Kilmore Quay.

5.35.1 Surveys

References to earlier reports

- Hurley, 1997 pages 51-52 gives the overview of the fish fauna of the lagoon at Lady's Island Lake.
- Hurley, 2000 page 68 cites a reference that places that fauna in the local and/or regional context.
- Hurley, 2003 page 55 has addendum with regard to the fish fauna of Ireland and the Worm Pipefish *Nerophis lumbriciformis* being recorded at Lady's Island Lake in the period 1975-1991.
- Hurley, 2004 page 66 updates with regard to fish found on the beach at Ballygrangans and Bastardstown.
- Hurley, 2005 page 59 updates with regard to a dead Bass at Ballygrangans.
- Hurley, 2006 page 57 updates with regard to a dead Sprat at Ballygrangans.

Page link: Section 11.2.1 refers to fish kills at Lady's Island Lake.

Update: A "group from England" conducted a fish survey at Lady's Island Lake during the summer of 2006 (personal communication, Stephen Byrne, Eastern Regional Fisheries Board). The websites of the Central Fisheries Board (CFB) and the Marine Institute (MI) provided details as follows.

METRIC (Marine Ecological Tools for Reference, Intercalibration and Classification) is a 9-month project funded by the Environmental Protection Agency (EPA) Environmental Research Technological Development and Innovation Programme, National Development Plan 2000-2006. The two partners of the project are the MI and the CFB. The project's primary objective is to collect benthos, plants and fish data (historical and new) from transitional and coastal waters and test the tools that have been put forward for determining the quality of water for the Water Framework Directive. With regard to fish, Mr Steve Colclough, Marine Fisheries Policy Advisor in the UK's Environment Agency, visited and advised with regard to field methods. For a number of years he pioneered sampling for fish species in the tidal Thames and developed a sampling protocol that has become a benchmark for estuarine fish sampling in Transitional Waters or estuaries for the Water Framework Directive. CFB colleagues from the MI undertook studies on phytoplankton and higher plants and on benthic invertebrates. The CFB undertook the fish studies (contact person: Dr Jimmy King, telephone (01) 884 3600, email jimmy.king@cfb.ie). The results of the surveys at Lady's Island Lake and Tacumshin Lake were posted on the CFB website as follows (with minor reformatting).

METRIC Estuarine Investigations: Lady's Island Lake

Lady's Island Lake is located in the southeast corner of Ireland in County Wexford. The lake is a fully enclosed transitional waterbody of approximately 3 km². It is designated as a lagoon and listed as a Special Area of Conservation (SAC) under the EU Habitats Directive. The lake breaches sporadically at the southern end during storm conditions and so is partially saline. It is fed by a number of small streams along the western and northern shore. The northern part of the lake is less exposed than the southern end due to the presence of small islands. Formerly, there was a connection with the sea; this was blocked off some years ago. At the time of survey the lake had a maximum depth of two meters throughout. The lake is heavily eutrophic and these conditions contributed to a major fish kill several years ago. The lake is surrounded by an agricultural area with the small village of Lady's Island on the northern shore. Currently, there is a commercial eel fishery in the lake. The area is of considerable importance for birds and is designated as a bird sanctuary. The southern end of the lake is exposed and unvegetated while the



northern end contains areas of reed beds and other aquatic vegetation. Predominant bed types are coarse sand and gravel with some rocky and cobble areas. Salinities recorded at beach seine sites were all around 10ppt.

Fig 126. Gravel beach seine site on the western shore of Lady's Island Lake.

The Lady's Island Lake survey was carried out in August 2006 in conjunction with staff of the Eastern Regional Fisheries Board. Beach seining and fyke netting were the methods selected as being appropriate for the lake. A total of six beach seines were selected encompassing, where possible the full habitat and geographical range of the lake. The most abundant and widespread taxon in beach seines was the three-spined stickleback, found at four of the six sites. All other taxa were found in low numbers. Gobies were found at three sites, while rudd were found at two sites. Diversity in the lake was low with fish distribution extremely patchy. The mean number of taxa per site and abundance were low compared with other Irish transitional water bodies surveyed on the METRIC project.

Fyke nets were placed in the upper, middle and lower sections of the lake. Eel was the



most abundant and widespread taxon in fykes occurring at all four sites. The remaining taxa, rudd, plaice and thin-lipped mullet all occurred at two sites.

Fig 127. Vegetated reed bed areas of northern Lady's Island Lake.

Similar to Tacumshin Lake, Lady's Island Lake appears to be a poor habitat for fish. The absence of 0-group marine juveniles means that there was no recruitment of marine spawners or diadromous fish into the lake due to a lack of connection with the sea. Common estuarine resident species such as flounder also were absent from the lake. The lack of tidal flushing or significant freshwater input is responsible for the eutrophic conditions and leaves the lake vulnerable to fish kills. The plaice and thin-lipped grey mullet were all in the same size range. It appears they recruited into the lake several years ago and, as marine spawners, probably were unable to spawn/recruit in the lake. Thin lipped mullet were found in abundance in the upper lagoon and this non-native species was first described in Ireland by Kennedy and Fitzmaurice (1972). The most abundant species, one of the most tolerant species, the three-spined stickleback, has thrived in the eutrophic conditions in the lake. The fact that rudd (a freshwater species) and plaice (a marine species) were found in the same samples was an unnatural condition and means that they are probably at the limit of their salinity tolerance (ie at 13ppt).

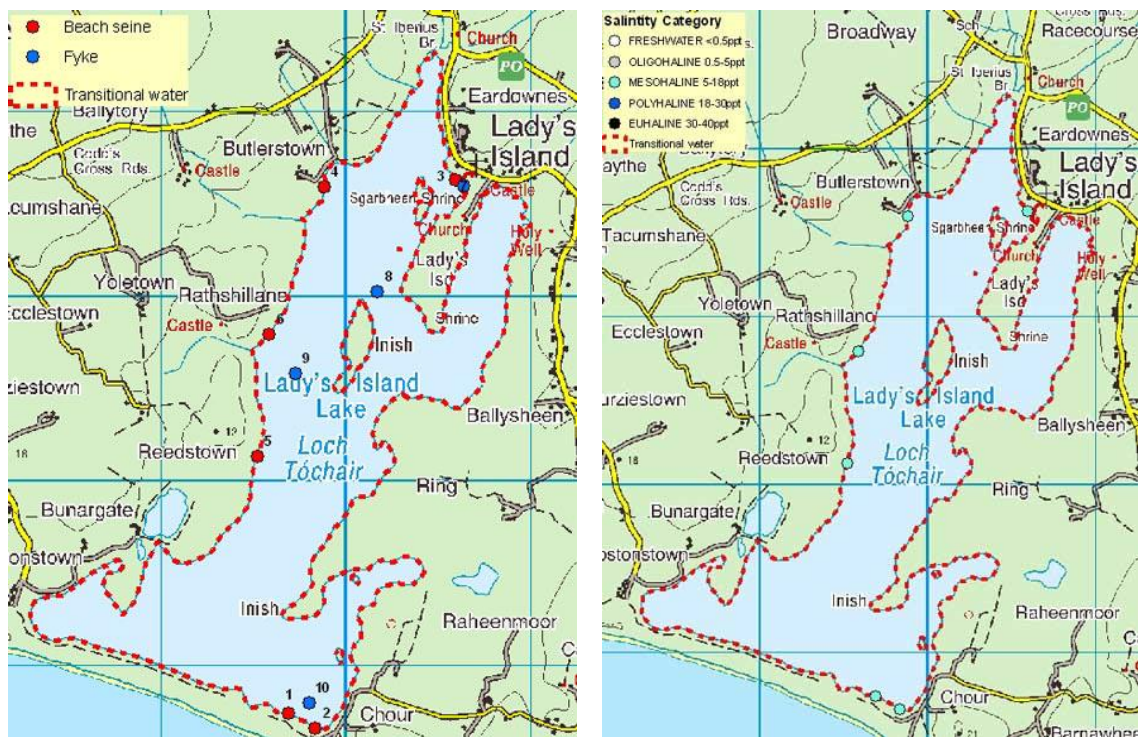


Fig 121 (left). Location of sampling sites from Lady's Island Lake. Fig 122 (right). Salinity values by category taken at beach seine sites from Lady's Island Lake.

Species lists

Table 38. Species list for beach seines from Lady's Island Lake	
<i>Species</i>	Common name
<i>Anguilla anguilla</i>	Eel
<i>Gasterosteus aculeatus</i>	3-spined stickleback
<i>Liza ramada</i>	Thin-lipped grey mullet
<i>Pleuronectes platessa</i>	Plaice
<i>Pomatoschistus microps</i>	Common Goby
<i>Scardinius erythrophthalmus</i>	Rudd

Table 39. Species list for fyke nets from Lady's Island Lake	
<i>Species</i>	Common name
<i>Anguilla anguilla</i>	Eel
<i>Liza ramada</i>	Thin-lipped grey mullet
<i>Pleuronectes platessa</i>	Plaice
<i>Scardinius erythrophthalmus</i>	Rudd

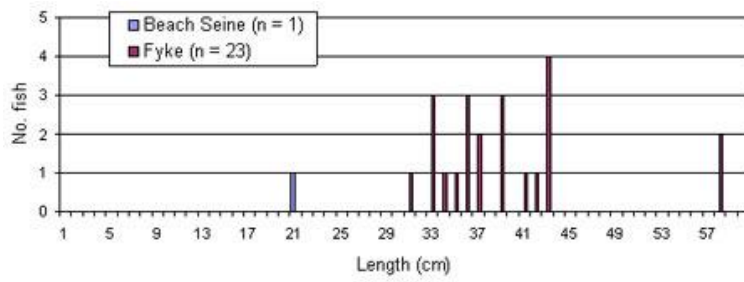


Fig 123. Eel length frequency for Lady's Island Lake.

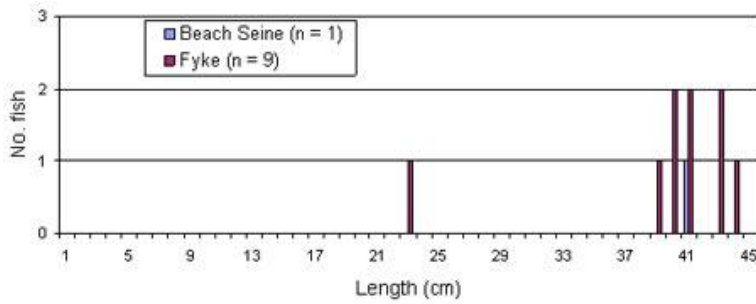


Fig 124. Thin-Lipped Grey Mullet length frequency for Lady's Island Lake.

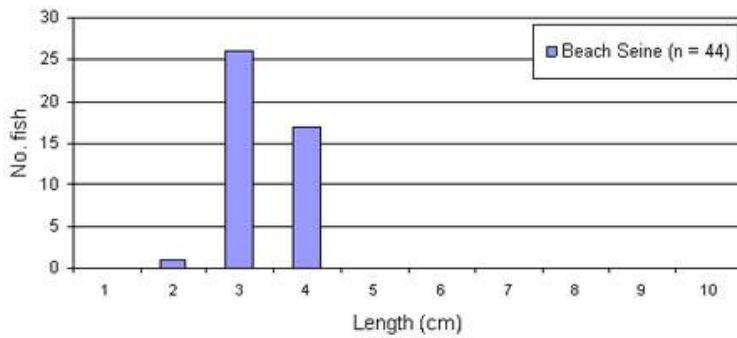


Fig 125. Three-Spined Stickleback length frequency for Lady's Island Lake.

METRIC Estuarine Investigations: Tacumshin Lake

Tacumshin Lake is located in the southeast corner of Ireland in County Wexford. The lake is a fully enclosed transitional waterbody of approximately 3.1km². It is designated as a lagoon and listed as a Special Area of Conservation (SAC) under the EU Habitats Directive. It breaches sporadically during storm conditions and is thus partially saline. The waterbody has considerable anthropogenic modifications. There is no connection with the sea as the former outflow/inflow was blocked. The maximum depth in the lake was 1m and depths were mostly below 0.5m at the time of survey. There was a commercial fishery for eel, bass and mullet in the lake before the breach was closed



several years ago. Sluice gates are currently used by local farmers to provide a minimum water level required in the lake. The area is of considerable importance for birds and is designated as a bird sanctuary. The lake is heavily vegetated with large amounts of eel grass and other aquatic vegetation. Bed types are mostly fine sand and gravel. Salinities taken on site were 10-12ppt.

Fig 131. Areas of mixed fines with gravel in Tacumshin Lake.

The Tacumshin Lake survey was carried out in August 2006 in conjunction with staff of the Eastern Regional Fisheries Board. Due to a lack of depth in the lake it was only possible to do beach seining in a limited area in the northeast of the lake.

A total of two beach seines were taken in a small deeper area. Only one species, the 3-spined stickleback, was encountered and was abundant in both beach seine samples.

The lake is an extremely poor habitat for fish. The fact that there is no breach means there was no recruitment of marine spawners and no diadromous species. The lack of tidal flushing or any significant freshwater inputs means that eutrophic conditions prevail in the summer contributing to fish kills. Species such as bass, eel and mullet that were formerly present in the lake are now absent. Only one of the most tolerant species, the three-spined stickleback, has survived the eutrophic conditions and the lack of depth in the lake. The sticklebacks also showed evidence of stress as they were observed to be covered in ectoparasites.



Fig 128. Location of sampling sites from Tacumshin Lake.



Fig 129. Salinity values by category taken at beach seine sites from Tacumshin Lake.

Species lists

Table 40. Species list for beach seines from Tacumshin Lake

Species	Common name
<i>Gasterosteus aculeatus</i>	3-spined stickleback

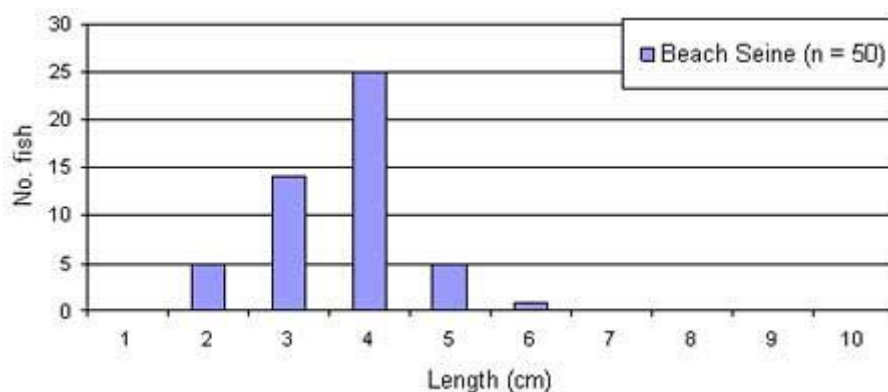


Fig 130. Three-Spined Stickleback length frequency for Tacumshin Lake.

5.35.2 Angling

References to earlier reports

- Hurley, 1997 page 50 mentions the fishery in Lady's Island Lake and page 51 highlights the importance of the South Wexford Coast as a nursery ground.
- Hurley, 1999 page 59 refers to an angling competition at Rostonstown.
- Hurley, 2000 pages 68-69 details the promotion of the South Wexford Coast for angling.
- Hurley, 2001 page 54 mentions angling holidays based at Kilmore Quay and fisheries at Lady's Island Lake.
- Hurley, 2002 page 60 has an addendum with regard to the all-Ireland Autumn Angling Festival held at Hook Head each year and an update with regard to a large Spurdog *Squalus acanthias* caught in Ballyteige Bay in August 2001.
- Hurley, 2003 pages 55-56 updates with regard to the arrival of Mackerel at Hook Head in mid-August and descriptions of angling venues on the South Wexford Coast.
- Hurley, 2004 pages 66-68 updates with regard to Bass byelaws, a new angling guide for southeast Ireland, and three Blue Sharks caught off Kilmore Quay.
- Hurley, 2005 page 60 updates with regard to angling at Hook Head.
- Hurley, 2006 page 57 updates with regard to fishing at Hook Head and The Coombe in September.

Page link: Section 5.9.1 with regard to anglers being struck by lightning.

Updates

Hook Head. Anglers reported that very few fish were being caught off the rocks at Hook Head (*New Ross Standard*, issue dated 9 August 2006, page 32).

Declining stocks. Fish stocks at Bannow Bay, Hook Head and surrounding areas have been in decline for many years according to Jim Whitty, PRO of the Bannow Bay Angling Club. He attributes commercial over-fishing as the main cause together with lesser impacts due to seal predation, global warming and pollution (*Our Parish: Bannow-Ballymitty Parish Journal*, Issue No 10, 2006, page 24).

Web links: For shore angling at The Coombe see <http://www.infowing.ie/fishing/Sea/Cmb2M.htm>. The Kilmore Sea Angling Club website is at <http://homepage.eircom.net/~beach/kilmore/kilmore.htm>. The Eastern Regional Fisheries Board's web site is at <http://www.fishingireland.net/> with downloadable details of fishing locations.

5.35.3 Basking Shark

References to earlier reports

- Hurley, 1997 page 53 has reports of Basking Sharks sighted in the Carnsore Point area in 1996.
- Hurley, 1998 page 20 gives an update for the Carnsore Point area in 1997.
- Hurley, 1999 page 59 does likewise for 1998.
- Hurley, 2000 page 70 does likewise for 1999 and draws together some other records for the South Wexford Coast
- Hurley, 2001 page 54 mentions an individual at Bannow Bay in the 1950s.
- Hurley, 2002 pages 60-61 gives records for the Splaugh Buoy, the Barrels Rock and Kilmore Quay.
- Hurley, 2003 page 57 has an addendum with regard to a record at the Saltee Islands on 4 July 1993.

Web links: The Basking Shark Society website is at <http://www.isle-of-man.com/interests/shark/index.htm>. The website of the Irish Whale and Dolphin Group (IWDG) at <http://www.iwdg.ie> has opportunistic records of Basking Sharks.

5.35.4 Unusual species

References to earlier reports

- Hurley, 1997 page 53 gives a record of a sighting of a possible Swordfish *Xiphias gladius* near the Black Rock.
- Hurley, 2000 page 69 mentions a Lump sucker *Cyclopterus lumpus* near Carnsore Point.
- Hurley, 2001 pages 54-55 has a miscellany of fish records for the South Wexford Coast.
- Hurley, 2002 page 61 records a Sunfish *Mola mola* caught near Saltee Island Little.
- Hurley, 2004 pages 68-69 updates with regard to an allegedly distinct form of Trout and a record of a Sunfish at Grange, Fethard.
- Hurley, 2006 page 58 updates with regard to a Greater Pipefish *Syngnathus acus* at Bannow Bay, a Thresher Shark *Alopias vulpinus* at the Saltee Islands, and Lamprey SACs.

5.35.5 Commercial fishing

References to earlier reports

- Hurley, 2000 page 70 mentions a modification to otter trawls to lessen the adverse environmental impacts of demersal trawling on bottom-living communities.
- Hurley, 2001 pages 55-56 has addenda with regard to the South Wexford Coast being a spawning ground for Plaice *Pleuronectes platessa* and a nursery ground for Herring *Clupea harengus*, and species caught while trawling in Duncormick Lough. There are updates with regard to the development of sustainable inshore fisheries and the proposed extension of the exclusive coastal zone from 6 miles to 24 miles.
- Hurley, 2002 pages 61-62 updates with regard to fishing for Eels *Anguilla anguilla* at Lady's Island Lake and a case study with regard to the harbour at Kilmore Quay.
- Hurley, 2003 page 57 has updates with regard to Herring stocks, Eel permits, illegal fishing and reforms of the fishing industry.
- Hurley, 2004 page 69 updates with regard to a revised Irish Box.
- Hurley, 2005 page 61 updates with regard to (1) Eel fishing, (2) Lobster pot damage at Hook Head, and (3) harbour works at Slade, Fethard and Carne.
- Hurley, 2006 page 59 updates with regard to a failure to keep a log book accurately.

Addendum: “Lady’s Island Lake provided worthwhile catches in the 1960s. Its irregular connection with the sea, however, reduces the chances of recruitment. A small sustainable fishery could be created by standard management and would allow operation by two crews” (Moriarty, 1999 pages 27-28).

Updates

Illegal catches. The commercial fishing fleet came under fire for massive under-recording of catches, for illegally landing large catches at night, for tampering with ‘blue boxes’ (on-board satellite tracking devices), for derailing the Sea Fisheries and Marine Jurisdiction Bill 2005, and for frustrating the efforts of the State to enforce the law (*The Irish Times*, issue dated 9 February 2006, page 16).

Salmon stocks. The cabinet decided to implement a complete ban on drift-netting for Salmon, as well as angling curbs on more than 30 rivers. The measures resulted in heated discussions with drift-net fishermen (*The Irish Times*, issue dated 2 November 2006, pages 1 and 9; issue dated 3 November 2006, page 16; issue dated 4 November 2006, pages 8 and 17).

Eel migration. Twenty-two Irish Eels were fitted with electronic tags and released in Galway Bay in an attempt to discover the location of their spawning grounds and help explain the cause of the dramatic decline in stocks in Irish rivers (*The Irish Times*, issue dated 29 December 2006, page 2).

Web links: The web site of Bord Iascaigh Mhara (BIM) at <http://www.bim.ie> has information on commercial fishing, a species directory, maps, updates with regard to the Common Fisheries Policy, etc. The Marine Institute site is at <http://www.marine.ie/>.

5.36 Amphibians Class Amphibia

Three species of amphibian occur — or have occurred — on the South Wexford Coast: (1) the Common Frog *Rana temporaria*, (2) the Natterjack Toad *Bufo calamita* and (3) the Smooth Newt *Triturus vulgaris*.

References to earlier reports

- Hurley, 2000 pages 70-71 is the sole reference.
- Hurley, 2003 page 58 has some local records of the Common Frog *Rana temporaria* and a mention of a national frog survey.
- Hurley, 2004 page 70 has an addendum with regard to an exceptionally large tadpole described earlier (Hurley, 2000 page 70) and updates with regard to two local records of the Common Frog and one of Smooth Newts, and the national frog survey 2003.
- Hurley, 2006 page 59 updates with regard to Smooth Newts Barnawheel, frogspawn at Ring Marsh, and a froglet at Grange, Kilmore.

Addendum: The possible origin of the three species found in Ireland was addressed as follows in the third state of the environment report (EPA, 2004 Chapter 6, page 107).

“The origins of these species in Ireland are far from clear because of the absence of archaeological material. It is generally believed that the smooth newt is a native species, in that it colonised naturally after the last Ice Age, some 10,000 years ago. The frog may have been introduced in Norman times for food but this species shows one of the most northerly distribution ranges of any European amphibian and is found inside the Arctic circle. It would be surprising if the frog was not one of the earliest post-glacial colonists (F. Marnell, NPWS, pers. comm.). The natterjack toad is more typically associated with the warmer climate of continental Europe and is at the north-western extreme of its distribution range in south-west Ireland. How it got to Ireland is a mystery. Local tradition suggests that cargo ships from Liverpool, which arrived ballasted with sand from the Mersey coast, unknowingly dumped natterjacks into Castlemaine harbour, Co. Kerry when unloading their ballast. Recent genetic fingerprinting studies, by Professor Trevor Beebee in the University of Sussex, have shown that Irish natterjacks are most closely related to the Merseyside populations. However, the genetic differences between the two suggest a separation of approximately 10,000 years, strongly supporting the theory that this amphibian is indeed native (F. Marnell, NPWS, pers. comm.).”

Web links: The Irish Peatlands Conservation Council (IPCC) web site is at

<http://www.ipcc.ie>. The Froglife site at <http://www.froglife.org/> has a wealth of information about frogs while the Herpetological Conservation Trust at <http://www.herpconstrust.org.uk/> focuses on rarer species notably the Natterjack Toad.

5.37 Reptiles Class Reptilia

Species of reptiles that occur — or have occurred — on the South Wexford Coast include: (1) the Common Lizard *Lacerta vivipara*, and (2) turtles.

References to earlier reports

- Hurley, 2000 pages 71-75 gives records of both Common Lizard and turtles on the South Wexford Coast.
- Hurley, 2001 page 57 has two minor corrections to Hurley, 2000 page 75, Table 19.
- Hurley 2002, pages 62-63 has an addendum with regard to the Leathery Turtle and updates with regard to the Common Lizard and the Leathery Turtle.
- Hurley, 2003 page 58 has an addendum with regard to a Leatherback Turtle sighting in 1998 and updates with regard to local records of the Common Lizard and a national survey of lizard distribution.
- Hurley, 2004 page 71 has an update with regard to the Irish Sea Leatherback Turtle Project.
- Hurley, 2005 page 62 updates with regard to two Common Lizard records and a Leatherback Turtle website.
- Hurley, 2006 page 59 updates with regard to a review of turtle records in Irish waters.

Page link: Section 5.23 with regard to jellyfish as turtle prey items.

Updates

Paper published. The results of the 2003-2005 jellyfish survey were published (Houghton *et al.*, 2006).

Common Lizard. The following two records were reported.

- One seen basking in the sun at 2.00pm in sand dunes at T 042 055 at Tacumshin Burrow on 2 June 2006 (personal communication, Roy Watson).
- While sitting in his car eating his lunch at 1.20pm during a break in the I-WeBS core count at Lady's Island Lake, on 9 September 2006, Jim Hurley spotted one emerge from undergrowth at T 100 048, Ringsherane. The lizard sunned itself on top of a large glacial erratic beside the car window. It was small (estimated c65cm total body length) and was dark brown in colour.

Leathery Turtles. At 1321hours on 4 October 2006 stranded remains were found on the beach at Ballyteige Burrow, south of Lacken, about 3km west of the Cull Bank (S 91 07 approx) (personal communication, Terry Lawton). Total length was estimated at 1.5m. The remains were fresh but the eyes had been pecked out. On 9 October 2006 the tide carried the remains 100m farther west (personal communication, Terry Lawton). The animal was biopsied and was identified as a juvenile male with a carapace length of 146cm (personal communication, Tom Doyle, UCC). A live turtle got tangled in fishing gear near Fethard on 6 October 2006 and was released. Both animals were mentioned in press reports together with pictures of the stranded animal at Ballyteige Burrow (*Wexford People*, issue dated 11 October 2006, page 16 and *Wexford Echo* issue dated 11 October 2006, page 13).

Web links: The Herpetological Conservation Trust is leading efforts to improve the conservation of lizards and is at <http://www.herpconstrust.org.uk/>. For global turtle diversity and conservation biology see the web site of the Chelonian Research Foundation at <http://www.chelonian.org>. See, too, <http://www.euroturtle.org> for descriptions and distribution maps with regard to eight species. Marine turtles in UK waters are featured on the Marine Conservation Society web site at <http://www.mcsuk.org> with emphasis on the Leathery Turtle. The JNCC report with regard to *Bycatch of marine turtles in UK and Irish waters* (Pierpoint, 2000) may be downloaded from the Joint Nature Conservation Council (JNCC) web site at http://www.jncc.gov.uk/communications/pubcat/publications/JNCC_310/default.htm.

The website of the Irish Whale and Dolphin Group (IWDG) at <http://www.iwdg.ie> has opportunistic records of turtles. The website of the Irish Sea Leatherback Turtle Project is at <http://www.turtle.ie/>.

5.38 Birds Class Aves

Reference to earlier report

- Hurley, 2003 page 59 quantifies the avifauna of Ireland.
- Hurley, 2005 page 63 has a press report with regard to species were under threat.

Addendum. The Irish list stood at 428 on 31 December 2000; the Irish Rare Birds Committee (IRBC) provided a breakdown by category (<http://www.birdwatchireland.ie/>).

5.39 Wetland birds

5.39.1 Definition

Reference to earlier report

- Hurley, 1997 page 53 defines the term 'waterfowl'.
- Hurley, 2005 page 63 updates with regard to the definition of 'waterbirds'.

5.39.2 Movements

References to earlier reports

- Hurley, 1997 page 54 mentions the East Atlantic Flyway and a neck-banded Whooper Swan at Lady's Island Lake.
- Hurley, 2000 page 75 records a significant movement of Woodcock *Scolopax rusticola* at Kilmore Quay in the winter of 1813-14.
- Hurley, 2005 pages 63-64 updates with regard to the status of the Whooper Swan in County Wexford.

Web link. The Wildfowl and Wetlands Trust (WWT) website that satellite tracks the movement of six Brent Geese between the WWT centre at Castle Espie and the high arctic tundra is at <http://www.wwt.org.uk/brent/>.

5.39.3 Protection

References to earlier reports

- Hurley, 1997 page 54 mentions the SPA classification of Lady's Island Lake.
- Hurley, 2000 pages 57-58 lists sites of importance for wetland birds on the South Wexford Coast. Counts at Bannow Bay, The Cull/Killag, Tacumshin Lake and Lady's Island Lake for the period 1984-1987 are tabulated. The status of the Mute Swan *Cygnus olor* and Greylag Goose *Anser anser* at Lady's Island Lake is mentioned.

Page link. Section 6.3.1 with regard to Important Bird Areas (IBAs) and Section 6.4.2 with regard to the Birds Directive and Special Protection Areas (SPAs).

5.39.4 Feeding

References to earlier reports

- Hurley, 1997 pages 54-56 gives the overview.
- Hurley, 2006 page 60 updates with regard to waterbird monitoring at Lady's Island Lake, 1969-2005.

Update. Results of all during the period were consolidated in a report (Hurley, 2005) thereby superseding all previous updates

5.39.5 Breeding

References to earlier reports

- Hurley, 1997 pages 56-58 gives the overview.
- Hurley, 2000 page 78 contains an update with regard to Greylag Geese *Anser anser*.
- Hurley, 2002 page 67 has updates with regard to Gadwall *Anas strepera* and Greylag Geese *Anser anser*.
- Hurley, 2005 page 65 updates with regard to Greylag Geese *Anser anser* at Sgarbheen.

5.39.6 Disturbance

Reference to earlier report

- Hurley, 1997 page 58 is the sole reference.

5.39.7 Conservation

References to earlier reports

- Hurley, 1997 page 58 introduces the topic.
- Hurley, 2004 pages 76-77 tabulates duck numbers by year.

Update. A possible outbreak of avian 'flu was suspected when some fifty Whooper Swans died in Wexford. Most of the birds were at the North Slob but a few dead and sickly birds were reported from the South Wexford Coast especially from Tacumshin Lake. On 14 January 2006, a dying Whooper Swan was reported from Sigginstown (T 05 06) (personal communication, Declan Walsh). Investigations by scientists from the Department of Agriculture and Food ruled out avian 'flu and other infectious diseases and suggested that lead poisoning was the cause. It was assumed that the birds died as a result of ingesting lead shot as grit (Government press release dated 10 January 2006; *The Irish Times*, issue dated 11 January 2006, page 3; *Wexford Echo*, issue dated 11 January 2006, pages 1 and 3; *New Ross Standard*, issues dated 18 January 2006, page 9 and 1 February 2006, page 27; and *Wings* magazine Number 40, Spring 2006, page 25). Wildlife officials remained vigilant (*New Ross Standard*, issues dated 22 February 2006, page 60). The Department of Agriculture and Food requested information on mortalities in named wild bird species (*The Irish Times*, issue dated 21 March 2006, page 3). Dr Inma Aznar (inma.aznar@ucd.ie) contacted Jim Hurley seeking information with regard to lagoons on the South Wexford Coast. She was a veterinary epidemiologist working on a risk assessment on avian influenza for the Department of Agriculture, based in the CVERA-Centre for Veterinary Epidemiology and Risk Analysis, UCD, Belfield. As part of her risk assessment she was trying to evaluate the AIV persistence and transmission in surface water. She explained that the virus' survival depends on the pH, temperature and salinity of the water and that she was gathering information on those parameters from water bodies in different parts of the country.

5.39.8 I-WeBS results

References to earlier reports

- Hurley, 2006 pages 61-62 introduces the topic.

5.40 Seabirds

References to earlier reports

- Hurley, 2003 pages 64-65 gives evidence of competition for food in Northern Gannets collected at Saltee Island Great.
- Hurley, 2004 page 78 updates with regard to Oscar Merne's accident on Saltee Island great, injured birds, and David Cabot's research on Saltee Island Little.
- Hurley, 2005 pages 66-70 updates with regard to (1) tabulation of the results of the Seabird 2000 survey, (2) Northern Gannets on Saltee Island Great, (3) decline in the Herring Gull population, (4) Black-headed Gull count at Lady's Island Lake, and (5) records of birds seen at Ballygrangans-Bastardstown.

- Hurley, 2006 pages 63-64 updates with regard to David Cabot's research on Saltee Island Little during 2005.

Page link: Section 5.41.1 with regard to records.

Web link: Henry Grattan Bellew's website with regard to Saltee Island Little is at <http://homepage.eircom.net/~snicholson>. Seabird 2000 counts of seabirds at individual colonies can be obtained from the NBN Gateway at <http://www.searchNBN.net>. Details with regard to the Project Puffin run by the National Audubon Society's since 1973 are at www.projectpuffin.org.

5.40.1 Terns Sub-family Sterninae

5.40.1.1 Breeding

References to earlier reports

Note: Since each updated version of the tables and charts supersedes all previous versions, only the versions given in the current report are relevant. Updates referred to below are separate from data updating the tables and charts.

- Hurley, 1997 pages 59-66 gives the overview.
- Hurley, 1998 pages 22-24 gives an addendum and update.
- Hurley, 1999 page 62 updates.
- Hurley, 2003 page 65 updates.
- Hurley, 2004 page 78 updates.
- Hurley, 2005 page 71 has an addendum with regard to BirdWatch Ireland data.
- Hurley, 2006 page 66-69 updates for 2005.

Update: Tables and charts are updated below.

Year	All four species of terns	Sandwich Terns	Common Tern and Arctic Terns	Common Tern	Arctic Terns	Roseate Terns
1978	734	354	160	No count	No count	220
1979	710	204	220	No count	No count	286
1980	524	106	274	No count	No count	144
1981	917	350	291	No count	No count	276
1982	235	120	105	No count	No count	10
1983	8	4	3	No count	No count	1
1984	256	191	30	No count	No count	35
1985	294	291	3	No count	No count	0
1986	555	524	31	No count	No count	0
1987	932	708	216	No count	No count	8
1988	615	412	195	No count	No count	8
1989	1843	1317	450	No count	No count	76
1990	1869	1395	414	No count	No count	60
1991	1889	1469	360	No count	No count	60
1992	1734	1129	529	No count	No count	76
1993	1706	1254	376	No count	No count	76
1994	2142	1447	555	No count	No count	140
1995	1593	1130	401	No count	No count	62
1996	2011	1358	529	386 (73%)	143 (27%)	124
1997	1598	1050	500	354 (71%)	146 (29%)	48
1998	1554	1015	459	281 (61%)	178 (39%)	80
1999	1879	1048	715	440 (62%)	275 (38%)	116
2000	>1149	1005	>66	No count	No count	>78
2001	1552	1068	484	298 (62%)	186 (38%)	46
2002	1474	825	649	400 (62%)	249 (38%)	95
2003	>1329	1252	No count	No count	No count	77
2004	1900	1161	673	311 (46%)	362 (54%)	66
2005	1899	1122	703	No count	No count	74
2006	2134	1309	732	No count	No count	93

Table 8: Number of pairs of nesting terns by species by year since 1978.

Data sources by season:

1978-1982	Goodwillie, 1986 page 6 (after Whilde, 1985 [All Ireland Tern Survey, 1984] and personal communication, Oscar Merne).
1983-1998	Stammers <i>et al.</i> , 1998 pages 18 and 30.
1999	Newton and Berridge, 1999, pages 4-5 and personal communication, Dr Stephen Newton.
2000	Personal communication, Dave Daly / Dúchas; Ratcliffe, 2000; and personal communication, Dr Stephen Newton.
2001	Merne <i>et al.</i> , 2001 and personal communication, Dr Stephen Newton.
2002	Crowe, 2002 and personal communication, Dr Stephen Newton.
2003	Newton, 2003 and personal communication, Dr Stephen Newton.
2004	Daly <i>et al.</i> , 2004 and personal communication, Dr Stephen Newton.
2005	Daly and Carroll, 2005.
2006	Daly and Carroll, 2006.

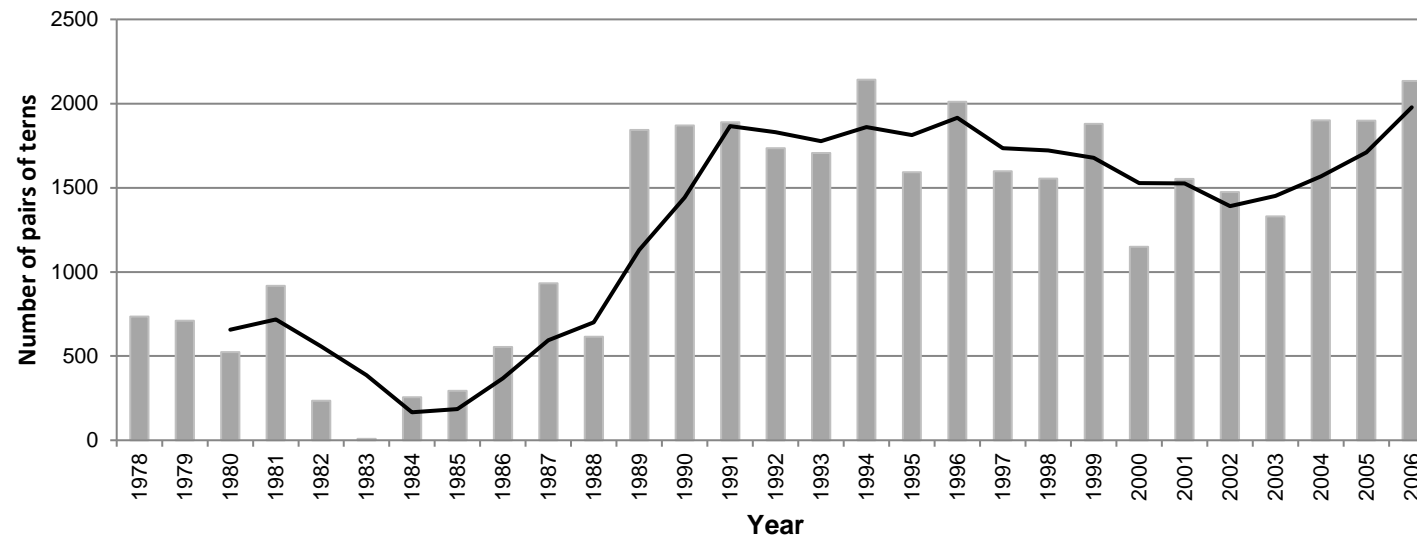


Figure 6: Trend for numbers of all nesting terns since 1978.

(Source: Table 8 above)

Note: The continuous line is a trendline. The trendline is a plot of the 3-year moving average. The trendline smoothes annual fluctuations and thus indicates the general direction in which usage of the site by pairs of nesting terns changes over time.

Usage of the site by nesting terns declined in the early 1980s, bottomed-out in 1983 but then rose rapidly to about 1800 pairs by the end of the decade. A plateau was more or less maintained throughout the 1990s at that level [10-year average 1990-1999 = 1797.5 nesting pairs per annum; range 1554 (1998) - 2142(1994)]. Numbers declined briefly in the early 2000s but rose again by the mid-decade.

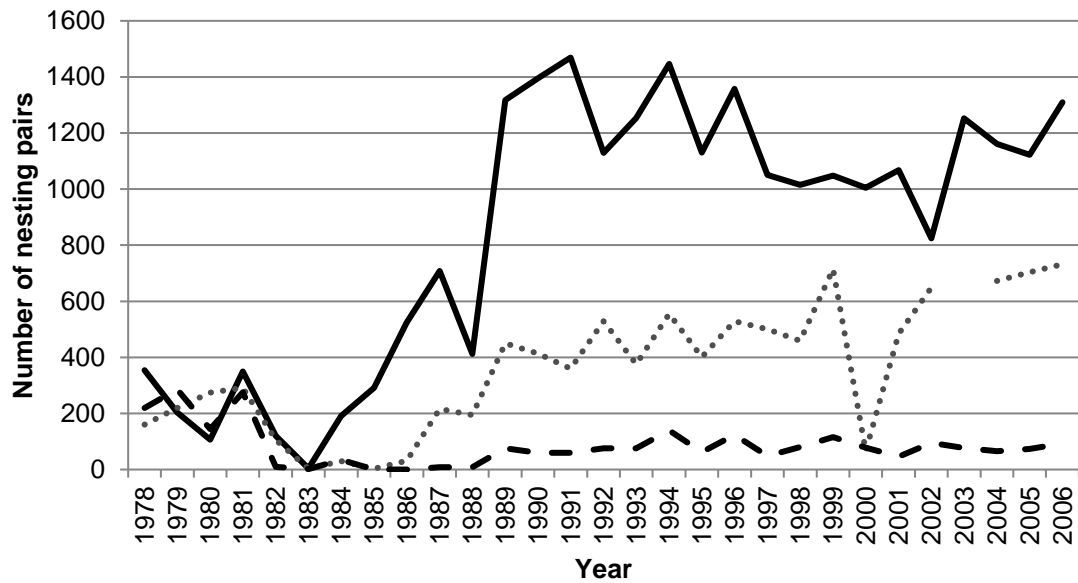


Figure 7: Number of pairs of nesting terns by species by year.

(Source: Table 8 above)

The upper solid line = Sandwich Terns. The central dotted line = Common/Arctic Terns and the lower dashed line = Roseate Terns.

Year	First eggs	Peak lay date	Main laying period	Median laying period	n (% of total eggs)
1997	17 May	27 May (22.6%)	24 May - 2 June (66.0%)	30 May	53(66.3%)
1998	21 May	27 May (23.7%)	23 May - 2 June (77.3%)	28 May	101(77.7%)
1999	5 May	May (12.2%)	16 May - 25 May (76.4%)	23 May	135 (77.1%)
2004	17 May				
2005	9 May		9 May – 7 June		131
2006	15 May		15 May – 2 July		142

Table 9: Egg-laying parameters of Roseate Terns nests.

(Sources: Newton and Crowe, 2000 page 17, Table 2.8; Daly *et al.*, 2004; Daly and Carroll, 2005; Daly and Carroll, 2006)

Year	ST	CT/AT	RT
1993	1.3	No data	1.4
1994	1.4	2.0	1.4
1995	1.7	2.5	1.6
1996	1.7	2.4	1.7
1997	1.5	No data	1.7
1998	1.4	2.2	1.6
1999	1.5	No data	1.5
2000	No data	No data	No data
2001	No data	No data	No data
2002	No data	No data	No data
2003	No data	No data	No data
2004	1.67	2.43	1.79
2005	1.66	2.47	1.77
2006	No data	No data	1.53

Table 10: Mean clutch size for breeding terns since 1993.

Note: Mean clutch size (number of eggs per nesting pair) is given for breeding Sandwich Tern *Sterna sandvicensis* (ST), undifferentiated Common Terns *Sterna hirundo* and Arctic Terns *Sterna paradisaea* (CT/AT) and Roseate Terns *Sterna dougalii* (RT) at Lady's Island Lake.

(Source: Lady's Island Lake annual Tern Reports; Newton and Crowe, 2000 page 16, Table 2.7
Daly *et al.*, 2004; Daly and Carroll, 2005; Daly and Carroll, 2006)

Year	Productivity	Source
1996	1.07	Newton and Wallace, 1998.
1997	0.74-1.13	Newton and Wallace, 1998.
1998	1.04	Newton and Crowe, 2000 page 18, Table 2.10; see also Stammers <i>et al.</i> , 1998 pages 28-29.
1999	0.62-0.98	Newton and Crowe, 2000 page 18, Table 2.10; see also Newton and Berridge, 1999.
2000	No record	Believed low due to the wet summer (personal communication, Dave Daly / Dúchas).
2001	0.72 early →±0 late	Colony decimated by rats prior to fledging (Merne <i>et al.</i> , 2001).
2002	?	"... cold snap in early July claimed its toll" (Wilson, 2002).
2003	1.55	"... 67 Roseate pairs have raised 104 chicks" (Newton, 2003).
2004	1.24	Daly <i>et al.</i> , 2004.
2005	1.48	Daly and Carroll, 2005.
2006		"... hatching success rate of 88.7% per egg laying pair" (Daly and Carroll, 2006).

Table 11: Productivity of Roseate Terns since 1996.

Note: Productivity is the number of young fledged per egg-laying pair. All numbers are estimates.

5.40.1.2 Feeding

References to earlier reports

- Hurley, 1997 page 61 gives the overview.
- Hurley, 1998 page 22 gives a minor correction.
- Hurley 1999 page 62 gives a very brief update.

5.40.1.3 Conservation

References to earlier reports

- Hurley, 1997 pages 63-64 gives the overview.
- Hurley, 1998 page 22 gives updates.
- Hurley, 1999 page 62 gives a further brief update.
- Hurley, 2000 pages 79-80 gives an update with regard to wardening and an addendum with regard to mortality in the wintering grounds in west Africa.
- Hurley, 2001 pages 67-71 gives addenda with regard to research projects and predation, and updates with regard to the importance of the colony at Lady's Island Lake and wardening during 2000.
- Hurley, 2002 pages 73-74 has an addendum with regard to wardening and colony monitoring, and an update with regard to wardening during 2001. An item with regard to terns breeding in Wexford is reproduced.
- Hurley, 2003 page 70 updates with regard to a bullock on Inish and the 35th All Ireland Conference on Bird Conservation.
- Hurley, 2004 pages 83-84 updates with regard to a workshop on Roseate Terns, tern wardens during the 2003 season, and on-going ornithological research.
- Hurley, 2005 pages 76-77 updates with regard to wardening and a contour map of Inish.

Page link: Section 17.21 with regard to management of water sports.

Web link: The Octopus website is at <http://www.octopusclothing.net>.

5.40.1.4 Movements

References to earlier reports

- Hurley 1998 page 23 e) has a brief note with regard to colony interchange.
- Hurley 1999 page 62 has an update.
- Hurley 2000 page 79 has a further update.
- Hurley, 2001 page 70 has updates with regard to the number of tern chicks ringed at Lady's Island Lake, the recruitment coefficient of the colony and some ringing recoveries.
- Hurley, 2002 page 74 has a brief update with regard to the numbers of tern chicks ringed at Lady's Island Lake in 2001.

Page link: Section 5.41.3 with regard to ring recoveries. Section 17.17.2 with regard to studies of the movements of seabirds in and around the wind farm at Carnsore Point.

Web links: For the report (Oschadleus, 2000) referred to in Hurley 2001, page 70, see the website of the South African Bird Ringing Unit (SAFRING) of the Avian Demography Unit (ADU) in the Department of Statistical Science at the University of Capetown at http://www.uct.ac.za/depts/stats/adu/sfr_recov98_99.htm. Video clips of Roseate Terns in flight are available at http://www.birdguides.com/html/vidlib/species/Sterna_dougallii.htm.

5.41 Other birds

References to earlier reports

- Hurley, 2004 pages 85-86 lists some local names for wild birds.

5.41.1 Records

References to earlier reports

- Hurley, 1997 page 53 mentions the Proud Stork (Section 5.24). Page 66 refers to other species and the community of birds breeding on the barrier.

- Hurley, 2000 page 82 refers to releases of homing pigeons, daily counts of birds at Lady's Island Lake conducted in 1997 and a database being compiled by Jim Hurley of birds recorded in the study area.
- Hurley, 2002 page 75 has an addendum with regard to Gannet studies at Saltee Island Great and an update with regard to pigeon releases from the pilgrimage car park at Lady's Island.
- Hurley, 2003 page 71 has an update with regard to seabird data on the Internet and pigeon releases from the pilgrimage car park at Lady's Island.
- Hurley, 2004 page 87 has an update with regard to three opportunistic bird records.
- Hurley, 2005 page 78 updates with regard to four opportunistic bird records.
- Hurley, 2006 page 71 has an addendum with regard to a Kingfisher, and updates with regard to Brent Geese and a Corncrake.

Page link: Section 5.40 above with regard to Northern Gannet studies at Saltee Island Great.

Web link: It is planned to have site-based data from the Seabird 2000 survey available on the Internet at the JNCC website <http://www.jncc.gov.uk/>.

5.41.2 Case Studies

References to earlier reports

- Hurley, 1999 pages 68-69 refers to the Mediterranean Gull *Larus melanocephalus* and the Magpie *Pica pica*.
- Hurley, 2003 page 71 has an update with regard to the results of a study of the status and breeding performance of the Peregrine Falcon *Falco peregrinus* in southeast Ireland in the 21-year period 1981-2001.

Web links: The RSPB has an online database of species profiles of more than 280 bird species on its website at <http://www.rspb.org.uk/>.

5.41.3 Ring recoveries

Reference to earlier report

- Hurley, 2001 page 71 gives ring recoveries for 1999 for Fulmar and Storm Petrel.

Page link: Section 5.40.1.4 with regard to tern movement as evidenced by ring reading. Section 11.7 refers to the monitoring of marine pollutants, in this case relevant because of rings recovered from oiled seabirds.

5.42 Mammals Class Mammalia

Reference to earlier report

- Hurley, 2001 page 71 gives an overview of the classification of the 58 species of mammal found living in Ireland today.

Web links: For an overview of mammals in general see the BBC's The Life of Mammals web pages at <http://www.bbc.co.uk/nature/>. Aberdeen University hosts the Mammal Society's website at <http://www.abdn.ac.uk/mammal/>. Nature Navigator at <http://www.nhm.ac.uk/naturenavigator/> is a one-stop shop for information about wildlife in the UK.

5.42.1 Hedgehog and Pygmy Shrew Order Insectivora

References to earlier reports

- Hurley, 2000 page 87 consolidates distribution records.
- Hurley, 2001 page 72 has two addenda and one update.
- Hurley, 2002 page 76 updates for 2001.
- Hurley, 2003 page 72 updates for 2002.
- Hurley, 2005 page 79-80 updates for 2004.
- Hurley, 2006 page 72 updates for 2005.

Updates

Hedgehogs: The following opportunistic records were noted during 2006.

- 24 July 2006; three live juveniles wandering out from under a tall *Escallonia* garden hedge at Newtown (S 976 052), Kilmore Quay (personal communication, John Rossiter). A search of the hedge by Jim Hurley and John Rossiter revealed a dead adult in a nest.

Pygmy Shrew: The following opportunistic record was noted during 2006.

- 22 June 2006; one dead on the path at S 963 039 in Ballyteige Burrow Nature Reserve; Jim Hurley.

5.42.2 Bats Order Chiroptera

References to earlier reports

- Hurley, 1999 pages 71-77 is the principal entry.
- Hurley, 2000 pages 84-85 gives some corrigenda, addenda and updates.
- Hurley, 2001 page 72 gives a record of a possible *Pipistrelle*.
- Hurley, 2003 page 72 updates for 2002.
- Hurley, 2004 pages 88-90 has an addendum giving a summary of bat records at Tintern Abbey prior to 2003 and two updates for 2003.
- Hurley, 2005 page 80 updates with regard to a proposed bat group.
- Hurley, 2006 page 73 updates with regard to sampling of *Leisler's Bat* at Baldwinstown for an investigation of the molecular ecology and conservation genetics of that species in Ireland.

Updates

- **Common Pipistrelle.** In a survey conducted by Jim Hurley from 20:20 to 21:05 hours along the pilgrimage route at Lady's Island (T 105 072) on 15 September 2006, fourteen small bats were seen flying at a height of 3-5m along the tops of the hedgerows, over the pilgrimage route, and along the edge of the lagoon. Using a Pettersson D200 detector the animals were identified as Common *Pipistrelles*. No other species was recorded echolocating outside of a range peaking at 45kHz.
- **Leisler's Bat.** During the season, sounds of this species at 22kHz were regularly recorded from the maternity roost at Mrs Sanieil's house at Baldwinstown (S 968 101), from feeding areas at the high tide mark at Forlorn Point (S 963 031), Kilmore Quay, and from the mating area in the roadside trees at Oldhall (S 983 099).
- **Daubenton's Bat.** A survey was conducted at Tintern Abbey and a report was published (Hurley, 2006).

Web link: The website of the UNEP/EUROBATS Secretariat in Bonn is at <http://www.eurobats.org>. Bat Conservation Ireland (BCI) is at www.batconservationireland.org.

5.42.3 Hares and Rabbits Order Lagomorpha

References to earlier reports

- Hurley, 2000 page 88 consolidates distribution records.
- Hurley, 2001 page 72 has one brief update with regard to a coney-warren at Rosslare about 1282.
- Hurley, 2002 page 76 has two additional distribution records.
- Hurley, 2003 page 73 has two additional distribution records.
- Hurley, 2004 page 90 has one additional distribution record.

- Hurley, 2005 page 80 updates for 2004.
- Hurley, 2006 page 74 updates with regard to action plan for the Irish Hare and records for 2005.

Updates

Records: The following opportunistic records were noted during 2006.

Irish Hare

- One trotting along the foreshore at Lady's Island Lake at T 103 080, Butlerstown, Broadway, on 4 March 2006; Jim Hurley.
- One crossed the road at T 115 047, Summertown, Lady's Island at dusk on 30 March 2006; Jim Hurley.
- One crossed the field at S 949 056 near the gravel workings at Inish and Ballyteige Slob on 5 April 2006; Jim Hurley.
- Two adults at S 963 039 in the cattle pasture near Sofrimar factory premises at Inish and Ballyteige Slob on 24 April 2006; Jim Hurley. Five adults were present in the field on 1 May 2006.
- Two adults at S 942 060 at Inish and Ballyteige Slob on 1 May 2006; Jim Hurley.

Rabbit

- One in pasture at T 104 053 Ringsherane on 13 February 2006; Jim Hurley.
- Two young ones at S 937 062 near the Cull Bank at Ballyteige Burrow on 24 April 2006; Jim Hurley.
- One on the track at T 096 069 Rathshillane on 13 October 2006; Jim Hurley.

Web link: The web site of the IUCN/SSC Lagomorph Specialist Group (LSG) at <http://www.ualberta.ca/~dhik/lsg/> has links to related lagomorph sites. The Irish Hare Group is at www.irishhare.org.

5.42.4 Rodents Order Rodentia

References to earlier reports

- Hurley, 2000 pages 85-86 consolidates distribution records.
- Hurley, 2004 page 90 updates with regard to records for 2003.
- Hurley, 2005 page 81 has two addenda with regard to Red Squirrels.
- Hurley, 2006 page 74 updates with regard to a record of a Field Mouse at Ballyteige Burrow.

Corrigendum: The grid reference given in Hurley, 2004 page 90 should read S 860 153 not S 860 053.

Updates

Virus threat. The very rapid spread of squirrel poxvirus in Britain was seen as a further threat to Red Squirrel populations in Ireland (*The Irish Times*, issue dated 23 August 2006, page 2).

Grey Squirrels. A national survey was conducted. There were several reports from the Johnstown Castle estate and the New Ross area; also, "a couple of greys" were trapped at the J. F. Kennedy Arboretum (personal communication, Michael McGoldrick, squirrel survey organiser, Department of Zoology, Trinity College, Dublin).

5.42.5 Cetaceans Order Cetacea

References to earlier reports

- Hurley, 1997 page 67 gives a record of a Minke Whale at Ring in 1985.
- Hurley, 1998 page 27 has an addendum with regard to the Irish Whale and Dolphin Sanctuary.
- Hurley, 1999 page 70 records a stranded Common Porpoise at The Cut in 1998.
- Hurley, 2001 pages 72-79 consolidates records of sightings and strandings of 13 species recorded on the South Wexford Coast.
- Hurley, 2002 pages 76-78 has one minor correction, two additions (an unidentified dolphin at Bastardstown in 1999 and a Common Dolphin at Kilmore Quay in 1998) and updates with regard to sightings in 2001 of Harbour Porpoise, Killer Whale and Risso's Dolphin and strandings in 2001 of Risso's Dolphin at Rostonstown and Ballyteige Burrow.
- Hurley, 2003 pages 73-79 has an addendum with regard to a Cuvier's Beaked Whale at Ballyteige Burrow in 1997 and Bottlenose Dolphins on the South Wexford Coast. An update for sightings and strandings during 2002 is given together with extracts of all sightings and strandings for the South Wexford Coast copied from the database on the website of the Irish Whale and Dolphin Group (IWDG).
- Hurley, 2004 ages 91-98 updates with records for 2004.
- Hurley, 2005 pages 81-86 has addenda with regard to (1) old records, (2) Ziiphid records, and (3) a Constant Effort Watch at Hook Head, and updates with regard to (1) a Constant Effort Watch, and (2) records of strandings and sightings.
- Hurley, 2006 pages 75-77 updates for 2006.

Updates

Hook Head activity. In January, there were reports of dolphins and large whales off County Waterford and in the Hook Head area suggesting that the whale activity in the west Cork hot spots had moved eastwards (personal communication, Pádraig Whooley, IWDG). Some weeks later, the presence of both Fin Whales and Humpback Whales off Hook Head was confirmed by Tony Murray (see Constant Effort Watch results). On 11 February 2006, sprats were plentiful in Waterford Estuary, gulls were feeding on them, and 20-30 Common Dolphins regularly passed up the estuary on the flooding tide and returned on the ebbing tide (personal communication, Paddy Roche, operator of the Ballyhack/Passage East car ferry).

Common Dolphin stranding. At noon on Sunday 2 April 2006 a dolphin live-stranded on the rocks at S 961 033 immediately west of Kilmore Quay village and at the extreme eastern end of the shore of Ballyteige Burrow. The animal was identified as a Common Dolphin *Delphinus delphis* by the combination of the hourglass pattern on the sides that is characteristic of the species, and the presence of dark lines running from the flippers to under the beak. The length of the body (2.4m), the relatively short genital opening, the distinctly separate anal opening, and the absence of mammary slits indicated that the animal was a mature adult male. The dolphin was assisted by Jim Hurley into knee-deep water but it lay on its side and made very little effort to swim. The rising tide and on-shore wind beached it again. Repeated attempts to return it to the sea did not meet with success; it started bleeding from the mouth and died shortly afterwards. The following morning its remains were present on the beach and were being scavenged by gulls. Other strandings and sighting are recorded in the IWDG database.

Rosslare ferry watch. Sea Trust, the marine arm of the Wildlife Trust in south Wales advertised in the local press for 100 volunteers to help with cetacean spotting on the Fishguard-Rosslare ferry (*Wexford Echo*, issue dated 9 August 2006, page 9).

Web links: For a guide to the 81 species found worldwide, see the Cetacea website at <http://www.cetacea.org/>. For a guide to the 28 species recorded in British and Irish waters see <http://www.seawatchfoundation.org.uk/> or the Orca (Organisation Cetacea) website at <http://www.orcaweb.org.uk>. The Whale and Dolphin Conservation Society website is at <http://www.wdcs.org/>. The Irish Whale and Dolphin Group website is at <http://www.iwdg.ie/>. And <http://www.sunnysoutheast.com/wexboats/index.htm> offers an option to go cetacean spotting at Kilmore Quay.

5.42.6 Carnivores Order Carnivora

5.42.6.1 Red Fox

References to earlier reports

- Hurley, 2000 page 89 consolidates distribution records.
- Hurley, 2002 page 78 has an update.
- Hurley, 2003 page 79 has an update.
- Hurley, 2004 page 98 has one update.
- Hurley, 2005 page 87 has an update.

5.42.6.2 Pine Marten

Reference to earlier report

- Hurley, 2000 page 89 consolidates distribution records. (Correct spelling 'Martin' to 'Marten').

5.42.6.3 Irish Stoat

References to earlier reports

- Hurley, 2000 page 90 consolidates distribution records.
- Hurley, 2003 page 79 has an update.
- Hurley, 2005 page 87 has an update.
- Hurley, 2006 page 78 updates with three records for 2005.

Updates

Records: The following opportunistic records were made by Jim Hurley during the year.

- On 19 March 2006 one seen running by road-side grassy verge at S 783 045 near Ralph Cross Roads, Fethard.
- On 27 April 2006 an adult crossed the Kilmore Quay – Baldwinstown road at S 966 053 near Furlong's Road.

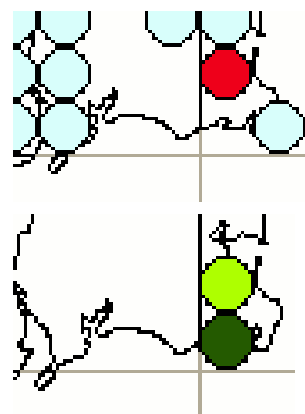
5.42.6.4 American Mink

References to earlier reports

- Hurley, 1997 page 67 gives a record for Carnsore Point.
- Hurley, 1999 page 71 gives an overview and sightings at Lady's Island Lake.
- Hurley, 2000 pages 83-84 has an addendum.

Update: During a national Otter survey, recorders were asked to note any signs of American Mink *Mustela vison* present in the survey areas, although they were not specifically asked to search for them. As a result, the species is likely to have been under-recorded (Bailey and Rochford, 2006 page 25).

The upper image (right) shows the distribution of mink recorded during the 2004/2005 Otter survey. 10km squares surveyed are shown in pale blue, and those where mink were recorded are shown in red. The lower image (right) shows the spread of American Mink since the 1980/81 American Mink survey. 10km squares in which mink were present in 1980/1981 are shown in dark green, while those in light green show the additional distribution in 2004/2005.



5.42.6.5 Badger

References to earlier reports

- Hurley, 2000 page 91 consolidates distribution records.
- Hurley, 2002 pages 78-79 has an update.
- Hurley, 2004 page 98 has an update.
- Hurley, 2005 page 88 has an update.
- Hurley, 2006 page 78 updates with two records for 2005

Updates

Records: The following opportunistic records were made by Jim Hurley during the year.

- On 13 February 2006, tracks were seen in mud at T 108 058 in The Ring Lane, Lady's Island.

Web links: For a downloadable fact sheet about Badgers see www.abdn.ac.uk/mammal/badger.shtml.

5.42.6.6 Irish Otter

References to earlier reports

- Hurley, 1997 pages 66-67 gives records for Lady's Island Lake.
- Hurley, 1999 page 69 mentions hunting.
- Hurley, 2000 page 83 gives further records for Lady's Island Lake.
- Hurley, 2001 page 79 gives a sighting at Bannow Strand.
- Hurley, 2002 page 79 has records from Lady's Island Lake and from Petittstown, Ballycogley.
- Hurley, 2004 page 98 has a record from Lady's Island Lake.
- Hurley, 2005 page 88 has an update.

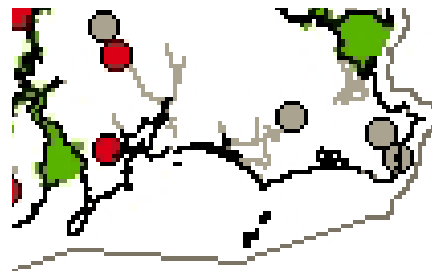
Updates

Records: On 8 January 2006, an Otter was seen at T 008 055 in the main drain at Ballyhealy Marsh (personal communication, Michael Busher).

National survey. The results of a national Otter survey were published (Bailey and Rochford, 2006). While the cSACs at both Wexford Harbour and Waterford Harbour were designated for Otters, no site on the South Wexford Coast was so designated (*ibid*, page 10 Figure 2.1). Four of the twelve 10km ING squares on the South Wexford Coast were surveyed; two (S71 and S70) returned positive results (green) for Otter



signs and two (T01 and T10) returned negative results (red) (*ibid*, page 16 Figure 3.2, image left). The locations of the survey sites were not given but are indicated (*ibid*, page 44 Figure 3.16, image right). Red circles = Otter signs present; grey circles = Otter signs absent; green areas = cSACs designated for Otters).



Web links: Web pages about Otters in Britain may accessed on the World Wildlife Fund's website at <http://www.wwf-uk.org/> and on The Wildlife Trusts website at <http://www.wildlifetrust.org.uk> under 'UK Species'. The results of the National Otter Survey 2004/2005 (Bailey and Rochford, 2006) are available at <http://www.npws.ie/en/media/NPWS/Publications/IrishWildlifeManuals/Media,4979,en.pdf>.

5.42.6.7 Other carnivores

Reference to earlier report

- Hurley, 2002 page 79 has a record of a Feral Cat at Lady's Island Lake.

5.42.7 Seals Order Pinnipedia

References to earlier reports

- Hurley, 1997 page 67 refers to a pup at Carnsore point.
- Hurley, 1998 page 27 refers to the importance of Black Rock.
- Hurley, 1999 pages 69-70 gives details with regard to Black Rock.
- Hurley, 2001 pages 79-80 has an addendum with regard to the Saltee Islands.
- Hurley, 2002 pages 79-83 gives an addendum with details with regard to pupping at the Saltee Islands in 1997-1998 and haul-out sites on the South Wexford Coast. In an update concern was expressed about seal mortality in South Wexford.
- Hurley, 2003 page 80 has updates with regard to the exceptional number of orphaned and injured seals rescued on the South Wexford Coast, and outbreaks of disease caused by the Pocrine Distemper Virus in several European countries and at Inis Mór, Co Galway.
- Hurley, 2004 page 99 updates with regard to an exceptional gathering of seals at Kilmore Quay in February 2003; a record of a dead juvenile is also given.
- Hurley, 2005 page 89 has an update with regard to Ballygrangans and Bastardstown.
- Hurley, 2006 page 97 updates with regard to orphaned pups rescued from beaches.

Addenda

Seal eats duck. Nicky Cullen, Libgate, Kilmore Quay, was duck-shooting at the Keeragh Islands during the month of January in the early 1960s in the company of Johnnie Holmes, Lough, Duncormick. Nicky shot two Mallard and the birds fell onto the surface of the sea. About 30 Grey Seals were loafing in the area and before the wildfowlers had time to retrieve the fallen birds, a seal swam out and eat one of the dead ducks (personal communication, Nicky Cullen).

Historical data. All of the information with regard to Grey Seal numbers on the South Wexford Coast prior to 1997 appears to be anecdotal with the exception of the following counts from aerial surveys conducted by Wildlife and Forestry (Table 12) (personal communication, Oliver Kiely). No adults or pups were recorded on Saltee Island Little during the 16 October 1997 count (personal communication, Damian Lidgard after Pat Warner). There is no data to show that Common Seals ever bred on the South Wexford Coast (personal communication, Oliver Kiely and Damian Lidgard).

Location	Count	Survey date
Saltee Island Great	16 adults and 8 pups	16 October 1979
Saltee Island Great	45 adults and 12 pups	24 October 1983
Saltee Island Little	5 adults and 1 pup	24 October 1983

Table 12: Grey Seal counts.

(Source: personal communication, Oliver Kiely)

Late November count. On a cruise around the two Saltee Islands on 30 November 1997, Jim Hurley counted the following numbers of Grey Seals: Saltee Island Little (3 adults), Saltee Island Great (48 adults + 2 pups; most on the northern shore near The Landing), and Coningmore Rock (1 adult); total 52 adults and 2 pups.

Seal deaths. Press reports claimed that the remains of 24 dead seals were washed up on the County Wexford coastline in the eight-week period extending from late September to late November 2000. Four remains were found near Kilmore Quay and eight were found between Tacumshin Lake and Carne. Some of the animals were malnourished, had mouth ulcers, loose teeth, eye problems, brittle bones and facial disfiguration. A rise in the number of seal corpses reported from Wales was noted together with the fact that all of the seal corpses were found in the area most impacted upon by the *Sea Empress* oil spill five years previously (*New Ross Standard*, issue dated 22 November 2000, page 16 and *The Irish Times*, issue dated 25 November 2000 page 3).

Colony interchange. Evidence of a Grey Seal moving between the coasts of Ireland and Wales was provided in a letter to the press (*The Irish Skipper*, issue dated November 1997 page 5).

The First of Many? “Welsh” Seal Found in Wexford

Letter

Dear Editor

When it comes to finding food, grey seals spend several months at sea, sometimes travelling hundreds of miles and navigating with remarkable accuracy. Previous research suggests that each grey seal has its own preferences for where it goes and what it eats. At least, that's what scientists think ... But what if it's not the few individuals but a bigger component of the population that moves in to a particular region to feed? - a case often levelled at “Scottish” seals in relation to fisheries interactions in

Ireland. Clearly the implications carry a lot more weight in this case.

Since 1995 studies have been underway at UCC to assess grey seal population movements but instead of having to handle the animals at all, which is dangerous, time-consuming and of limited informational value in population terms, all that's required is a photograph of the seal's head as a sort of ‘fingerprint’. These studies, funded by the Irish Seal Fisheries Interactions Working Group, were conducted at the Inishkea island group in Mayo, the Blasket Islands,

the Saltee Islands and at a major colony in Scotland.

The resulting computerised catalogue of grey seals termed “Eirphot” has now expanded under the Maritime INTERREG programme to include Wales. Recently we picked up the first international “match” and it's not between Scotland and Ireland. The animal is one of 11 females identified at the Saltees in the summer 1996. She was photographed at a breeding site in North Pembrokeshire, Wales a month or so after she visited the Saltees during her summer feeding period. Interestingly she is

blind in both eyes though in good physical condition, so she mustn't have much of a problem feeding or finding her way around. The question is, is she one of a whole bunch of migratory seals or just a loner? And what does it mean for fisheries if we have a dynamic seal population of multi-national seals?

Hopefully we'll have more answers in the future as the results of this work start to build up and our coverage of important sites increases.

Mise le meas

Oliver Kiely,
Coastal Resources Centre, UCC

‘Abandoned’ pups. Pups can really only be regarded as ‘abandoned’ if they are on their natal beach without an attending mother. Pups on mainland beaches can be from three possible sources: (1) they may have been born there, (2) they may have been washed off a natal beach on the Saltees or elsewhere, or (3) they may be weaned and be roaming at random in search of their mothers. In the case of the second possibility, if they washed off one beach they are liable to wash off repeatedly (personal communication, Damian Lidgard). It is possible that a few pups may be born on St Patrick's Bridge or on the Madjeen Reef during periods of neap tides. Records of white-coated pups reported stranded on the South Wexford Coast in the period 1994-2005 are set out below (Table 13). The locations of most stranded pups on the mainland are



closest to the Saltee Islands (Figure 8). Note that, most reported stranding tend to be from beaches with good access.

Figure 8: Locations of white-coated Grey Seal pups stranded on the mainland.

(Source: Table 13)

Update: A dead Grey Seal was noted by Jim Hurley on the beach at S 800 055 south of the access slipway to Grange Strand, Fethard. The remains were 96cm long and very thin.

Web links: For a fact sheet on Grey Seals see The Mammal Society web page at <http://www.abdn.ac.uk/~nhi775/gseal.htm>.

	Location	Grid Ref	Date	No	Source	Notes
	Ballygrangans	S 985 036	16 October 1994	1	Jim Hurley	93cm long; moved with difficulty; spine twisted.
	Cullenstown	S 870 076	27 October 1995	1	Eleanor Browne	On rocks 350m west of Cliff Cottage.
	Nemestown	S 975 035	30 October 1995	1	Maureen Whelan	
	Ringbaun	T 020 050	15 November 1995	1	Ian Matthews	
	Forlorn Point	S 961 030	01 December 1995	1	Valerie O'Flaherty	Very high on beach; pup bit her and drew blood.
	Ringbaun	T 020 050	17 September 1996	1	Mike Reilly	Pup gone the following day.
	Grogan Burrow	T 065 052	06 October 1996	1		
	Nemestown	S 973 035	15 October 1996	1	Nóra Doyle	In 'nest' in bank of oarweeds.
	Burrow	T 09 04	29 October 1996	1		On lake side; overtopped The Cut!
	Carnsore Point	T 119 035	19 October 1997	1	Joe Flynn	On the beach.
	Ballyteige Burrow	S 953 045	19 November 1997	1	Anne Mac Morris	Marked with candy pink spray paint (Saltees).
	Forlorn Point	S 961 030	22 November 1997	1	Jim Hurley	Gone the following morning.
	Lake Strand	S 868 075	13 September 1998	1	Teresa Walsh	High on the beach.
	Ballyteige Burrow	S 900 070	15 September 1998	2	Ger Woolley	Interview on South East Radio.
	Ballyhealy	T 011 049	07 November 1998	1	Jim Hurley	Near the Big Rock; gone the following morning.
	Rostonstown	T 082 050	08 November 1998	1	Will Warham	High on the beach; said to be moulting.
	Bannow		15 January 1999	2	Ger Woolley	Interview on South East Radio.
	Forlorn Point	S 961 030	26 September 1999	1	Jim Hurley	
	Ballyhealy	T 009 048	16 October 1999	1	Patricia Devereux	
	Forlorn Point	S 961 030	17 October 1999	1	Michael O'Flaherty	Injured; bleeding.
	Ringbaun	T 020 050	24 October 1999	1	Mike Reilly	
	Forlorn Point	S 961 030	24 October 1999	1	Brendan Hogan	Injured.
	Ballygrangans	S 988 038	25 October 1999	1	Jim Hurley	Mid-beach.
	Hook Head	S 73 97	07 November 1999	1	Jim Hurley	
	The Cut	T 09 04	12 October 2000	1	Irene Ellard	Via June Ellard.
	Ballyteige Burrow	S 960 031	16 October 2000	1	Jim Hurley	
	Ballyteige Burrow	S 953 045	27 October 2000	1	Rory Champion	Some patches of mottled grey showing.
	Slade	S 74 98	18 November 2000	1	Ann Chapman	Showing a lot of grey but still very small.

Kilmore Quay	S 96 03	18 October 2001	1	Michael Way	
Ballyhealy	T 011 049	24 October 2001	1	Ann Fortune	
Ballyteige Burrow	S 891 075	21 September 2002	1	Freddie Walsh	Dead and being pecked by gulls.
Ballygrangans	S 995 045	15 November 2003	2	Willi Balzar	Sent to the Irish Seal Sanctuary.
Ballygrangans	S 99 04	14 September 2004	1	visitor from Dublin	When JH went to check, the pup was not there.
Ballyteige Burrow	S 95 03	20 September 2004	1	Jim Hurley	
Ballyhealy	T 011 049	23 September 2004	1	Adrian Stafford	Injured; wound on its back.
Carnsore Point	T 119 035	05 October 2004	1	Jim Hurley	Dead.
Ballygrangans	S 99 04	14 September 2005	1	Anne O'Brien	

Table 13: Records of white-coated pups on the mainland shoreline 1994-2005.

6 NATURE CONSERVATION

6.1 Introduction

References to earlier reports

- Hurley, 1997 page 68 mentions habitat loss in the EU.
- Hurley, 1999 page 78 reviews nature conservation actions in Europe in the period 1995-1998.
- Hurley, 2000 page 92 lists tools for nature conservation and highlights the importance of ecological corridors.
- Hurley, 2003 page 81 updates with regard to the 2002 EPA assessment of the state of Ireland's environment.

Page link: Section 5.11.5 with regard to impacts on the barrier. Section 0 refers to EPA clean-up campaign.

Update. The results of the 2006 Environmental Performance Index (EPI) were released at the World Economic Forum in Switzerland on 26 January. The report compiled by Yale and Columbia universities ranked Ireland 10th of 133 countries for environmental policies on the basis of measurable environmental outcomes that can be linked to policy targets (Government press release). In September, the Environmental Protection Agency (EPA) published its third assessment and synopsis on the environment in Ireland through the use of 60 key environmental indicators (EPA, 2006). Its first assessment report was published in 1999 followed by its second in 2002.

Web link: The Environmental Protection Agency's (EPA's) website is at <http://www.epa.ie/>. The 2006 Environmental Performance Index report may be accessed at www.yale.edu/eipi.

6.2 Intergovernmental Conventions and Treaties

Page link: Section 6.6.2 tabulates and summarises designations by site.

Web link: For data about international environmental treaties in general see <http://sedac.ciesin.org/entri/> [Columbia University, USA, hosts the Socio-economic Data and Applications Centre (SEDAC) — an element of the United State's National Aeronautics and Space Administration (NASA) — as part of its Centre for the International Earth Science Information Network (CIESIN). The Environmental Treaties and Resource Indicators (ENTRI) service is an on-line SEDAC tool that integrates data about international environmental treaties].

6.2.1 The Ramsar Convention, 1971

References to earlier reports

- Hurley, 1997 pages 68-69 gives the overview with regard to the convention and refers to the status of Lady's Island Lake.
- Hurley, 1998 page 27 contains a brief update.
- Hurley, 1999 page 78 contains another brief update.
- Hurley, 2000 pages 92-93 updates again and refers to the Ramsar site at Bannow Bay.
- Hurley, 2001 page 81 has an addendum with regard to management plans for the Ramsar Site at Bannow Bay. It also refers to sites identified as important for waterfowl on the South Wexford Coast.
- Hurley, 2003 pages 81-82 has an addendum with regard to a 1999 report prepared by the National Parks and Wildlife Service (NPWS) detailing the government's planning tools for the implementation of the Convention in Ireland, and updates with regard to the Annotated Ramsar List for Ireland, the 2002 National Report prepared by the NPWS with regard to the implementation of the Convention, and the launching of the Wexford Wetlands inventory.
- Hurley, 2005 pages 90-91 has an addendum with regard to Bannow Bay and an update with regard to press coverage of Wexford's wetlands.
- Hurley, 2006 pages 80-81 updates with regard to COP9 and the Wexford Wetlands Project.

Page link: Section 6.6.1 introduces site interpretation.

Web links: The Ramsar Convention on Wetlands website is at <http://www.ramsar.org/>. For an annotated list of Ramsar sites in Ireland see http://ramsar.org/profiles_ireland.htm. And for the interpretative guide to the Ramsar list see http://ramsar.org/key_sitelist.htm. For a copy of the 55-page EC communication *Wise Use and Conservation of Wetlands* access http://www.europa.eu.int/comm/environment/nature/wetlands/wetlands_en.pdf. The pilot inventory of wetlands in Co Wexford is at <http://www.wexfordwetlands.org/>. The database of Wetlands International is at <http://www.wetlands.org/RSDb/default.htm>.

6.2.2 The CITES Convention, 1973

References to earlier reports

- Hurley, 2000 page 95 gives the overview.
- Hurley, 2001 page 81 has an addendum.
- Hurley, 2003 page 82 has an update with regard to a name change.

Addendum. CITES had its origin in a resolution adopted in 1963 at a meeting of members of the IUCN, the World Conservation Union. The Convention entered into force in 1975.

Web link: The website of the CITES Secretariat is at <http://www.cites.org>. See also www.traffic.org, www.iucn.org/themes/ssc/programs/trade.htm, www.wwf.org.uk/wildlifetrade/eyes, and http://europa.eu.int/comm/environment/cites/legislation_en.htm.

6.2.3 The Bonn Convention, June 1979

References to earlier reports

- Hurley, 1997 page 69 gives the overview.
- Hurley, 1998 pages 27-28 has an addendum and update.
- Hurley, 1999 page 78 gives a minor correction.
- Hurley, 2001 pages 81-82 has a further addendum and update.
- Hurley, 2004 page 101 updates with regard to the Agreement on the Conservation of African- Eurasian Migratory Waterbirds.

Web link: The Bonn Convention website is at <http://www.wcmc.org.uk/cms/>.

6.2.4 The Bern Convention, September 1979

References to earlier reports

- Hurley, 1997 page 69 gives the overview and refers to Lady's Island Lake.
- Hurley, 1998 page 27 gives an addendum and a corrigendum.
- Hurley, 2000 page 93 gives an addendum with regard to Ballyteige Burrow.
- Hurley, 2001 page 82 gives a corrigendum and update.
- Hurley, 2002 page 85 has an addendum with regard to the convention coming into force.
- Hurley, 2003 pages 82-83 has an update with regard to the date of ratification by Ireland.
- Hurley, 2005 page 92 updates with regard to a downloadable site fact sheet with data on Ballyteige Burrow.

Web link: The Council of Europe Legal Affairs website is at <http://conventions.coe.int/Treaty/EN/cadreprincipal.htm>. The EUNIS (European Nature Information System) website of the European Environment Agency is at <http://eunis.eea.eu.int/sites-factsheet.jsp?idsite=IE930001>.

6.2.5 The Biodiversity Convention, June 1992

References to earlier reports

- Hurley, 1997 page 70 gives the overview.
- Hurley, 1998 pages 28-29 has an addendum and gives updates by month for the calendar year 1997.

- Hurley, 1999 pages 78-79 gives updates by topic for the calendar year 1998. There is an outlying reference to the National Heritage Plan on page 90.
- Hurley, 2000 page 93-94 gives updates by topic for the calendar year 1999 with an outlying reference to the National Heritage Plan on page 102.
- Hurley, 2001 page 82 updates with regard to the National Biodiversity Plan.
- Hurley, 2002 pages 85-87 give an addendum with regard to ratification dates and updates with regard to sustainable development, the National Biodiversity Plan, the EPA's first review of the status of species and habitats in Ireland, a Comhar progress report on Agenda 21, and Wexford County Council's environment programme for 2001.
- Hurley, 2003 pages 83-84 has an addendum with regard to the first national report on the implementation of the Convention and updates with regard to the establishment of a National Biological Records Centre, the publication of the National Biodiversity Plan in April 2002, and 10-year reviews published for the UN World Summit on Sustainable Development held in August 2002.
- Hurley, 2004 page 102 has updates with regard to the National Platform for Biological Research (NPBR), *Europe's Environment: the third assessment*, the steps to be taken in drawing up a Local Biodiversity Action Plan (LBAP).
- Hurley, 2005 page 92 updates with regard to a local action plan for County Clare.
- Hurley, 2006 page 82 updates with regard to draft Species Action Plans.

Page link: Section 17.5 refers to ICZM in Local Agenda 21.

Addendum. The European Community Biodiversity Strategy was adopted in 1998. It provides a framework for the development of Community policies and instruments in order to comply with the Convention.

Updates

COP8. The 8th Conference of the Parties was held in Curitiba, Brazil on 29 March 2006. Minister Batt O'Keeffe informed the gathering that Ireland was meeting its obligations under the Convention through the National Biodiversity Plan 2002-2006 and that 83 of the 91 actions in the Plan were either implemented or were undergoing implementation (Source: Government press release).

Records Centre. The long-awaited National Biological Data Centre was launched in May 2006. The Centre is located at the Waterford Institute of Technology and is to be officially opened on 18 January 2007 (*The Irish Times*, issue dated 9 December 2006, Saturday Review, page 9).

Environmental Report. Wexford County Council produced an 'Environmental Report' as part of the Strategic Environmental Assessment for its Draft County Development Plan 2007-2013. The Report noted that "*biodiversity is in decline in County Wexford*" (page 11) but that the planners found it difficult to access data with regard to local biodiversity. The Report concluded (page 47) that

A Local Biodiversity Action Plan should be drawn up during the course of the life of the plan, which should provide a basis for establishing adequate monitoring of the county's biodiversity and should also form an excellent baseline of information for any subsequent plan. Development control policies should be tailored geographically to reflect the unique sensitivities of the various habitats and flora and fauna.

Education programme. Wexford County Council also produced an 'Environment Education Programme 2006/2007'. The programme was aimed at school children and with regard to biodiversity it focused primarily on wetlands and woodlands.

Web links: The Convention on Biological Diversity (CBD) website is at <http://www.unep.org/unep/secretar/biodiv/home.htm>. For CBD in Ireland see <http://www.biodiv.org/world/map.asp?ctr=ie&print=1>. The new Comhar (The National Sustainable Development Partnership) website is at <http://www.comhar-nsdp.ie>. Relevant Government CBD publications are available under the Environment option at <http://www.environ.ie>. The website of Sustainable Energy Ireland (sei) is at <http://www.irish-energy.ie>. Ireland's first national report may be downloaded (PDF,

451kb) from <http://www.biodiv.org/world/reports.aspx> The UN website for the World Summit is at <http://www.johannesburgsummit.org>. And, Earth Summit Ireland is at <http://www.earthsummit-ireland.org>. The National Platform for Biological Research website is at www.biodiversityresearch.ie/.

6.2.6 Climate Change Convention, 1992

References to earlier reports

- Hurley, 1998 page 29 gives the overview.
- Hurley, 1999 page 80 gives an update.
- Hurley, 2000 page 94 gives a further update.
- Hurley, 2001 pages 81-82 gives a further update.
- Hurley, 2002 page 87 updates with regard to the projected target for 2010.
- Hurley 2003 page 84 updates with regard to carbon dioxide (CO₂) in the atmosphere since 800 AD.

Page link: Section 5.9.2 with regard to climate change.

Web links: The UN Climate Change Secretariat website is at <http://www.unfccc.de/>.

6.2.7 The OSPAR Convention, 1992

References to earlier reports

- Hurley, 1998 page 29 is the original entry; not an update.
- Hurley, 1999 page 80 gives an update.
- Hurley, 2000 page 95 updates with regard to the proposed Quality Status Report.
- Hurley, 2001 page 83 gives an addendum and updates with regard to a Special Area designation and the publication of the Quality Status Report.

Page link: Section 11.5 with regard to monitoring of water quality. Section 11.6 with regard to marine pollution in general and Section 11.8 with specific regard to ionising radiation.

Addendum. The 1992 OSPAR Convention is the current instrument guiding international co-operation on the protection of the marine environment on the North-East Atlantic. OSPAR is a combination of the 1972 Oslo Convention on dumping waste at sea (OS) and the 1974 Paris Convention on land-based sources of marine pollution (PAR).

Web links: The OSPAR website is at <http://www.ospar.org/> and the Marine Institute address is <http://www.marine.ie/>.

6.2.8 The Access to Information Convention

Reference to earlier report

- Hurley, 1999 page 80 is the sole entry.

Page link: Section 6.4.6 with regard to the EU Freedom of Information Directive.

6.2.9 The Regulation of Whaling Convention, December 1946

Reference to earlier report

- Hurley, 2001 page 83 is the sole entry.

Web link: The text of the Convention may be accessed from the homepages of the International Whaling Commission's website at <http://www.iwcoffice.org/>.

6.2.10 The Pan-European Strategy

References to earlier reports

- Hurley, 2001 page 83 is the sole entry.
- Hurley, 2003 page 85 has a brief addendum.

Web link: The website of the Pan-European Biological and Landscape Diversity Strategy (PEBLDS) is at <http://www.strategyguide.org/>.

6.2.11 European Landscape Convention, October 2000

References to earlier reports

- Hurley, 2002 page 88 states that the Convention opened for signature on 20 October 2000.
- Hurley, 2003 page 85 has an update.

Page link: Section 6.3.6 refers to areas of landscape importance.

Web link: The full text of the Convention together with a summary and an explanatory report are posted on the Council of Europe website at <http://conventions.coe.int/>.

6.2.12 The London Convention, 1972

Reference to earlier report

- Hurley, 2004 page 103 is the sole entry.

6.2.13 The MARPOL Convention, 1973 and 1978

Reference to earlier report

- Hurley, 2004 page 103-4 is the sole entry.

6.3 Identifying important areas and species

6.3.1 Important Bird Areas (IBAs)

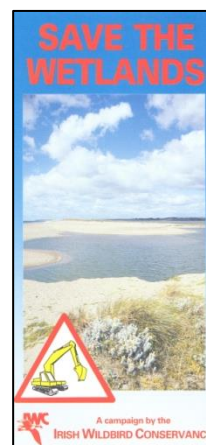
References to earlier reports

- Hurley, 1997 pages 70-71 is the principal entry and refers to Lady's Island Lake in particular.
- Hurley, 1998 page 29 has a correction.
- Hurley, 1999 page 80 gives an update and refers to the six IBAs on the South Wexford Coast.
- Hurley, 2000 pages 95-96 puts the SWC IBAs in the national context.
- Hurley, 2001 pages 83-84 refers to the updated (2000) IBA inventory.

Page link: Section 5.39.3 refers to protection of waterbirds. Section 6.4.2 refers to the Birds Directive and Special Protection Areas (SPAs) classified on foot of the identification of IBAs.

Addendum. The Irish Wildbird Conservancy (IWC) (now BirdWatch Ireland) ran a number of campaigns in the 1980s and 1990s to highlight threats to wetland Important Bird Areas (IBAs). Lady's Island Lake was always included in these campaigns. A photograph of The Cut featured on the cover of the Save the Wetlands campaign leaflet (image right). In 1991 the IWC produced a report on the protection of wetland IBAs and Lady's Island Lake was one of the five campaign sites in Ireland (Mayes, 1991 pages 9-16).

On 18 November 1994, Dr. John Coveney, IWC Conservation Officer wrote to Jim Hurley seeking information with regard to threats to IBAs on the South Wexford Coast. Jim Hurley's reply of 2 December 1994 is summarised as follows.



- **Bannow Bay** (IBA No.080). Existing threats: (1) Lack of any management plan for the site, (2) Shellfish aquaculture, (3) Gravel extraction at Big Burrow in a little tern nesting area, and (4) Motorbike scrambling on the dunes at Big Burrow. Potential threats: (1) Coastal protection works, (2) Dumping of rubbish, car bodies, farm machinery, building rubble, etc., (3) Reclamation of saltmarsh areas, (4) Pollution from farmyards, septic tanks, agricultural land, etc., (5) Hot-rod racing cars practising on the foreshore, (6) Shooting disturbance to flocks of roosting birds, and (7) Disturbance to substrate infauna by proposed mechanical harvesting of cockles.
- **Keeragh Islands** (IBA No.081). Existing threats: (1) Lack of any management plan for the site, and (2) Loss of wild bird reserve status.
- **The Cull** (part of The Cull/Killag, IBA No.082). Existing threats: (1) Lack of any management plan for the site, (2) Unlicensed shellfish aquaculture in the nature reserve, and (3) Pollution from inflows. Potential threats: (1) Coast protection works, and (2) Relief from flooding.
- **Killag** (part of The Cull/Killag, IBA No.082). Existing threats: Lack of any management plan for the site. Potential threats: Risk from 'development'.
- **Saltee Islands** (IBA No.083). Existing threats: (1) Lack of any management plan for the site and (2) Uncontrolled access to the islands by large numbers of day-trippers, over-night campers and longer-stay groups on adventure holidays. Potential threats: (1) Risk from 'development', e.g., in 1988 a sum of £6,000 was made available from National Lottery funds to build a jetty at Saltee Island Great to improve access for tourists. However, the project was dropped for a number of reasons, (2) Risk of the ferry operators being licensed and running high-profile services with aggressive marketing, and (3) Any escalation of the existing small-scale shooting of ducks and pheasants.
- **Tacumshin Lake** (IBA No.084). Existing threats: (1) Lack of any management plan for the site, (2) Uncontrolled developments, (3) Spreading pig slurry, and (4) Drainage. Potential threats: (1) Risk from development of reed cutting, (2) Insensitive coast protection works or drainage works, and (3) Development of water sports.
- **Lady's Island Lake** (IBA No.085). Existing threats: (1) Lack of any management plan for the site, (2) Drainage, (3) Pollution, (4) Disturbance of birds via jet skiing and other boating activities, (5) Removal of boulders. Potential threats: Further development of water sports and/or water-based activities.

In 1995, the IWC produced a report highlighting the 16 most threatened wetland IBAs in the country (Magee and Coveney, 1995). Three sites on the South Wexford Coast featured: Bannow Bay (*ibid.*, Section 2.13, pages 27-28), Tacumshin Lake (*ibid.*, Section 2.14, pages 29-30) and Lady's Island Lake (*ibid.*, Section 2.15, pages 31-32).

The IBA inventory for Ireland listed the following conservation issues for the sites in question (Heath and Evans, 2000 on the BirdWatch Ireland website at <http://www.birdwatchireland.ie/Ourwork/SurveysProjects/ImportantBirdAreas/tabid/204/Default.aspx>).

Bannow Bay IE096. Area: 958. Intertidal shellfish cultivation is a possible threat to habitat quality, while wildfowling causes disturbance to birds. Habitat quality is reduced by the spread of non-native cord-grass *Spartina*. In 1997 unauthorized mechanical cockle-harvesting caused damage to the intertidal mudflats.

Keeragh Islands IE097. Area: 22. Fishing in surrounding waters may deplete the prey stock of seabirds, with implications for their breeding success. Day-trippers to the site may lead to disturbance. On the basis of its numbers of breeding *Phalacrocorax carbo* and *Sterna paradisaea*, this site was proposed as a Special Protection Area (Keeragh Islands, 22 ha) by NPW and should be designated in the near future.

The Cull/Killag IE098. Area: 896. There is a proposal for a wind-farm at Killag, which may cause displacement of *Cygnus columbianus* from parts of the site. Changes in agricultural practice threaten the feeding sites of swans *Cygnus*. The site lies within a proposed candidate Special Area for Conservation (Ballyteigue Burrow; area not known).

Saltee Islands IE099. Area: 126. Day-trippers, mainly to Great Saltee, may cause some disturbance to seabird colonies. NPW runs a long-term seabird population monitoring and ringing programme on the islands, which are a private bird sanctuary.

Tacumshin Lake IE100. Area: 528. Plans are underway for the construction of a sluice at the shingle-bar, to control water-levels. Wildfowling is regulated by NPW. The site overlaps with a proposed candidate Special Area for Conservation (Tacumshin Lake; area not known).

Lady's Island Lake IE101. Area: 466. The lake is used by recreational windsurfers and boats, which can cause disturbance to nesting terns. In most years a channel is cut in the barrier to relieve flooding; however, this reduction in water-level can permit predators to reach nesting terns. Construction of a sluice to control water-levels is likely in the near future. There is nutrient pollution of the lake due to agricultural run-off. The terns have been studied on the islands since 1960, and BirdWatch Ireland have co-managed the colonies with NPW since 1993. The site lies within a proposed candidate Special Area for Conservation (Lady's Island Lake; area not known).

Web link: The website of BirdLife International is at <http://www.birdlife.net/> and has a searchable database of IBAs. The IBA inventory for Ireland on the BirdWatch Ireland website is at <http://www.birdwatchireland.ie/Ourwork/SurveysProjects/ImportantBirdAreas/tabid/204/Default.aspx>

6.3.2 Important habitat types

References to earlier reports

- Hurley, 1997 page 71 refers to CORINE biotope sites.
- Hurley, 2000 page 96 tabulates both the seven CORINE biotope sites on the South Wexford Coast and the nine-item hierarchical classification of habitat types produced through the CORINE programme.
- Hurley, 2001 page 84 mentions on-going work on developing the EUNIS Draft Habitat Classification system for Europe and the publication of a hierarchical framework for Ireland.
- Hurley, 2006 pages 84-86 updates with regard to historical woodlands on the South Wexford Coast and site investigations with regard to Poulfur Bridge Wood and Ballycross Apple Farm for the National Survey of Native Woodlands in Ireland.

Addendum. The Irish Fen Inventory 2000 compiled by the Irish Peatlands Conservation Council (IPCC) lists only one fen on the South Wexford Coast: Tacumshin Lake, NHA Code No 709, category = 'Transition/reedbeds' (Source: <http://www.ipcc.ie/fen2000surveylist.html> and Enfo information leaflet BS35 dated April 2001).

Web link: The EUNIS habitat classification system is detailed at <http://mrw.wallonie.be/dqrne/sibw/EUNIS/eunis.lst.html>.

6.3.3 Important marine areas

References to earlier reports

- Hurley, 1997 page 71 gives the overview with regard to the BioMar (marine biotopes) survey.
- Hurley, 1998 page 29 has a brief update.
- Hurley, 1999 page 81 gives a further update.
- Hurley, 2000 page 97 gives a further update.
- Hurley, 2001 page 84 reports on the launching of a website, the production of a CD viewer and the publication of reports.
- Hurley, 2002 pages 89-90 updates with regard to the SensMap project, marine protected areas and the BIOMARE project.
- Hurley, 2006 page 86 updates with regard to MPAs and the MESH project.

Page link: Section 6.4.3 refers, *inter alia*, to marine Special Areas of Conservation (SACs).

Addendum. In the BioMar surveys of 'the Saltee Islands and Wexford area' conducted in June-July 1994, and the Hook Head area in September 1996, the following sites were described. The descriptions may be accessed on the Marine Life Encyclopedia on the Habitats website.


Place name	DiveNo	Date
NNE of Makeston Rocks, Great Saltee, Saltee Islands.	940620/01	20 June 1994
W of Sebbler Bridge, Saltee Islands.	940620/02	20 June 1994
NE of Carnsore Point, Greenore Point to Carnsore Point.	940622/01	22 June 1994
W of Carnsore Point, Carnsore Point to Forlorn Point.	940622/02	22 June 1994
Kilmore Quay Beach, Carnsore Point to Forlorn Point.	940624/01	24 June 1994
Saltee Sound, Saltee Islands.	940625/01	25 June 1994
NW of Molly Hoy, Great Saltee, Saltee Islands.	940625/02	25 June 1994
W of Panstown Rock, Saltee Islands.	940625/03	25 June 1994
N of Whitty Rock, Saltee Islands.	940625/04	25 June 1994
NW of Powers Rock, Saltee Islands.	940627/01	27 June 1994
ESE of Whitty Rock, Great Saltee, Saltee Islands.	940627/02	27 June 1994
SW of Forlorn Rock, Saltee Islands.	940627/03	27 June 1994
St Patricks Bridge, Saltee Islands.	940627/04	27 June 1994
NE of Shoal Rock, Saltee Islands.	940628/01	28 June 1994
NE of Shoal Rock, Saltee Islands.	940628/02	28 June 1994
NE of Makeston Rocks, Great Saltee, Saltee Islands.	940628/03	28 June 1994
NW of Goose Rock, Saltee Islands.	940628/04	28 June 1994
N of Coningbeg Rock, Saltee Islands.	940630/01	30 June 1994
SW of Coningbeg Rock, Saltee Islands.	940630/02	30 June 1994
The Bore, Saltee Islands.	940630/03	30 June 1994
W Brandie Rock, Saltee Islands.	940630/04	30 June 1994
N of Long Bohur, Saltee Islands.	940701/01	1 July 1994
Pinnacle SE of Makeston Rock, Saltee Islands.	940701/02	1 July 1994
Inside of Seven Heads Rocks, Saltee Islands.	940701/03	1 July 1994
S of Molly Hoy, Great Saltee, Saltee Islands.	940701/04	1 July 1994

(Source: www.habitats.org.uk/marinelife/surveys.asp)

The beach at Kilmore Quay was described as follows.

Dive number: 940624/01 **Date:** 24 June 1994

Site Description: A south facing moderately exposed sandy bay. A gently sloping plain of fine, firm rippled sand with *Fabulina fabula*, *Lanice conchilega* and other polychaetes on the low shore. The midshore had scattered *Arenicola marina* casts and the strand line had a small amount of drift algae and talitrids.

Map site - Google Earth map:  [download this placemark](#) (not got [Google Earth](#) installed?)

Subsite: Fine sand on upper shore. [details](#)

Subsite Description: Fine sand with some drift algae and talitrid amphipods common.

Subsite: Midshore, fine rippled sand. [details](#)

Subsite Description: Fine ripples firm sand on the midshore with associated worms including *Nephtys* sp. and *Arenicola marina*.

Subsite: Low shore, fine rippled sand. [details](#)

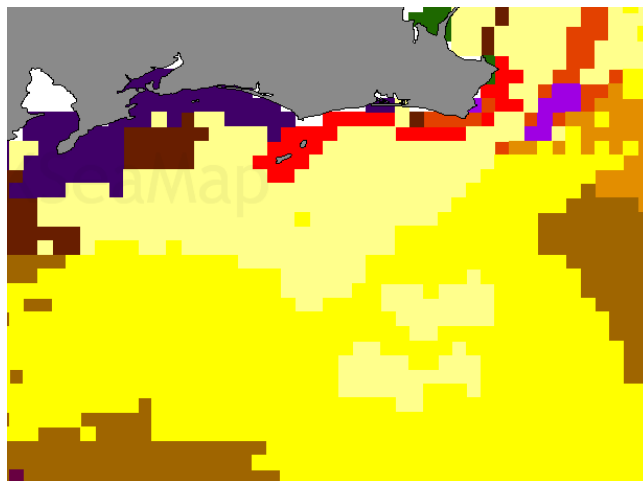
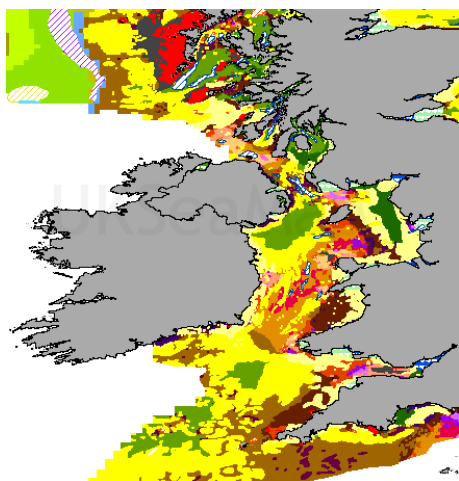
Subsite Description: Fine rippled sand on the low shore with the bivalves *Fabulina fabula* and *Cerastoderma edule* and the polychaetes *Arenicola marina*, *Nephtys* sp. and *Lanice conchilega*.

(Source: <http://www.habitas.org.uk/marinelife/site.asp?item=320> where the details referred to may be accessed)

Place name	DiveNo	Date
S of Hook Head.	960901/01	1 September 1996
Due SE of Baginbun Head, Hook Head.	960903/01	3 September 1996
SE of Brecaun Bridge, Hook Head.	960903/02	3 September 1996
W of Three Mile Rock, Hook Head.	960903/03	3 September 1996
NW of Three Mile Rock, Hook Head.	960903/04	3 September 1996
W of Western Rock, Hook Head.	960904/03	4 September 1996
S of Western Rock, Hook Head.	960904/04	4 September 1996
SW of Hook Head.	960905/02	5 September 1996
SSW of Hook Head.	960905/03	5 September 1996
E of Waterford Harbour, Hook Head.	960905/04	5 September 1996
Due W of Red Bank, Hook Head.	960906/01	6 September 1996
SW of Great Saltee, Saltee Islands.	960906/02	6 September 1996
Red Bank, Saltee Islands.	960906/03	6 September 1996
SE of Hook Head.	960906/04	6 September 1996

(Source: www.habitas.org.uk/marinelife/surveys.asp)

Update. The JNCC UKSeaMap2006 project produced an interactive web based mapping system with information on seabed habitats (<http://www.jncc.gov.uk/page-5018>). The project built on the previous work of both the Irish Sea Pilot and MESH. The EUNIS system of classification was used. The screen grabs below show the Irish Sea (top left), a zoom in to the South Wexford Coast (top right) and the legend to the colours used (bottom left).



N	Regional Seas
Red	Photic Rock
Grey	Aphotic Rock
Purple	Shallow mixed sediment plain - weak tide stress
Light purple	Shallow mixed sediment plain - moderate tide stress
Dark purple	Shallow mixed sediment plain - strong tide stress
Light pink	Shelf mixed sediment plain - weak tide stress
Pink	Shelf mixed sediment plain - moderate tide stress
Dark pink	Shelf mixed sediment plain - strong tide stress
Light blue	Warm deep-water mixed sediment plain
Dark blue	Cold deep-water mixed sediment plain
Light brown	Shallow coarse sediment plain - weak tide stress
Orange	Shallow coarse sediment plain - moderate tide stress
Dark orange	Shallow coarse sediment plain - strong tide stress
Light green	Shelf coarse sediment plain - weak tide stress
Green	Shelf coarse sediment plain - moderate tide stress
Dark green	Shelf coarse sediment plain - strong tide stress
Light blue	Warm deep-water coarse sediment plain
Dark blue	Cold deep-water coarse sediment plain
Yellow	Shallow sand plain
Light yellow	Shelf sand plain
Light green	Warm deep-water sand plain
Dark green	Cold deep-water sand plain
Light green	Shallow mud plain
Dark green	Shelf mud plain
Light green	Warm deep-water mud plain
Dark green	Cold deep-water mud plain
Light blue	Continental slope
Dark blue	Deep ocean rise
Light blue	Deep water mound
Dark blue	Shelf trough
Light blue	Shelf mound or pinnacle
Dark blue	Canyon
Light blue	Subtidal sediment bank
Dark blue	Barrier beach
Light blue	Bay
Dark blue	Embayment
Light blue	Estuary
Dark blue	Lagoon
Light blue	Ria
Dark blue	Sealoch
Light blue	Sound

Legend

The colours used above appear to show the following four gross habitat types.

1. A very large sand plain offshore; classified as shallow (paler yellow) inshore and shelf (darker yellow) farther out. Farther out again, the Celtic Trough is dominated by mud plains (green).
2. Coarse sediment plains (browns) off Bannow Bay, and on the western and eastern flanks of the sand plain. (The different shades of brown indicate different levels of tide stress).
3. Shallow mixed sediment plains of weak tide stress (purple) dominating the area around Hook Head and in the Ballyteige Bay sediment compartment.
4. Photic ('well lit') Rock (red) around the Saltee Islands and Carnsore Point and in the Ballyhealy embayment interspersed with patches of mixed sediment.

Web links: The Ecological Consultancy Services Ltd. (EcoServe) homepage is at <http://www.ecoserve.ie/>. The page at <http://www.ecoserve.ie/biomar/progress.html> gives details with regard to the progress of the BioMar survey and the SensMap reports are available at <http://www.ecoserve.ie/projects/sensmap/reports.html>. The proposed Marine Protected Area (MPA) on the South Wexford Coast is mentioned at <http://www.ea.gov.au/coasts/mpa/nrsmmpa/global/volume1/chapter5.html>. The BIOMARE project is detailed at <http://www.biomareweb.org/> including site descriptions for the Saltee Islands reference site. The Mapping European Seabed Habitats (MESH) project is on the Marine Institute website at www.marine.ie and the Habitat Mapping for Conservation and Management of the southern Irish Sea (HABMAP) project is at www.habmap.ie.

6.3.4 Areas of Scientific Interest (ASIs)

References to earlier reports

- Hurley, 1997 page 71 views the overview to 1993.
- Hurley, 1999 page 82 updates to 1994 and tabulates the conversion of 14 ASIs to 8 pNHAs on the South Wexford Coast.

6.3.5 Natural Heritage Areas (NHAs)

References to earlier reports

- Hurley, 1997 page 72 introduces the topic and features a map of pNHA 704 at Lady's Island Lake.
- Hurley, 1998 pages 29-30 gives updates with regard to the need for enabling legislation and the need for inputs from earth scientists.
- Hurley, 1999 pages 83-85 gives a further update with regard to the need for enabling legislation. Site Synopses for Lady's Island Lake are given.
- Hurley, 2000 page 97 gives an update with regard to the *Wildlife (Amendment) Bill* and the classification of sites solely of geological interest.
- Hurley, 2001 pages 84-85 gives a further update with regard to the classification of sites solely of geological interest.
- Hurley, 2003 page 87 updates with regard to site designations and GIS changes.
- Hurley, 2004 page 105 updates with regard to indicative geological sites.
- Hurley, 2005 page 95 has an addendum with regard to geological and geomorphological sites.

Web link: Site synopses for NHAs may be downloaded from http://www.heritagedata.ie/en/download_nha.htm.

6.3.6 Areas of landscape importance

References to earlier reports

- Hurley, 1997 page 73 features the Area of Landscape Importance at Lady's Island Lake.
- Hurley, 1998 page 30 gives an update with regard to proposed guidelines for planning and development in scenic landscapes.
- Hurley, 1999 page 86 gives an update with regard to the proposed planning guidelines and a cross-reference to an item with regard to the removal of boulders.
- Hurley, 2000 page 97 gives a further brief update with regard to the proposed planning guidelines.
- Hurley, 2001 pages 85-86 reports on the publication of the planning guidelines and a landscape workshop held on the South Wexford Coast.
- Hurley, 2002 page 91 mentions a guide to best practice in seascape assessment and a course on Reading the Irish *Landscape*.
- Hurley, 2003 page 87 updates with regard to the 2002 Development Plan for County Wexford.

Page links: Section 17.16 below refers to case studies with regard to planning and development. Section 6.2.11 refers to the European Landscape Convention.

Update. In an article about balancing tourism with the environment, Shaun Quinn of Fáilte Ireland wrote: “*Environmental protection is clearly at the heart of tourism development – without it, Ireland’s tourism product will deteriorate no matter what investment plans are devised*” (*The Irish Times*, issue dated 28 November 2006, page 16). The emergence of coastal tourism in Wexford has stimulated the emergence of a significantly different and distinctive pattern of settlement and resultant landscape character with 2-3km of the shore. For that reason, the landscape between the coast and the nearest parallel road is recognised as an important and distinctive unit (CAAS, 2006 page 15). The south coast of County Wexford is distinctive from the east coast in that, because of the extensive wetlands, the coastal character of the former penetrates much further inland (*ibid.*, pages 25-26). Consequently, an extensive landscape policy area was defined on the South Wexford Coast in the 2006 Draft Plan (Figure 9).

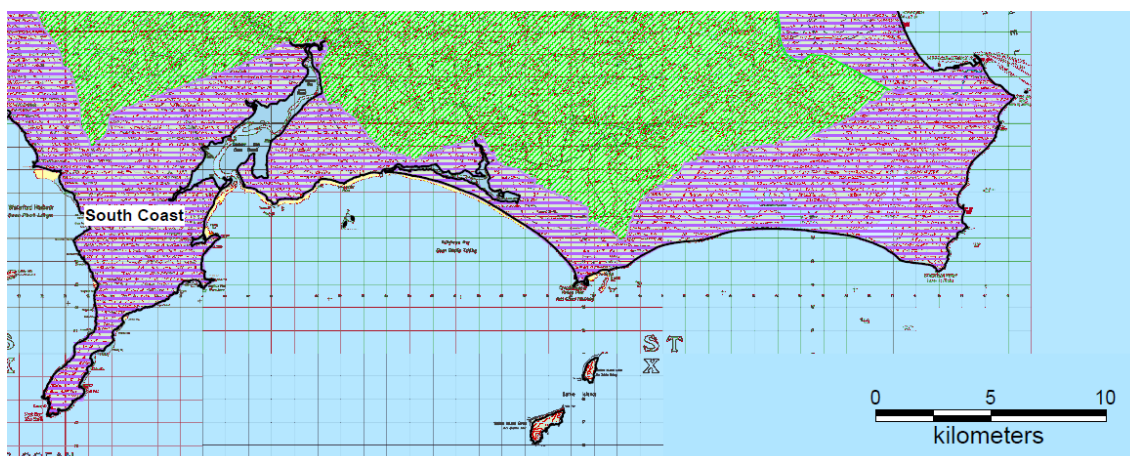


Figure 9: Landscape character assessment on the South Wexford Coast.

(Source: Wexford County Council)

Web links: The Guidelines on Landscape Assessment are available at <http://www.environ.ie>. Austrian blank .zip sheets may be downloaded from http://www.bmu.gv.at/u_nachhalt/ (in German). Details with regard to the Waterford Institute of Education (WIT) course on *Reading the Irish Landscape* are at <http://www.wit.ie/adulted/irland.htm>. The National Landscape Forum website is at <http://www.landscape-forum-Ireland.com>.

6.3.7 Red lists

Reference to earlier report

- Hurley, 2001 page 87 is the sole entry.
- Hurley, 2003 pages 87-88 has an addendum with regard to BirdWatch Ireland and RSPB Northern Ireland RAG list.

Page link: Section 5.18 with regard to a Red Data Book for bryophytes and Section 5.20.4 with regard to a revised edition of the Red Data Book for vascular plants.

Web link: The IUCN 2000 Red Lists searchable website is located at <http://www.iucn.redlist.org/search/search-basic.html>. The ARKive team maintains a database of threatened life forms at <http://www.arkive.org/> with a searchable database. BirdWatch Ireland is at <http://www.birdwatchireland.ie> and the RSPB’s guide *A to Z of UK Birds* is at <http://www.rspb.org.uk/birds/guide>.

6.4 Implementing EU Directives

6.4.1 Introduction

References to earlier reports

- Hurley, 2000 pages 97-98 refers to the fourth Conference of Regional Ministers and political Leaders in the European Region.
- Hurley, 2001 page 88 updates with regard to the European Commission DG ENV nature newsletter NATURA 2000.
- Hurley, 2002 page 92 again updates with regard to the European Commission DG ENV nature newsletter NATURA 2000 and mentions a proposed visit to Dublin by Ms Margot Wallström, EU Environment Commissioner.
- Hurley, 2003 pages 88-89 updates with regard to Ms Margot Wallström's visit to Dublin in January 2002, publication of issue Number 15 of the *NATURA 2000* newsletter, a workshop on EU Environmental Legislation, and the abolition of DAHGI and Dúchas.
- Hurley, 2006 page 88 updates with regard to criminal sanctions for offences against EU law and a European league table on the environment.

Web links: The European Commission Environment DG's web pages at <http://www.europa.eu.int/comm/environment> have information on environment policies in general. Updates are posted at <http://www.europa.eu.int/comm/environment/whatsnew.htm>. Access RAPID at <http://www.europa.eu.int/rapid/start/cgi/questen.ksh/> for recent press releases. The nature conservation homepage is at <http://www.europa.eu.int/comm/environment/nature/home.htm>. The Europa server at <http://www.europa.eu.int/> gives links to all EU web-sites. EUR-Lex, the portal for all EU legislation is at <http://www.europa.eu.int/eur-lex/en/index.html>; Section 15 deals with environment at http://europa.eu.int/eur-lex/en/lif/ind/en_analytical_index_15.html. The European Court of Justice is at <http://www.curia.eu.int/>. Statistical data with regard to other EU countries are posted at <http://www.europa.eu.int/comm/eurostat>. The EU *Natura 2000* nature newsletter pages are at http://www.europa.eu.int/comm/environment/news/natura/index_en.htm. Other useful sources of information are the Environment News Service (ENS) at <http://www.ens-news.com/> and the European Environment Agency at <http://www.eea.eu.int/>. Ireland's Department of the Environment and Local Government website is at <http://www.environ.ie>.

6.4.2 The Birds Directive

References to earlier reports

- Hurley, 1997 page 74 gives the overview and refers to the Special Protection Area (SPA) at Lady's Island Lake.
- Hurley, 1998 page 30 has some brief updates.
- Hurley, 1999 pages 86-87 tabulates SPAs on the South Wexford Coast (SWC).
- Hurley, 2000 pages 98 and 100 gives updates with regard to SPAs on the SWC in the national context.
- Hurley, 2001 pages 88-90 reports on a review with regard to policy on hunting on State-owned lands in Ireland and a fire at Saltee Island Little.
- Hurley, 2002 page 93 updates and reports with regard to a Reasoned Opinion from the European Commission for failure to classify 43 IBAs as SPAs and a reference to management at Bannow Bay with regard to the mechanical harvesting of shellfish.
- Hurley, 2003 pages 89-92 has an addendum with regard to an EU Reasoned Opinion with mention of Bannow Bay, together with updates with regard to site designations, court actions, a proposed environment ombudsman and a SPA guidebook.
- Hurley, 2004 page 107 updates with regard to the internationally important species that Ireland supports.
- Hurley, 2005 page 98 has updates with regard to (1) legal action, (2) Keeragh Islands SPA, and (3) proposed extensions to SPAs.
- Hurley, 2006 pages 89-95 updates with regard to EC case law and NPWS site synopses.

Page links: Section 5.39.3 refers to protection of waterbirds. Section 6.3.1 refers to Important Bird Areas (IBAs). Section 16 with regard to the proposed revision of the SPA boundary at Lady's Island Lake. Section 17.17.1 with regard to the proposed classification as SPA of the Important Bird Area (IBA) at the Cull/Killag in connection with the proposed development of a windfarm at Richfield (Reclaimed).

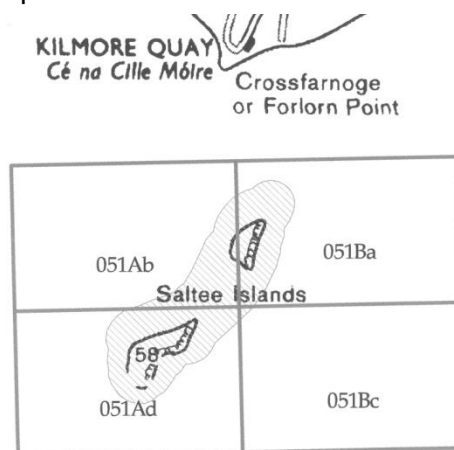
Addendum. The EU established CORINE in 1985 to create pan-European databases on land cover, biotopes (habitats), soil maps and acid rain. CORINE stands for **Co**(o)r'dination of **I**nformation on the **E**nvironment. The seven sites on the South Wexford Coast (Region code 8003) in the CORINE Biotopes database in 1994 were as follows (personal communication, David Stanners, Commission of the European Communities, by fax on 2 February 1994).

Site code	Area (ha)	Site name
800000518	896	Ballyteige Burrow, The Cull and Killag
800000519	900	Bannow Bay
800000523	2	Keeragh Islands
800000525	466	Lady's Island Lake
800000529	126	Saltee Islands
800000532	483	Tacumshin Lake & Whitehole (sic)
800000533	0	Tintern Abbey

Updates

SPA land area. "The growth in the total area of land protected under national and EU legislation is welcome. However, we still lag behind the rest of Europe in the land area designated as SPAs under the Birds Directive. The total area already designated or awaiting designation as SPAs (292,728 hectares) is approaching 4 per cent of the national territory. This is considered relatively low in European terms, the EU average being 8 per cent. The protection of sufficient land area is required if we are to prevent further loss of biodiversity and ensure the recovery of endangered species." (EPA, 2006 page 49).

Saltee Islands. By Government Notice in November 2006, the Minister for the Environment, Heritage and Local Government gave public notice of his intention to propose to designate the Saltee Islands a SPA (Wexford People, issue dated 15 November 2006, page 26). The islands were first designated a SPA in 1985 (S. I. No 291 of 1985). The 1985 designation referred to the land only (area = 154ha). However, a site synopsis dated 26 February 2003 stated: "*The site includes the sea areas surrounding the islands to a distance of 500m from the shore. Here the various seabird species that use the site feed, bathe and socialise.*" That sentence was subsequently deleted from site synopses bearing the same date. The effect of the proposed 2006 designation was to include the sea area referred to thereby increasing the area of the SPA to 871ha (Source: NPWS map of the pSPA, print date 28 September 2006).



Web link: An introduction to the most recent update of the EC guide to Annex I species is posted at http://europa.eu.int/comm/environment/nature/directive/birdsintro_en.htm. Lists of wild birds found in Europe, files on threatened species and the ORNIS database may be accessed at http://europa.eu.int/comm/environment/nature/directive/birdshome_en.htm. SPAs are listed by country at <http://europa.eu.int/comm/environment/nature/spa/spa.htm> but the

list for Ireland does not appear to have been updated recently; the map is dated July 1999.

6.4.3 The Habitats Directive

References to earlier reports

- Hurley, 1997 pages 74-75 gives the overview
- Hurley, 1998 page 30 updates and refers to the number of habitat types and species and to Sites of Community Interest (SCIs).
- Hurley, 1999 pages 87-89 tabulates and lists habitat types.
- Hurley, 2000 pages 98-101 refers to on-going developments with regard to liaison committees, threatened legal action, Bannow Bay, and the EU interpretative manual.
- Hurley, 2001 pages 91-92 updates with regard to interpreting the Directive, advertising sites, transmitting sites, identifying sites, protecting sites, managing sites, and liaison committees.
- Hurley, 2002 pages 94-98 has an addendum with regard to a delivery process and it updates with regard to the implementation of the Directive, liaison committees, the SAC Appeals Advisory Board, legal action (Case C-67/99), NATURA 2000 sites (tabulated), habitat types by site (tabulated), site mapping, EC biogeographical seminar, and a submission with regard to the proposed development of an extension to the existing harbour at Kilmore Quay.
- Hurley 2003 pages 93- 96 has an addendum with regard to the boundaries of the proposed marine SACs together with updates with regard to GIS changes, site selection, EU habitat types by site, designation of sites, SAC liaison committee, and an EG biogeographical seminar.
- Hurley, 2004 page 108 has updates with regard to the importance of the South Wexford Coast for its reef habitats, EC Reasoned Opinions, and an EC report reviewing the implementation of the Habitats Directive.
- Hurley, 2005 pages 98-103 update with regard to (1) good practice in managing marine SACs, (2) a Conservation Plan for Ballyteige Burrow, (3) the cSAC Appeals Board, (4) proposed harbour works at Kilmore Quay, (5) NPWS signs, (6) EC court action, (7) cattle at Tacumshin Lake, (8) the Mapture Natura 2000 database, (9) updates to the Heritage data web pages, (10) mapping sea bed habitats, (11) threats at Hook Head, and (12) removal of a slipway at Bannow Bay.
- Hurley, 2006 pages 96-97 update with regard to (1) NPWS signs, (2) heritage data update, (3) Kilmore Quay harbour works, (4) an amendment to the Natural Habitats Regulations, and (5) some key EU Court of Justice judgements.

Page link: Section 6.3.3 refers to important marine areas. Section 6.4.5 with regard to the Urban Waste Water Directive. Section 11.5 with regard to monitoring of water quality. Section 16 with regard to developments at Lady's Island Lake. Section 17.4 with regard to management tools.

Addendum. A site synopsis dated 3 September 2001 and published on the website of the National Parks and Wildlife Service is reproduced below.

SITE SYNOPSIS: SITE NAME: LADY'S ISLAND LAKE SITE CODE: 000704

This site, situated in the extreme south-east of Ireland, is comprised of a shallow, brackish coastal lagoon separated from the sea by a sand and shingle barrier. The site includes the intertidal reef of Carnsore Point, and the area of reef to the west of the point.

The littoral reef at Carnsore is strewn with boulders, cobbles and patches of sand. It is exposed to prevailing wind and swells from the west. Tidal streams tend to be moderate but are strong in some areas. The bedrock is igneous granite, felsite and other intrusive rocks rich in silica. There is an extensive lichen zone at the top of the shore that is a good example of the wide bands of the lichens *Ramalina* spp, *Verrucaria* sp. mixed. with encrusting orange lichens, followed by a wide band of the black lichen *Verrucaria* sp. In the upper shore there is a very extensive zone of barnacles (*Semibalanus balanoides*), gastropod snails (*Littorina neritoides*) and limpets (*Patella vulgata*). This is followed by a narrow zone of *Fucus serratus* and *Mastocarpus stellatus*. At the bottom of the shore, the sublittoral fringe is characterised by the kelp *Laminaria digitata*, with serrated wrack *Fucus serratus* and thong weed *Himanthalia elongata* frequent and *Alaria esculenta* occasional. An understorey of red algae is present. The communities are representative of this type of shore.

The lagoon habitat within the site is an excellent example of a sedimentary lagoon with a sand/shingle barrier. It is by far the largest and best example of this type of lagoon in the

country and is in a relatively natural condition, despite regular breaching of the gravel barrier. The flora is typically brackish with two species of Tasselweed (*Ruppia maritima* and *R. cirrhosa*) and the Red Data Book charophyte species *Lamprothamnion papulosum* and *Chara canescens* (both lagoonal specialists). The fauna of the lagoon is rich with 44 taxa recorded in a short period in 1996. At least 13 lagoonal specialist species have been recorded which is the highest number for any lagoonal habitat in the country and at least 4 species appear to be rare. Three coleopteran indicator species were recorded in 1996, indicating an ecologically well developed site, and two of these are very rare species (*Atheta gyllenhalli*, *A. liliputana*).

The barrier system which stretches along the entire seaward part of this site from Carnsore Point westwards towards Tacumshin comprises the best example in Ireland of a landward moving (transgressive) system of gravel-based barrier. The sequence of back barrier washover and seepage structures are among the best in Europe, and, indeed, Lady's Island remains the last "intact" example in Europe. The substrate is predominantly sandy. The barrier is overlain for the most part by sand dunes, principally embryonic shifting dunes and marram dunes but also some more fixed areas. The vegetation is very typical of shingle or stony bank habitat. Species present include Marram Grass (*Ammophila arenaria*), Sea Rocket (*Cakile maritima*), Sea Samphire (*Crithmum maritimum*), Sea Holly (*Eryngium maritimum*), Yellow-horned Poppy (*Glaucium flavum*) Sea Sandwort (*Honkenya peploides*) and Mayweed (*Tripleurospermum maritimum*). Of particular note is the occurrence of Cottonweed (*Othanthus maritimum*), an extremely rare plant which has its main Irish population here.

A rich swamp and freshwater marsh vegetation occurs at Ring Marsh. Elsewhere, the lagoon is fringed by marsh or wet grassland.

In addition to Cottonweed and the two charophyte species, three other Red Data Book species occur within the site: Lesser Centaury (*Centaureum pulchellum*), Penny Royal (*Mentha pulegium*) and Golden Dock (*Rumex maritimus*).

The lagoon has an internationally important tern colony, with four species breeding regularly - Sandwich (c.1,100 pairs), Roseate (107 pairs), Common (c.500 pairs) and Arctic (c.215 pairs) (figures are for 1999). These breed mostly on Inish island (which is outside of site), with only Arctic breeding on the smaller Sgarbheen island in recent years. An excellent diversity of duck species breed, including rare or scarce species such as Gadwall, Garganey, Shoveler and possibly Wigeon. Oystercatcher, Redshank and Lapwing breed on the islands. The site formerly supported internationally important numbers of wintering waterfowl, but in recent years numbers have declined drastically, possibly due to a decline in the abundance of their main food source, *Ruppia* spp. Nowadays numbers are only of regional or local importance. Over the four winters 1994/95 to 1997/98 the main species were: Wigeon (652), Teal (200), Pochard (258), Tufted Duck (93), Scaup (46), Lapwing (1080) and Curlew (221).

This site is of high conservation importance, having three habitats which are listed on Annex I of the EU Habitats Directive and one of these (lagoons) with priority status. The site also has important ornithological interests.

03.09.2001

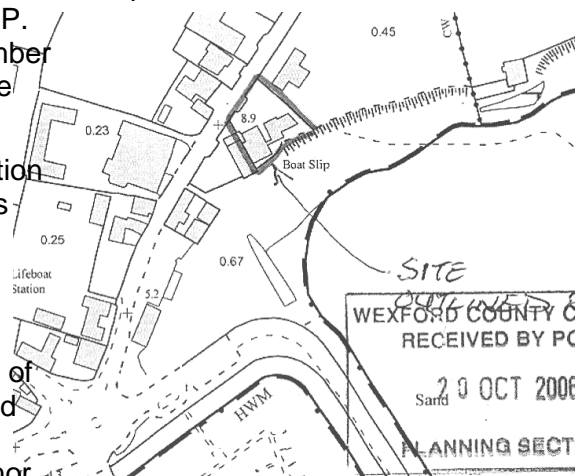
Updates

EU case law. In a 19-page opinion the Advocate General found that the Irish Government breached the Habitats Directive by not being active enough in protecting listed species (Case C-67/99) (*The Irish Times*, issue dated 23 September 2006, page 10). The listed species were bats, otters, and cetaceans (*Inshore Ireland*, issue dated October 2006, page 6). In October 2006 the Commission asked Ireland to speed up protection of Irish nature sites (IP/06/1394, Brussels, 13 October 2006). The Commission published a guide to the main rulings of the Court of Justice with regard to nature conservation (EC, 2006).

Proposed harbour Works at Kilmore Quay. In 2006, forty staff members at the prawn-processing facility at Wrights of Howth in Kilmore Quay were laid-off. Brian Everard, General Manager, said the lay-offs were due to the company's inability to compete with the prices that Spanish interests were paying to buy unprocessed Irish prawns to be processed abroad (*Wexford Echo*, issue dated 1 March 2006, pages 1 and 3). In response, Junior Minister John Browne promised that his Department would ring-fence seventy per cent of the required funding for the proposed harbour works (*Wexford Echo*, issue dated 8 March 2006, page 7). A press report claimed that a developer was interested in developing the harbour (*Wexford People*, issue dated 12 April 2006, page 23 and *Wexford Echo*, issue dated 19 April 2006, page 78). In June 2006, the Department of the Marine and Natural Resources allocated €135,000 and WCC €45,000 for "site investigation to complement the hydrographic survey" (*New Ross Standard*, issue dated 7 June 2006, page 52 and Wexford County Council Annual Report, 2006 page 48). The proposed harbour development works were estimated to cost "up to €20 million" (*Wexford Echo*, issues dated 19 July 2006, page 3, and 9 August 2006, page 29). In November 2006, WCC give public notice that it was carrying out a feasibility study and that Malachy Walsh and Partners, Consulting Engineers, had been commissioned to carry out the study. The Council and the consultants invited submissions in favour of the proposed works as they were keen to establish "the potential benefits to be secured from the development" (*New Ross Standard*, issue dated 8 November 2006, page 61).

Proposed coastal protection works at Kilmore Quay. On 20 October 2006 an application for planning permission was lodged by Ivan Sutton for coastal protection works to safeguard his home at Crossfarnoge, Kilmore Quay. The site was located immediately north of the marina (site map below right). Permission was sought to "apply rock armour at the base of the cliff for coastal protection at the rear of Marine Lodge" the house built on top of the bank (P. A. Reg. Ref. No. 20063953). On 20 November 2006, Jim Hurley made a submission to the Planning Authority as follows, in summary.

"Question (26) (c) on the Planning Application Form asks if the site of the proposed works lies within an area of natural heritage importance. In answer to that question the applicant and/or his agent answered 'No'. Since the boundaries of sites of natural heritage importance are still in the process of being identified the situation is dynamic and consequently, in my opinion, neither the question asked by the Planning Authority nor the answer given by the applicant adequately addresses the particular circumstances that prevail with regard to the scientific importance of the site in question.



The site of the proposed development and its environs are of natural heritage importance for, at least, three reasons: (1) the boundary of cSAC site code 000707, site name Saltee Islands immediately adjoins the site of the proposed works. (2) The area is of geological importance. The bedrock at the base of the cliffs in question is part of the only large exposure in Ireland of a continental fragment of an Avalonian terrane. And, (3) the area is of geomorphological importance. A raised beach of controversial origin occurs in the cliff face.

He requested that an environmental impact study be carried out to ensure that any works undertaken take full account of the conservation of the natural heritage resource values of the area for the common good. The Planning Authority (PA) acknowledged on 21 November 2006. On 12 December 2006 the PA requested further information from the developer with regard to the site layout drawings, the proposed works, and possible impacts that works might have on both the erosion of adjoining lands and the cSAC.

Web links: Biogeographical Regions are mapped at <http://europa.eu.int/comm/environment/nature/map.htm> and habitat types and species in the Atlantic Region are tabulated by country at <http://europa.eu.int/comm/environment/nature/atlantic.pdf>. The **EU**ropean **N**ature **I**nformation **S**ystem (EUNIS) website provides information about species, habitats and sites of interest for biodiversity at <http://eunis.eea.eu.int/>. Annex 1 habitats of the Habitats Directive are also described at <http://mrw.wallonie.be/cgi/dgrne/sibw/annex1.des/>. Information about the UK Marine SACs Project may be accessed at <http://www.ukmarinesac.org.uk/>. The Irish Sea Pilot, a trial of regional sea management for nature conservation, is at <http://www.jncc.gov.uk/irishseapilot>. The UK Marine SACs Info Net is at <http://www.ukmarinesac.org.uk/>. Information about the Mapping European Seabed Habitats (MESH) project is at <http://www.jncc.gov.uk/page-1542>. The Natura 2000 database for the Ireland/Wales INTERREG-III is at <http://mapture.ucc.ie/index.phtml?lang=en>. For current statistics on infringements on EU environmental legislation in general see http://europa.eu.int/comm/secretariat_general/sgb/droit_com/index_en.htm#infractions. For rulings by the European Court of Justice see: <http://curia.eu.int/en/content/juris/index.htm>. Information on Member State compliance with EU law is available at http://www.europarl.eu.int/comparl/envi/implementation/default_en.htm

6.4.4 The EIA Directive

References to earlier reports

- Hurley, 1997 page 75 gives the overview.
- Hurley, 1999 page 89 refers to legal action against Ireland.
- Hurley, 2000 page 102 concludes the reference to the legal action against Ireland.
- Hurley, 2001 page 92 mentions an amendment to the Directive and the re-launching and broadening of the Green Network of Government Departments.
- Hurley, 2002 page 98 mentions an EC warning with regard to an EIS re Pollardstown Fen.
- Hurley, 2003 page 97 updates with regard to new guidelines on the information to be contained in EISs.
- Hurley, 2004 page 109 has an update with regard to updated advice notes.

6.4.5 The Urban Waste Water Directive

References to earlier reports

- Hurley, 1997 page 75 gives the overview.
- Hurley, 2001 page 92 updates briefly with regard to sewage discharges on the South Wexford Coast.
- Hurley, 2002 page 98 updates with regard to the *Urban Waste Water Treatment Regulations*.

Page link: Section 6.4.3 with regard to Lady's Island Lake being regarded as a 'transitional water' for monitoring purposes. Section 6.4.7 with regard to Lady's Island Lake being identified as a marine coastal area water body warranting Sensitive Area designation under the Urban Wastewater Treatment Directive (91/271). Section 0 with regard to monitoring of water quality.

6.4.6 The Freedom of Information Directive

References to earlier reports

- Hurley, 1999 pages 90 and 145 give the overview.
- Hurley, 2004 page 109 updates with regard to an EU Directive increasing the public's right of access to environmental information.

Page link: Section 6.2.8 with regard to the Access to Information Convention.

Web links: The gateway to the EU website is at <http://europa.eu.int/>.

6.4.7 The Nitrates Directive

References to earlier reports

- Hurley, 1998 page 37 gives the overview.
- Hurley, 1999 page 105 mentions that Ireland was censured for failure to produce reports.
- Hurley, 2001 pages 92-93 updates with regard to Nitrate Vulnerable Zones (NVZs).
- Hurley, 2002 page 99 has an addendum with regard to Lady's Island Lake being identified as a marine coastal area water body warranting Sensitive Area designation. It also refers to pollution, nutrient inputs and the impact of nutrient enrichment of *Ruppia* beds. An update refers to threatened EC legal action against Ireland.
- Hurley, 2003 pages 97-98 has a corrected spelling error and updates with regard to an assessment of the quality of estuarine waters and EC action against Ireland's failure to transpose the directive.
- Hurley, 2004 pages 110-111 has an addendum with regard to the general impacts of nitrate pollution and new provisions brought forward for the transposition of the Directive.
- Hurley, 2005 pages 104-105 updates for 2004.
- Hurley, 2006 page 98 updates with regard to the Brosnan Proposals.

Page links: Section 6.4.5 with regard to the Urban Waste Water Directive. Section 0 with regard to monitoring of water quality.

Update: Major confrontation between farmers and the Government was averted in January 2006 when the European Union (EU) agreed to a short deferral of the directive's regulations concerning phosphate levels (*The Irish Times*, issue dated 28 January 2006, page 8). When the Action Programme came into force on 1 February 2006, the Irish Farmers' Association (IFA) called on the Minister to amend it or the association would not support a new partnership agreement (*The Irish Times*, issues dated 2 February 2006, page 2 and 3 February 2006, page 8). The association subsequently pulled out of partnership talks (*The Irish Times*, issue dated 9 February 2006, pages 1 and 17). Further disputes arose between the IFA and Teagasc over that advisory service's role in the formulation of the regulations (*The Irish Times*, issues dated 21 February 2006, pages 5 and 17; 22 February 2006, page 17; 23 February 2006, page 16; and 1 March 2006, page 5). County councillors in Wexford called on the County Council to consider waiving fees for associated works for farmers involved in storing slurry (*Wexford Echo*, issue dated 19 April 2006, page 18). In May, the Minister asked the EU to delay the introduction of a number of measures for a further five years (*The Irish Times*, issue dated 19 May 2006, page 9). The EU refused (*The Irish Times*, issue dated 26 June 2006, page 4). The Minister drafted new regulations and these came into force on 1 August 2006 (*The Irish Times*, issue dated 2 August 2006, page 2). Wexford County Council waived development levies for farmers carrying out works aimed at meeting the requirements of the new regulations (*Wexford People*, issue dated 9 August 2006, page 25). The concession resulted in an increase in applications for planning permissions to build cattle sheds and slurry storage tanks (*Wexford People*, issue dated 23 August 2006, page 27). The EU agreed to drop its legal action against Ireland if the Minister agreed to impose tougher penalties against offending farmers (*The Irish Times*, issue dated 20 September 2006, page 1). In a further development, the EU agreed to accept Ireland's application for a derogation to the directive (*The Irish Times*, issue dated 14 November 2006, page 2).

Web links: The three versions of Ireland's Nitrates Action Programme are available on

the Department of the Environment, Heritage and Local Government website at <http://www.environ.ie/>.

6.4.8 The Water Framework Directive (WFD)

References to earlier reports

- Hurley, 2001 page 93 gives the overview.
- Hurley, 2003 page 98 has an addendum and updates with regard to when the Directive came into force, and planning for south-east Ireland.
- Hurley, 2004 page 111-112 has updates with regard to Irish information sources, the initial characterisation report on the South Eastern River Basin District (SERBD), and targets for achieving key tasks.
- Hurley, 2005 page 105 updates with regard to groundwater and the GSI.
- Hurley, 2006 page 99 updates with regard to the National Summary Report on 'The characterisation and analysis of Ireland's river basin districts'.

Page links: Section 5.1.1 gives a description of the report area. Section 5.3.1 refers to geology maps on Geographic Information System (GIS). Sections 5.7 with regard to groundwater and 5.8 with regard to the glacial legacy. Sections 11.2.1 and 0 with regard to monitoring of water quality. The South East River Basin Management Project (Section 11.4) was launched in April 2001. Since the WFD is considered to be part of the mechanism within which to implement ICZM, Section 17.5 is relevant. Section 19.5 is also relevant with regard to a Water Quality Management Plan for Lady's Island Lake.

Update: In June 2006, the EPA gave public notice that it had published its Monitoring Programme and that a copy was available on its website (*The Irish Times*, issue dated 22 June 2006, page 12).

Web link: The text of the Water Framework Directive is available at http://europa.eu.int/eur-lex/en/lif/dat/2000/en_300L0060.html. The Commission's WFD Newsletter may be accessed at http://europa.eu.int/comm/environment/water/water-framework/index_en.html. Output reports from seminars on the WFD organised by the World Wildlife Fund in 2001 may be downloaded from <http://www.panda.org/europe/freshwater/seminars/seminars.html>. Information about the implementation of the Directive in Ireland is available at <http://www.wfdireland.ie> and the South Eastern River Basin District site is at <http://www.serbd.com/>. Both the National Summary Report on 'The characterisation and analysis of Ireland's river basin districts' and the later compendium of public submissions and responses are available at www.wfdireland.ie/.

6.4.9 The IPPC Directive

References to earlier reports

- Hurley, 2001 pages 93-94 lists the Directive on Integrated Pollution Prevention and Control (IPPC).
- Hurley, 2004 page 112 updates with regard to the transposition into Irish law of the IPPC Directive.
- Hurley, 2005 page 106 updates with regard to enforcement of the Directive in Ireland.

Web link: The text of the *Protection of the Environment Bill 2003* is available at www.gov.ie/oireachtas and www.environ.ie. The Environmental Protection Agency's (EPA's) website is at <http://www.epa.ie/>.

6.4.10 The Shellfish Directive, 1979

References to earlier reports

- Hurley, 2001 pages 93-94 lists the Directive.
- Hurley, 2004 pages 112-113 updates with regard to the reclassification of shellfish waters from A to B due to deteriorating water quality.

Page links: Section 17.28 refers to aquaculture.

6.4.11 Strategic Environmental Assessment (SEA), 2001

References to earlier reports

- Hurley, 2005 page 106 defines Strategic Environmental Assessment.

Page links: Section 6.5.3 refers to the Planning Acts.

Web link: The text of the SEA Directive (2001/42/EC) and the Regulations transposing them into Irish law, together with the Guidelines issued by the Government, are available at <http://www.environ.ie>. The reports published in December 2003 by the EPA are available at http://www.epa.ie/r_d/research_reports.htm.

6.4.12 Other EU Directives

Reference to earlier report

- Hurley, 2001 pages 93-94 lists the relevant Directives.
- Hurley, 2006 page 100 updates with regard to the Dangerous Substances Directive.

6.5 Enacting other domestic legislation

6.5.1 Introduction

The relevant statutory instruments are the Wildlife Acts (Section 6.5.2), the Planning Acts (Section 6.5.3), the Foreshore Acts (Section 6.5.4), the Water Pollution Acts (Section 6.5.5) and some other items of legislation (Section 6.5.6).

References to earlier reports

- Hurley, 2001 page 94 mentions relevant statutory instruments.
- Hurley, 2002 page 99 updates and supersedes.

Web links: Information with regard to domestic legislation is available at <http://www.irishstatutebook.ie>, for example, a map of Ballyteige Burrow Nature Reserve can be downloaded from <http://www.irishstatutebook.ie/Images/si279y87Map.gif>.

6.5.2 The Wildlife Acts, 1976-2000

References to earlier reports

- Hurley, 1997 page 75-77 gives the overview and refers to Lady's Island Lake with regard to a proposed Nature Reserve in the area, the Refuge for Fauna Designation Order, a Management Agreement, the Flora Protection Order and the Wildfowl Sanctuary.
- Hurley, 1998 page 31 has a correction with regard to a proposed nature reserve at Lady's Island Lake.
- Hurley, 1999 pages 90-91 has updates with regard to the corporate name 'Dúchas', an organisation study of the Government's heritage function, drafting of the proposed Wildlife (Amendment) Bill, Government policy and a nature reserve in the Lady's Island Lake area.
- Hurley, 2000 pages 102-103 has updates with regard to the Whale and Dolphin Sanctuary, the transfer of Dúchas to new offices, publication of both the *Wildlife (Amendment) Bill* and the *Flora (Protection) Order, 1999*.
- Hurley, 2001 page 94 has an addendum with regard to a Conservation Order to protect the stand of Cottonweed *Otanthus maritimus* growing on the barrier at Lady's Island Lake and the enactment of the *Wildlife (Amendment) Act, 2000* (S. I. No 38 of 2000) in December 2000.

- Hurley, 2002 page 100 has updates with regard to a commencement order re the *Wildlife (Amendment) Act, 2000*, and a change of Conservation Ranger in South Wexford.
- Hurley, 2003 page has a correction with regard to Eugene Wallace's position and updates with regard to hedge cutting and the open season for hunting.
- Hurley, 2004 page 113 updates with regard to the brand name Dúchas and pest control Regulations for 2003.
- Hurley, 2005 pages 107-110 updates with regard to pest control Regulations for 2004, hedge cutting in Kilmore and signage at Ballyteige Burrow nature reserve.
- Hurley, 2006 page 101 updates with regard to pest control, cutting hedges, action plans for four species, and amended regulations.

Updates

Pest control: Regulations for 2006 were announced by means of Government Notices with regard to the control of certain species of wild bird for the period 1 February 2006 to 31 May 2006 (*The Irish Times*, issue dated 10 March 2006, page 27) and the period 1 June 2006 to 30 September 2006 (*The Irish Times*, issue dated 24 July 2006, page 24).

Cutting hedges: Attention was drawn by Government Notice to restrictions under the *Wildlife Acts 1976 and 2000* on cutting or destruction of vegetation and hedgerows between 1 March and 31 August (*The Irish Times*, issue dated 28 February 2006, page 31).

Web links: The press release with regard to the Wildlife Acts commencement orders is at http://www.irlgov.ie/ealga/press/wild_act.htm. Chapter 5 with regard to the built and natural heritage in the Dúchas annual report for 2000 is available at http://www.irlgov.ie/ealga/report/pdf_en/5ar.pdf. Legislation being debated in Dáil Éireann is posted on Feargal Quinn's website at <http://www.feargalquinn.ie>.

6.5.3 The Planning Acts, 1963-2000

References to earlier reports

- Hurley, 1997 page 77 gives a partial overview.
- Hurley, 1998 page 31 has some updates.
- Hurley, 1999 pages 91-92 has some further updates.
- Hurley, 2000 pages 103-104 has brief updates.
- Hurley, 2001 pages 94-95 details a case study with regard to a house built at Inish and Ballyteige Slob (P.A. Reg. No 981704) in pNHA No 696.
- Hurley, 2002 pages 100-103 has updates with regard to the County Development Plan 2001, Wexford County Council's Environment Programme 2001, the Wexford County Development Board strategy for the ten-year period 2002-2012, a Local Area Plan for Hook Head and a case study re an unauthorised development in proposed Natural Heritage Area No 696.
- Hurley, 2003 pages 99-100 has updates with regard to the Wexford County Development Board strategy for economic, social and cultural development, new *Planning and Development Regulations*, a legal loophole in the *Planning and Development Act 2000*, the publication of the National Spatial Strategy for the next twenty-year period, the Wexford County Council annual report, *County Development Plan 2001* and a *Local Area Plan for Kilmore Quay*.
- Hurley, 2004 page 114 has updates with regard to new scales of planning fees, proposed Regional Planning Guidelines, and agreed amendments to the *County Development Plan 2001* with regard to the so-called 'sterilisation policy'.
- Hurley, 2005 pages 110-111 updates with regard to new scales of planning fees, draft Regional Planning Guidelines, amendments to the *County Development Plan 2001*, and an application for planning permission with regard to horse stables at Rostonstown.
- Hurley, 2006 page 102 has an addendum with regard to the ruin of Rathshillane Castle and updates with regard to (1) new scales of fees, (2) sustainable rural housing guidelines, and (3) the launch of gPlan.

Page link: Section 6.4.11 refers to Strategic Environmental Assessment (SEA). Section 11.3 refers to water quality at Inish and Ballyteige Slob. Section 17.16 refers to the management of planning and development pressures.

Addenda

Vernacular architecture. The following item is reproduced from Hurley, 1991 page 59. Architecturally the villages along the coastal strip retain remnants of their former unique character; a character that could be enhanced by an integrated plan for the coastline. Wexford County Council has already drawn up Development Policy Statements for the Hook Peninsula where development guidelines have been set out with very clear architectural design controls, and for the village of Kilmore Quay, where it is an objective to preserve the sixteen remaining thatched roofs. As a positive initiative towards both better planning and the conservation of the rural landscape, and as a contribution to European Year of the Environment - 1988, Wexford County Council commissioned the Housing and Urban Design Research Unit of the School of Architecture in University College, Dublin, to produce guidelines for building sensitively in the landscapes of County Wexford. The subsequent report draws attention to the need to avoid unsatisfactory development along the southern coastal strip: *"The land in this area is flat with the result that houses built on the coastal edge are difficult to absorb and can appear extremely prominent on the horizon. In such situations building height should be restricted to single-storey and planting should take place to help settle the buildings into the landscape. Houses located on the coastal side of the road impede views and should be avoided."* (Geoghegan and Culligen, 1988).

Development controls. The following item is reproduced from Hurley, 1991 page 59. To further maintain the integrity of the coastline and enhance its amenity value, it is suggested here that a development exclusion zone be defined adjacent to the boundary of the proposed national park. This zone might extend inland to the far side of the nearest public road, or a specified distance; whichever would be most appropriate. The extent of such buffer zones in other countries varies from 40 foot in Hawaii to 1-3km for summer homes in Denmark, and 3km for new factories in the USSR (Gubbay, 1989). Beyond the Development Exclusion Zone, a Buffer Zone with fewer restrictions, but with tighter planning controls than normal, would be desirable.

Residential developments. The following item is reproduced from Hurley, 1991 page 59. Existing residential development by local people near the south Wexford shoreline is minimal due to erosion and exposure to onshore prevailing winds. With a combination of greater motivation for recreation and less feel for local conditions, out-of-county second-home and holiday home owners are more adventurous in locating nearer to the sea, but, while there are a number of mobile homes, chalets and second homes near the beaches, the impact that these have on maintaining the integrity of the coastline is small. Some very scenic areas of the south Wexford coast are still free of the high-density caravan parks and ribbon development of summer chalets that are commonplace at similar sites in many other areas of Ireland. Unless steps are taken now, as a matter of urgency, to insist on the preservation of the integrity of the coastline, the outstanding amenity enjoyed today is unlikely to continue, the unique character of the area will be lost, the coastal strip will be engulfed by the sameness that afflicts so many other seaside places and the value of the outstanding wildlife sites will be diminished.

Planning applications. Some applications for planning permission submitted to Wexford County Council that are relevant to the conservation of the South Wexford Coast are referenced as follows.

- **Pig unit.** Register No: 950056 of 20 January 1995. Applicant: Queally Pig Farms, Matthewstown, Fenor, Co Waterford. Proposed: Erection of a 500 sow integrated unit at the existing pig fattening site of Inish Farmers' Co-Op. An Environmental Impact Statement was submitted. Location: Inish and Ballyteige Slob, Killag, Duncormick. Jim Hurley objected on 13 February 1995. The permission sought was granted by the local authority subject to conditions. Jim Hurley appealed to An Bórd Pleanála on 17 April 1996 (PL26.098127). An

Oral Hearing was conducted on 2 July 1996. Planning permission was refused by the board.

- **Houses at Chour.** (1) Register Ref No: 982210 received on 12 October 1998. Applicants: Mssrs Brian and Dennis Martin, 9 Westgate Park, Wexford. Location: Chour, Broadway, Co Wexford. Proposed development: Two serviced dwellings. (2) Planning Register Ref No: 990821. Applicant: Dr Dermot O'Brien, 5 Stonepark Abbey, Rathfarnham, Dublin 14. Location: Chour, Carne, Broadway, Co Wexford. Proposed development: Construction of 2-storey house and sewage treatment plant. (3) Planning Register Ref No: 991601. Applicants: Michael Flynn and Mary Maher, Slaneyquarter, Tullow, Co Carlow. Location: Ringsherane / Bohercreen, Broadway, Co Wexford. Proposed development: Construct 2 No. semi-detached cottage style dwellings with separate septic tanks. All applications were refused.
- **Landfill.** Planning Register Ref No: 20022181 received 31 July 2002. Applicant: SEWMAR (South East Waste Management And Recycling) Ltd., Carrigbawn, Pembrokestown. Proposed development: Quarry Restoration Project at Garryhack, Killinick. The application to dump some 70,000t of material sparked many local concerns (*Wexford People*, issue dated 7 August 2002, page 3). Application No 2181 was withdrawn and was resubmitted as No 2520 without the organic component. That sparked fresh concerns (*Wexford People*, issue dated 4 September 2002, page 5). The permission sought was refused on 18 October 2002. The refusal was appealed by SEWMAR to An Bórd Pleanála but the appeal was deemed invalid as it was received after the appeal period had expired. The developers applied again to planning authority (No 3807 received 18 December 2002) addressing all earlier concerns. The permission sought was refused on 14 February 2003. The refusal was appealed to An Bórd Pleanála (PL 26.202261). The board refused the permission sought citing, *inter alia*, that the applicants failed to demonstrate that the proposed development would not have an adverse impact on the ecology of the area and in particular on Tacumshin Lake.
- **Infilling of wetland.** In November 1998 part of the wetland known as 'The Glen' beside Fethard Bridge was infilled. Jim Hurley wrote to Wexford County Council pointing out that the area appeared to be part of pNHA 697 and the works in progress did not appear to be the subject of planning permission. His letter was acknowledged with a promise that the matter would receive attention from Mr Frank Roche, Executive Engineer. The infilling continued and the intaken land was used as a storage area.

County plans. Development plans for County Wexford were produced as follows.

Year	Item
1967	1 st County Development Plan produced.
1973	Variation made on the 1 st plan.
1975	Another variation made on the 1 st plan.
1979	2 nd County Development Plan produced; adopted on 12 November 1979.
1985	3 rd County Development Plan produced; adopted on 30 May 1985.
1993	4 th County Development Plan produced; adopted on 28 June 1993.
1998	Review report produced in June with regard to Strategic Planning Issues.
1998	Preparation of a Village Plan for Kilmore Quay advertised on 30 September.
2000	Draft Local Area Plan for Kilmore Quay produced in February.
2001	5 th County Development Plan produced; adopted on 11 June 2001.
2001	Variations 1, 2 and 4 made on the 5 th plan on 11 June (Variation No 3 dropped).
2001	Preparation of a Local Area Plan for 'The Hook Peninsula' advertised on 25 July.
2002	Local Area Plan for Kilmore Quay produced in March.
2004	Appendix 4 of Variation No 4 made on the 5 th plan and adopted on 9 February.
2004	Kilmore Quay Harbour Bye-laws 2004 produced.
2004	Notice given in November of proposed Variation No 5 on the 5 th plan.

Updates

County Development Plan Review. In April 2006, Wexford County Council gave public notice of a series of public meetings around the county to hear inputs to a review of the County Development Plan (*New Ross Standard*, issue dated 19 April 2006, page 43). Notice was subsequently given of the publication of a draft plan for the period 2007-2013 as approved by the councillors on 15 November (*New Ross Standard*, issue

dated 22 November 2006, page 62). On 13 December 2006, Jim Hurley made the following submission to the Forward Planning Section of Wexford County Council (WCC).

“Further to your Public Notice published in the *New Ross Standard*, issue dated 22 November 2006, page 62, inviting written submissions or observations with respect to the Draft County Development Plan 2007-2013, I wish to make the following submission.

My submission concerns pages 113-114, subsection 9.4.1 (Designated Sites) of section 9.4 (Natural Heritage) of Chapter 9 of the written statement. I note that in carrying forward material from the current County Development Plan 2001 to the Draft Plan 2007-2013 one significant table got left out. That table is on the top left-hand corner of page 112 of the current County Plan and it lists ‘Sites of Geological and Geomorphological Interest in County Wexford’ (copy enclosed). As I can see no reason for omitting these important sites from the Draft Plan I submit and request that you reinstate the table in question and amend the accompanying text accordingly to include policies and objectives seeking to achieve the conservation of the county’s geological and geomorphological heritage resource values.

I trust this submission and request will receive due consideration in the making of the Plan.”

The submission was copied to the Geological Survey of Ireland (GSI) and was acknowledged by both WCC and the GSI.

Local Area Plan. The Local Area Plan for The Hook Peninsula was still at the draft stage (personal communication, Planning and development Section).

Web links: The Wexford County Development Board website is at <http://www.wexfordcdb.ie>. Planning applications received by Wexford County Council Planning Authority are posted at <http://www.wexford.ie/Applications/received.htm>. Downloads of the *Planning and Development Act 2000* and the *Planning and Development Regulations 2001* are available at the Department of the Environment and Local Government homepage at <http://www.environ.ie/>. An Bord Pleanála is at <http://www.pleanala.ie/>. The Heritage Council is at <http://www.heritagecouncil.ie/> and the Friends of the Irish Environment are now at <http://www.friendsoftheirishenvironment.net>. The National Spatial Strategy website is at <http://www.irishspatialstrategy.ie/>. The South-East Regional Authority’s Regional Planning Guidelines are posted at <http://www.sera.ie>.

SITES OF GEOLOGICAL AND GEOMORPHOLOGICAL INTEREST IN CO WEXFORD*

Baginbun Head
Ballymoney Strand
Barrystown
Booley Bay
Booley Bay/Dollar Bay to Bella Vista
Caim (Ballyhighland)
Camaross Cross Roads
Carrigadaggan
Clammers Point to Cross Lake
Cullenstown Strand to Ballymadder Point
Cummer Serpentine
Curracloe
Forth Mountain
Greenville
Hook Head
Kilmore Quay
Kiltrea
Pollshone Head to Cahore Point
Rosslare Harbour to Greenore Point
Screen Hills
Shelmaliere Commons Quarry
St Helens Harbour
Wood Village

**to be proposed as or considered as possible
Natural Heritage Areas.*

6.5.4 The Foreshore Acts, 1933-1998

Reference to earlier report

- Hurley, 1997 page 77 is the sole entry.

Page link: Section 17.5 refers to ICZM legislation that may replace the *Foreshore Acts*.

Web link: The Department of the Marine and Natural Resources website is at <http://www.marine.gov.ie/> and the Marine Institute is at <http://www.marine.ie/>.

6.5.5 The Water Pollution Acts, 1977-1990

References to earlier reports

- Hurley, 1997 page 77 references the Act.
- Hurley, 1999 page 92 gives a page link.
- Hurley, 2003 pages 100-101 has addenda with regard to the Phosphorus Regulations, the publication of the first National Implementation Report as required under these Regulations, and a brief mention of other legislation relevant to water quality.
- Hurley, 2004 page 115 updates with regard to the implementation of the *Water Pollution Acts* in the South Eastern River Basin District.

Page link: See Sections 11.1 and 11.2.1 below with regard to water quality and Section 11.5.4 with regard to the Teagasc clean-up campaign with regard to phosphorus pollution.

Web link: The *Water Pollution Acts* are available at <http://www.environ.ie/>.

6.5.6 Other relevant domestic legislation

References to earlier report

- Hurley, 2001 pages 95-96 lists other relevant domestic legislation.
- Hurley, 2002 pages 103-104 arranges chronologically the list given in Hurley, 2001.

6.6 Interpretation and Eco-tourism

6.6.1 Introduction

References to earlier reports

- Hurley, 1998 pages 31-32 gives a synthesis with regard to nature conservation.
- Hurley, 2001 page 96 mentions eco-tourism.
- Hurley, 2002 page updates with regard to the development of eco-tourism initiatives in County Wexford and a Dúchas sign erected at Ringsherane.
- Hurley, 2003 pages 101-102 updates with regard to a *Walk on the Wild Side* evening at Saltmills and a national schools project about local lore and wildlife in Poulfur and Ramsgrange.
- Hurley, 2004 page 116 updates with regard to the provision of 'developed walks' at Hook Head, a Schools Wetlands Project at Lady's Island, a lack of knowledge about natural heritage matters, and Ireland's first designated eco-tourism region in Leitrim/Fermanagh.
- Hurley, 2005 page 113 updates with regard to plans for the Festival of the Sea 2005, the AGM of the Hook Tourist Association, proposed walks at Ballyteige Burrow, and proposed filming at the Saltee Islands.
- Hurley, 2006 pages 103-104 updates with regard to (1) the TWIGS project and (2) a presentation about the South Wexford Coast.

Page link: Section 5.1.1 gives a description of the report area and Section 6.2.1 reports on the Wexford Wetlands Project.

Updates

Environment centre. On 23 May 2006, Karin Dubsky applied to the Planning Authority of Wexford County Council for permission to convert the existing double lime kiln at Saintkierans, Tintern, into a coastal environment centre (Register Ref No: 20061851). The proposed centre would be used as a resource for teaching ecology to local school children (*New Ross Standard*, issue dated 14 June 2006, page 3). On 8 June 2006, an objection was lodged on several grounds by Patrick J. Moran, Hon. Sec., of the South Wexford Conservation Concerned Citizens, Ballyscartin Lodge, Gorey (DocRef 486382). The Planning Authority wrote to the applicant on 17 July 2006 requesting further information (DocRef 497237).

Fisheries fund. A €4 billion European fisheries' fund was announced as follows.

Fisheries' fund to secure the future of coastal areas

JUNIOR MINISTER for the Marine, John Browne has welcomed a new €4 billion European Fisheries Fund agreed in Luxembourg on Monday saying it will secure the future of the fishing industry.

Negotiations over the package had been going on for over two years and Monday's agreement came on foot of intense discussions after a failure to agree at May's meeting of the council.

The fund contains programmes for coastal communities, for projects like eco-tourism, regeneration of coastal areas and measures to protect and enhance natural heritage.

There are supports to encourage young fishermen into the industry, and an emphasis on promoting stock conservation and protection of vulnerable fish stocks.

Four priorities were

identified - adapting the community fishing fleet, funding aquaculture and the marketing of fisheries products, investments in ports and promoting and developing new markets, and sustainable development of coastal areas.

Mr. Browne said the package, which covers the period from 2007 to 2013 would provide a sound basis for a sustainable and viable industry into the future.

(Source: Wexford Echo, issue dated 28 June 2006, page 29)

Web links: The Environmental Protection Agency website is at <http://www.epa.ie/>. The Marine Institute is at <http://www.marine.ie/>. The National Trust's coastline conservation web pages are at <http://www.nationaltrust.org.uk/coastline/>. Compass Infomatics homepage is at <http://www.compass.ie/>. The Marine Institute's National Coastline Survey pages with regard to aerial photography are at <http://www.marine.ie/ncs/>. A map of the Saltee Islands marine area is posted at <http://www.ecoserve.ie/biomar/saltee.html>. For eco-tourism see <http://trc.dit.ie/te2000>.

6.6.2 Designations by site

References to earlier reports

- Hurley, 2000 pages 104-106 mentions a proposed county inventory of designated sites and tabulates sites on the South Wexford Coast.
- Hurley, 2001 page 96 updates with regard to the proposed county inventory of designated sites.
- Hurley, 2002 page 105 reports on the publication of the county inventory of designated sites.

Page links: Sections 6.2 to 6.5 contain details with regard to relevant designations.

6.6.3 The Coastal Path

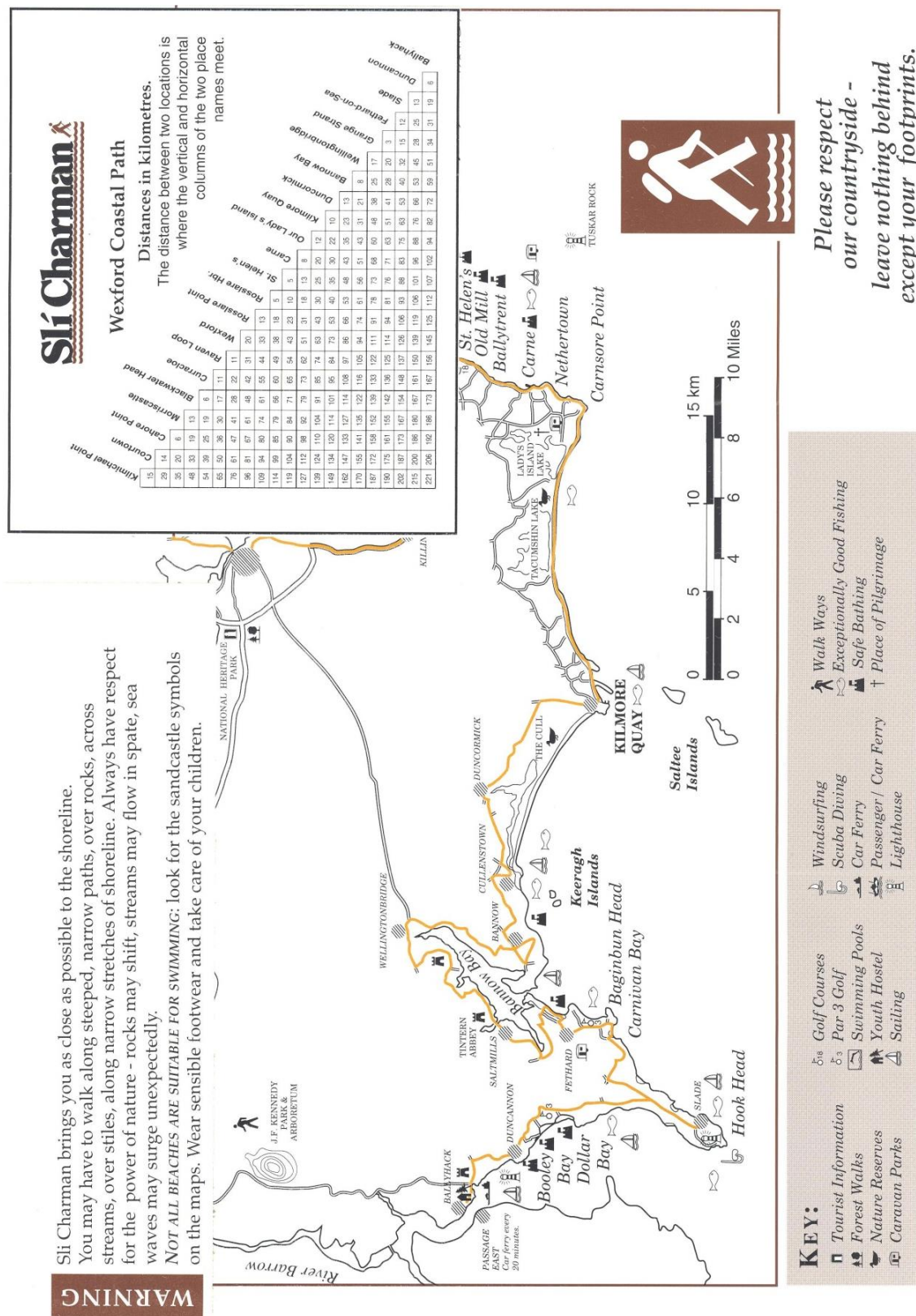
References to earlier reports

- Hurley, 2001 pages 96-97 consolidate the content of Hurley, 1997 page 27 and Hurley, 1999 page 30 and reports with regard to the 'Walk on the Wildlife Side' initiative.
- Hurley, 2002 page 105 updates with regard to the erection of several new finger posts on the section of Coastal Path running from Ballyhack to Rosslare Harbour.
- Hurley, 2005 page 105 updates with regard to the activities of the Wexford Hill-walkers Club.
- Hurley, 2006 page 104 updates with regard to a Wexford Lions Club charity walk.

Addendum

Brief history of the Coastal Path. When the then County Manager, Noel Dillon, outlined Wexford County Council's (WCC) plans for 1987, one of the proposed developments was to establish a 221km walking trail variously called the Coastal Path, Slí Charman (Wexford Way), and the Wexford Coastal Pathway. The proposed walking route was to run along the entire coastline of County Wexford. (The People Newspaper Group Christmas Supplement with issues dated 26 December 1986). Jim Hurley wrote to WCC in support of the initiative and offered to assist in any way he could with regard to the South Wexford Coast. The offer was acknowledged and accepted. At a subsequent meeting held on 23 February 1987, Roz Nixon, Senior Executive (Planning) and Coastal Path Project Leader, outlined that four pilot stretches of the path would be targeted for immediate development and interpretation: Courtown, Curracloe, Rosslare Harbour and Hook Head. These areas were to be walked, mapped, surveyed and reported on by Jack Doyle and Liam Rutledge, employees of WCC. Their reports would then be passed to Jim Hurley who would compile site descriptions for a proposed series of interpretative leaflets. However, difficulties immediately arose with regard to funding for the project, gaining rights of way across farmland, and health and safety issues with regard to coastal erosion and coastal protection works. As one of its contributions to European Year of the Environment 1987, WCC hoped to be at least able to unveil a Hook Head Norman Coast Walk during 1987. However, for the reasons given all projects associated with the path were put on hold.

Six years later, in 1993, Noel Dillon secured a position as County Manager in Cork. Before he left Wexford, the Coastal Path was reactivated and was formally launched on Wednesday 31 March 1993 with funding from Bórd Fáilte and European Regional Fund monies (*Wexford People*, issue dated 8 April 1993, page C1). A brochure was produced featuring a map (Figure 10 is a composite of selected parts) and signs were erected (Plate 1). The section of path running along the South Wexford Coast was 85km long (Figure 11) and (Table 14). When Mr Dillon left the county, the Coastal Path project was again put on hold. In December 1995, Kieran O'Brien, then WCC Environment Officer, tried to resurrect interest and put forward proposals for the provision of a cycle route from Rosslare Harbour to Ballyhack and for an associated expansion of the existing Coastal Path. However, these proposals were not advanced.





Distance	From
00.0km	Hook Head (lighthouse)
02.1km	The Cross (the T-junction at the old school-house)
03.2km	Ditto, having completed the spur to Slade village
06.2km	The Piers (Y-junction at Portersgate)
08.8km	The Crossroads (4-roads cross and turn off at Graigue)
11.8km	Turn off signposted 'Carnivan Bay'
13.0km	Ditto, having completed the spur to the cliff top car park
13.8km	Baginbun Cross (T-junction)
15.0km	Ditto, having completed the spur to the cliff top car park
16.5km	Fethard village (T-junction by monument)
16.8km	Cross of the Grange Road (T-junction)
21.3km	Booley Hill Cross (back on the main road near Poulfur National School)
25.9km	Turn off signposted 'I.R.A. Memorial'
28.8km	Cross at Garrycullen
33.9km	Cross at the New Line Road
36.5km	Wellingtonbridge (the bridge itself)
36.8km	(T-junction at the lawnmower shop)
38.9km	Cross of the Back Road (unmetalled lane at the bridge at Ryans' house)
39.8km	Cross of Kiltra Road (back on metalled road)
41.4km	Cross of Newtown (T-junction)
42.4km	Cross at turn off to Nevilles' joinery
42.9km	The next cross
43.7km	Vernegly Cross (at St Brendan's Parochial Hall - 1)
44.8km	The Pick o' the Cross / Picket Cross (4-roads cross near Kiln Bay)
47.4km	Vernegly Cross (at St. Brendan's Parochial Hall - 2)
48.6km	Blackhall Cross (T-junction beyond Stafford's shop)
49.3km	Cross of Ballymadder Road (T-junction at Harpurs' house)
52.0km	Walshes' Cross (T-junction after Bannow House)
52.3km	King's Bridge
53.1km	Cross in Cullenstown
54.1km	Galvins' Cross (1st T-junction at Coolseskin)
57.6km	Burrells' Cross (Y-junction immediately before Duncormick)
58.2km	Cross of Seafield Road (T-junction near St Ann's Villas)
61.4km	Cross of Redmoor
61.8km	Cross of Park
64.3km	Cross of Killag
67.2km	Kilmore Quay village (Walshs' Foodstore)
85.0km	Carnsore Point

Table 14: Distances (in km) along the Coastal Path from Hook Head.



Plate 1: Coastal Path sign-cum-seat on the dunes at Ballyhealy.

In 2001, the development of the Coastal Path received renewed attention driven by a number of factors, including the following

- The national Waymarked Ways of Ireland committee did not accept or include the Wexford Coastal Path among its suite of national walking routes (personal communication, Michael Fewer, committee member).
- It was generally agreed within Wexford County Council that the path project needed to be 'refreshed' (personal communication, Hugh Maguire, Environment Officer).
- Kieran O'Brien, now Director of Services, was still keen to develop a cycle route from Rosslare Harbour to Ballyhack and to expand the existing Coastal Path.
- Billy Murphy, County Wexford Partnership, was reactivating his *Walk on the Wildlife Side* programme along the South Wexford Coast (see Hurley 2001, pages 96-97).
- Ray McGrath, Waterford, started compiling a guide to the Coastal Path.
- Wexford County Council planned to initiate more Green Coast Awards (personal communication, Hugh Maguire, Environment Officer).

All of these initiatives resulted in renewed interest but the interest waned somewhat.

Update

Charity coastal walk. The Lions Club planned to repeat their fundraising scheme that they initiated in 2005 (see Hurley 2006, page 104). The scheme involved walkers covering the entire length of the Coastal Path in 10-mile stretches over a period of 48 hours each walker raising at least €100 for the club's charity fund. In 2005, 180 walkers took part; some 300 were expected to participate in 2006 (*Wexford People*, issue dated 19 July 2006, page 18).

Web links: Bord Fáilte walking routes in Ireland for 2001 and the Irish Sports Council way marked ways are listed at <http://www.irishwaymarkedways.ie>. However, the Coastal Path is not featured as a walking route. The Wexford Tourism website mentions the Saltee Islands under Eco-Tourism at <http://www.wexfordtourism.com/>.

7 THE STAFF GAUGE

References to earlier reports

- Hurley, 1997 pages 78-80 is the principal reference.
- Hurley, 1999 page 92 has a brief update with regard to cleaning the gauge.
- Hurley, 2000 page 107 updates with regard to cleaning the gauge.
- Hurley, 2002 page 105 updates again with regard to cleaning the gauge.
- Hurley, 2003 page 102 updates with regard to cleaning the gauge.
- Hurley, 2005 page 114 updates with regard to (1) upgrading the staff gauge, and (2) five reasons why monitoring of water level is important.

Page link: Section 3 with regard to the survey method. Section 5.11.5 with regard to impacts on the barrier, Section 14.1.1 with regard to water level changes in the lagoon for the current year and Section 14.1.2 with regard to the automatic water level recorder.

8 WATER LEVEL INSIDE THE BARRIER

Page link: Section 5.9.2 with regard to climate change.

8.1 Water inputs

References to earlier reports

- Hurley, 1997 pages 81-87 is the principal entry. It lists ten sources of water inputs, tabulates the twelve feeder streams at Lady's Island Lake and gives a map of the catchment of the lagoon.

- Hurley, 1998 pages 32-33 gives an update with regard to the wet summer of 1997.
- Hurley, 1999 page 93 draws attention to discrepancies in the calculation of the size of the lagoon's catchment area.
- Hurley, 2002 page 106 has a brief update with regard to the Well at Lady's Island overflowing onto the pilgrimage path and running into the lagoon.

8.2 Water outputs

Reference to earlier report

- Hurley, 1997 pages 87-90 is the sole entry. It addresses water output via seaward seepage, evapotranspiration and breaching of the barrier

9 WATER LEVEL OUTSIDE THE BARRIER

9.1 Introduction

Reference to earlier report

- Hurley, 1997 page 91 is the sole entry and it gives a brief overview.

9.2 Measuring sea level

References to earlier reports

- Hurley, 1997 pages 91-93 is the principal entry and it gives the overview.
- Hurley, 1998 page 33 has a typographical correction and mentions predicted changes in sea level due to global warming.
- Hurley, 2002 page 106 has an update with regard to the anticipated range of sea level rise over the 30-year period 2001-2031.
- Hurley, 2003 page 103 updates with regard to rising sea level.
- Hurley, 2005 page 115 updates with regard to sea level rise on the southern coasts of Ireland.

Page link: Section 5.9.2 with regard to climate change. Section 5.10.1 with regard to the characteristics of the inshore waters and Section 5.10.2 with regard to marine climatology. Section 5.11.5 with regard to impacts on the barrier.

Web links: For general information see the International Council for the Exploration of the Sea at www.ices.dk/, Sea Search at www.sea-search.net/, OceanNET at www.oceannet.org, and the British Oceanographic Data Centre at www.boac.ac.uk/.

9.3 Tides

References to earlier reports

- Hurley, 1997 pages 93-94 is the principal entry and gives the overview.
- Hurley, 2000 page 109 gives information with regard to tide levels at Carnsore Point and at Cullenstown.
- Hurley, 2001 page 98 briefly mentions mean tidal range at Bannow Bay and mean spring tide range at Carnsore Point.
- Hurley, 2004 page 118 updates with regard to the tide gauge at Ballyteige Bay.
- Hurley, 2005 page 116 updates with regard to (1) the national network of tide gauges, (2) the National Tidal and Sea Level Facility, and (3) rip tides.

Page link: Section 5.13 with regard to salinity.

Web links: Information about tides is given by the Dublin University Sub-Aqua Club at <http://www.tcdlife.ie/clubs/subaqua/Tides/>. The Geological Survey of Ireland web pages with regard to the National Tide Gauge network are at <http://www.gsiseabed.ie/tidal.htm>. The National Tidal and Sea Level Facility is at <http://www.pol.ac.uk/ntslf/> and predictions for Rosslare Harbour are at <http://www.pol.ac.uk/ntslf/tides/?port=0009>.

9.4 Sea waves, surges and swells

References to earlier reports

- Hurley, 1997 pages 94-97 is the principal entry.
- Hurley, 1999 pages 94-96 give data with regard to wave heights in southeast Ireland.
- Hurley, 2000 page 109 has a comment with regard to climate change.
- Hurley, 2002 page 107 has an update with regard to a possible tsunami and definitions of a storm surge and a swell.
- Hurley, 2003 page 104 updates with regard to tidal surges.

Page link: Section 5.2 refers to freak waves generated by earth movements.

Web link: For wave models, sea area forecasting, climatology, weather observations at sea and results from the Irish Marine Data Buoy Network see the web pages of the Marine Unit of Met Éireann at <http://www.met.ie/aboutus/marine.asp>. The Marine Institute also has data at <http://www.marine.ie/>. For sea waves and storm surge predictions see <http://www.dra.hmg.gb/html/products/seasys/ssottsp.htm>. For swell forecasts see <http://www.surfingireland.net/>. The website of the Centre for Applied Oceanography (CAO) in Wales has a tidal map for the south Irish Sea at <http://www.cao.bangor.ac.uk/>. For long-term wave monitoring see www.cefas.co.uk/WaveNet/.

9.5 Bedform

References to earlier reports

- Hurley, 1997 pages 27 and 98-99 is the principal entry and has maps of both submarine contours and marine deposits off Carnsore Point.
- Hurley, 1998 page 18 has two brief addenda with regard to the 3-mile nautical limit, the *Maritime Jurisdiction Act 1959* and the lightship at the Barrels Rock.
- Hurley, 1999 page 30 describes a bathymetric survey near The Cut; page 97 has a correction with regard to the *Maritime Jurisdiction Act*.
- Hurley, 2000 pages 110-111 defines the Nymph Bank, describes the Coastal Image Viewer on CD-ROM and gives a map showing the location of the 100m contour.
- Hurley, 2004 page 119 has an addendum with an image of sand waves.

Page link: Section 5.11.6 refers to coast erosion in general and accretion at Kilmore Quay. Section 5.24 refers to the spatial distribution of King Scallops on the seabed off the South Wexford Coast with regard to bedform and hydrodynamics.

Web link: The Geological Survey of Ireland sells bathymetry charts based on its multibeam sonar survey of the Irish seabed; see <http://qsiseabed.ie> for survey details and <http://www.estore.ie/home/qsistore> for sales.

9.6 Wave set-up and wave run-up

Reference to earlier reports

- Hurley, 1997 page 99 is the sole entry.

Page link: Section 5.6 with regard to nearshore marine geology.

9.7 Synthesis: the combined effect

References to earlier reports

- Hurley, 1997 pages 100-102 lists the factors that contribute in combination to determining the value of water level outside the barrier and details Case Studies 1-4. (Hurley, 2000 pages 112-113 contains an addendum to Case Study 1 and Hurley, 2000 page 114 contains an addendum to Case Study 3.)
- Hurley, 1998 pages 33-35 details Case Studies 5-7.
- Hurley, 1999 pages 98-101 details Case Studies 8-13. (Hurley, 2000 page 115 contains an addendum to Case Study 13.)

- Hurley, 2000 pages 112-113 contains an addendum to Case Study 1, page 114 contains an addendum to Case Study 3 and page 115 contains an addendum to Case Study 13. Pages 115-118 detail Case Studies 14-16.
- Hurley, 2001 pages 98-102 contains an update with regard to the North Atlantic Oscillation (NAO) and details Case Studies 17-19.
- Hurley, 2002 page 108 refers to Case Studies 20 and 21 with cross-references to Figure 18 on page 133.
- Hurley, 2003 pages 104-105 updates with regard to perihelion, summarises factors of importance when in combination, refers to Case Studies 22 and 23, and has a note with regard to the impacts of hurricanes in the Caribbean basin on the weather on the South Wexford Coast.

Page link: Section 5.20.5 with regard to drift seeds. Section 13.8 details events with regard to breaching the barrier since 1997. Severe weather events associated with breaching are described in that context.

10 THE NEED TO REGULATE WATER LEVEL

Reference to earlier report

- Hurley, 1997 page 103 is the sole entry. It lists the various needs.

10.1 Farming concerns

Reference to earlier report

- Hurley, 1997 pages 103-104.
- Hurley, 2005 page 118 with regard to irrigating potato crops around Lady's Island Lake.

10.2 The Marian pilgrimage

References to earlier reports

- Hurley, 1997 pages 104-106 is the principal entry.
- Hurley, 1998 page 36 contains an addendum with regard to the institution of the custom of holding a procession and an update with regard to a television programme.
- Hurley, 1999 page 102-103 has updates with regard to land drainage under the pilgrimage path, the pilgrimage web site and flooding of the path.
- Hurley, 2000 pages 119-120 contains a correction with regard to flooding of the pilgrimage path and updates with regard to the origin of the pilgrimage and the rosary rally in 1954.
- Hurley, 2001 page 103 has further updates with regard to the rosary rally held in 1954 and the origin and history of the pilgrimage.
- Hurley, 2002 page 109 updates with regard to the pilgrimage in 2001.
- Hurley, 2003 pages 105-106 update with regard to the history of the pilgrimage and developments on the pilgrimage path.
- Hurley, 2005 page 118 with regard to a radio programme and television documentary.

Addendum: The following account describes the pilgrimage in 1682 (Anon, no date pages 18-19).

Our Lady's Island - Place of Pilgrimage

**DESCRIPTION OF OUR LADY ISLAND
IN 1682**

In the Southwell M.SS., we also find Colonel Solomon Richards' Account of Wexford and Barony of Forth, dated 1682. The Colonel served under Cromwell himself, got grants of land for his services, and was made Governor of Wexford town.

On the restoration of Charles II, the Colonel became a staunch Royalist, was taken into favour, had his grants confirmed, and was again made Governor of Wexford. Being a fierce bigot and a scoffer of all Catholic practices of devotion, his testimony of what he saw and heard of Our Lady's Island and its Pilgrimages is of great weight. He writes thus: "In the Barony of Forth is a Lough, 'Lough Togher', about two miles in length and a mile in breadth, replenished with divers sorts of fish, excelling in their kind to admiration, especially plaice, bass, mullet, flukes, eels, etc. The sea being contiguous, is by the neighbours let in and out once in seven or eight years. In this Lough is an island, called Lady's Island, containing about twelve acres of land - in former times of ignorance, highly esteemed and accounted Holy, and to this day the natives, persons of honour, as well as others, in abundance, from remote parts of the kingdom, do with great devotion go on pilgrimge thither and there do penance, going barelegged and barefooted, dabbling in water up to mid-leg around the island. Some others go one foot in the water, the other on drye land, taking care not to wet one nor to tread drye with the other. But some great sinners go on their knees in the water.

This I have seen, as also I have seen persons of no mean degree leave their hose and shoes in Wexford and go bare footed in dirty weather from Wexford to this island, which is 8 miles, and having done their penance, make their offering in the chapel and return to Wexford in the same position. This abundance of people (not the wisest) do every year towards the end of summer, but the chiefest or more meritorious time is betwixt the two Lady Days of August 15 and September 8. If any lady, through

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Our Lady's Island - Place of Pilgrimage

indisposition, be loath to wet her feet, there are women allowed to do it for them, they being present, and paying a fee for it. And this is effectual enough".

REVIVAL OF THE PILGRIMAGE

In June, 1867, the Redemptorist Fathers conducted a Mission in the parish. The last Sunday of the Mission was an epoch in the history of the parish, for never before was there seen in Our Lady's Island, a sight so grand and impressive as was the first Procession of the Blessed Sacrament around the island. The Most Rev. Dr. Furlong, Bishop of Ferns, presided at the High Mass which was celebrated by a Redemptorist Father and at which two sons of the parish, the late Fr. John Furlong and his brother, Fr. Pat, were deacon and sub-deacon. "The great event of the day, however", writes "The People", July 6, 1867, "was the procession round the island, in the evening, preliminary to the dedication of the parish, to the Blessed Virgin Mary. This was truly a sight that will live in the memory of all who were present. At 5 o'clock the procession started from the church in the following order: First a body of men, four deep, young men and old, the wealthy farmer and the struggling cottager, walked on shoulder to shoulder. A long line of females followed with fair young ladies clothed in white as their standard bearers. They carried banners, bouquets of sweet scented flowers and waxen tapers. Long files of



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Web link: For a description of the pilgrimage see <http://www.wexfordweb.com/oli.htm> and for the programme of events go to http://www.wexfordweb.com/oli_events.htm.

10.3 Wildfowling

References to earlier reports

- Hurley, 1997 pages 106-107 is the principal entry.
- Hurley, 1999 page 102 has a brief update.

10.4 Water sports

References to earlier reports

- Hurley, 1997 pages 107-108 is the principal entry.
- Hurley, 1998 page 36 has a brief addendum and update.

10.5 Sewerage scheme

Reference to earlier report

- Hurley, 2001 pages 103-104 is the sole entry.

Page link: Section 11.2.2 refers to the waste water treatment plant at Lady's Island.

11 WATER QUALITY

11.1 Overview of non-marine waters

References to earlier reports

- Hurley, 1997 page 109: the first two paragraphs give the overview.
- Hurley, 1999 page 120 refers to remote sensing of water quality nationally, and page 121 quantifies the pollution runoff risk of soils in the Lady's Island Lake catchment.
- Hurley, 2000 page 104 notes that remote sensing of lakes using the techniques developed by Spectral Signatures Limited was evaluated and endorsed by the Environmental Protection Agency (EPA).
- Hurley, 2004 pages 122-123 updates with regard to a new environmental information portal to promote environmental awareness in Irish industry, the InterReg SMART project at Bannow Bay, a conference tour to Bannow Bay, Wexford County Council advertisement for a Senior Executive Scientist to head up water management matters, and the results of a pan-European review with regard to water quality and management.
- Hurley, 2005 page 119 updates with regard to EPA criticism of local authorities.

Page link: Section 5.7 refers to groundwater. Section 6.5.5 addresses the *Water Pollution Acts, 1977-1990*. Section 11.6 refers to tidal waters including estuaries.

Updates

Water quality. The EPA reported that water quality in more than one-third of Ireland's rivers and lakes failed to comply with the 1998 Phosphorus Regulations and found that agricultural activities and sewage discharges were the main sources of enrichment of waters (*The Irish Times*, issue dated 22 March 2006, page 5). The report recorded 24 instances of pollution in County Wexford during the period 2001-2003. The only instance recorded on the South Wexford Coast was at Duncormick where the river was shown to be moderately polluted (*Wexford People*, issue dated 29 March 2006, page 25). Nationally, water quality was reported to be of a high standard (*Wexford People*, issue dated 23 August 2006, page 35). However, significant sewage problems exist at Taghmon, Bridgetown and Wellingtonbridge (*New Ross Standard*, issue dated 13 September 2006, page 18 and *Wexford Echo*, issue dated 27 September 2006, page 117).

WFD monitoring programme. On 22 October, the EPA published Version 1.0 of its monitoring programme as required under the Water Framework Directive (EPA, 2006). The programme contained the following items with regard to the South Wexford Coast.

- There are seven hydrometric stations in south Wexford: six data loggers and one staff gauge. From the map (EPA, 2006 page 70 Figure 7.1), the six data loggers appear to comprise three north of Wellingtonbridge, one at the Cull Bank, and one at the Sluice House, Kilmore Quay. The staff gauge is in the vicinity of the South Slob.
- The only 'surveillance monitoring site for rivers' appears to be near the Cull Bank (*ibid.*, page 81, Figure 7.1). [See <http://www.epa.ie/whatwedo/wfd/monitoring/programme/>].

- Of the 12,206 lakes recorded in Ireland, two occur on the SWC: Lady's Island Lake and Tacumshin Lake (*ibid.*, page 111, Figure 8.2). Neither is numbered among the 745 lakes reported upon under Article 5 of the WFD (*ibid.*, page 112, Figure 8.3). Neither is numbered among the 73 'national surveillance monitoring lakes' (*ibid.*, page 113, Figure 8.4). And neither is numbered among the 222 'national operational monitoring lakes' (*ibid.*, page 114, Figure 8.5).
- 'Bridgetown Estuary', Lady's Island Lake and Tacumshin Lake were listed as 'protected areas' (Subnet 6). All were rated 'at risk or probably at risk' (Subnet 1). Lady's Island Lake was subject to 'point and diffuse measures' (Subnet 2) while 'Bridgetown Estuary' and Tacumshin Lake were subject to 'hydromorphological measures' (Subnet 3) (*ibid.*, page 133, Table 9.5).
- No transitional waterbody or coastal waters on the South Wexford Coast was subject to surveillance and operational monitoring (*ibid.*, page 137, Figure 9.1).
- With regard to groundwater, the predominant aquifer type found in the area was 'poorly productive bedrock' (yellow) with the exception of the 'productive karstified aquifer' (blue) fringed on its north-western flank with 'productive fissured bedrock' (purple) (*ibid.*, page 142). With regard to risk assessment, groundwater in the area south-east of the 'productive karstified aquifer' was regarded as 'not at significant risk' (Category 2b) while the remainder of the map area was regarded as 'probably at significant risk' (Category 1b) (*ibid.*, page 143, Figure 10.2).

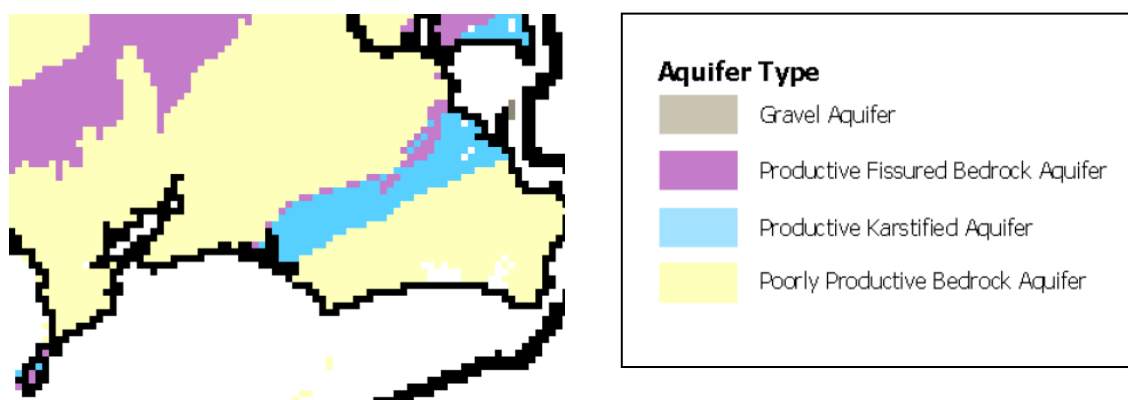


Figure 12: Aquifer types found on the South Wexford Coast.

(Source: screen grab from EPA, 2006 page 142 at http://www.epa.ie/downloads/pubs/water/other/wfd/EPA_water_WFD_monitoring_programme_main_report.pdf.)

Web links: The quality of non-marine waters on the South Wexford Coast is summarised in three interactive maps: <http://www.epa.ie/rivermap/data/S24.html> (Hook Head area), <http://www.epa.ie/rivermap/data/S25.html> (Ballyteige Burrow area) and <http://www.epa.ie/rivermap/data/T21.html> (Tacumshin Lake area). The OECD online bookshop is at <http://www.OECD.org/bookshop>. The new Enterprise Ireland environmental information portal is at www.envirocentre.ie. The programme for the 2003 conference on Diffuse Pollution and Basin Management is at <http://www.ucd.ie/dipcon/programme.htm>. The results overview for Ireland from the November 2003 World Wide Fund for Nature pan-European review with regard to water quality and management is at www.panda.org/downloads/europe/wwiireland.pdf. The EPA monitoring programme under the Water Framework Directive is at http://www.epa.ie/downloads/pubs/water/other/wfd/EPA_water_WFD_monitoring_programme_main_report.pdf.

11.2 Lady's Island Lake

Results are presented for the lagoon (Section 11.2.1) and the waste water treatment plant (Section 11.2.2).

11.2.1 The lagoon

References to earlier reports

- Hurley, 1997 pages 109-113 plus page 116 give the overview for the period 1984-1996 covering the first five surveys (1984, 1990, 1992, 1994 and 1995).
- Hurley, 1998 page 36 refers to a minor correction while page 39 updates with regard to 1997.
- Hurley, 1999 pages 106-110 update with regard to the 1998 (the sixth) survey.
- Hurley, 2000 page 122 updates for 1999.
- Hurley, 2001 pages 104-105 updates for 2000 and mentions national objectives with regard to water quality.
- Hurley, 2002 page 110 updates for 2001 with regard to the seventh EPA survey.
- Hurley, 2003 page 107 comments on the local perception that there is a direct correlation between water quality and the numbers of Mute Swans and Cormorants on the lagoon.
- Hurley, 2004 pages 123-137 updates with regard to thresholds for groundwater quality, limit values for physico-chemical and microbiological parameters for river water, the EPA's 1998 Biological Monitoring Programme in Hydrometric Area No 13, and details with regard to a fish kill at Lady's Island Lake and subsequent events.
- Hurley, 2005 pages 123-137 updates with regard to (1) the results of chemical and biological field surveys carried out on 29 March 2004, (2) algal blooms during the year, and (3) the use of alum in phosphorus removal.
- Hurley, 2006 pages 110-112 updates with regard to algal blooms during the year, and a fish kill.

Page link: Section 5.15.2 with regard to algal blooms in the lagoon at Lady's island Lake. Section 5.35.1 refers to fish surveys. Section 6.4.8 refers to the Water Framework Directive and Section 6.5.5 refers to the *Water Pollution Acts*. Section 6.5.5 with regard to pollution control activities conducted by Wexford County Council and Section 0 with regard to pollution control activities conducted by the Environmental Protection Agency (EPA).

Updates

(1) Algal bloom 1. On 21 January 2006 there were extensive patches of green foam on the western shore at Lady's Island. Jim Hurley reported the bloom to Éamonn Hore attaching photographs. He copied the report to Dr Jim Ryan, Research Division, National Parks and Wildlife Service. On 26 January, Yvonne Mullooly, Senior Executive Scientist with Wexford County Council took samples and brought them for analysis to the EPA Regional Inspectorate in Kilkenny. While the samples were green in colour they did not contain any identifiable algae (personal communication, Michael Neill, Regional Chemist). The laboratory planned to take fresh samples the following day together with measurements of salinity, temperature and DO.

(2) Algal bloom 2. Jim Hurley reported another bloom on 13 February 2006 indicated by the presence of extensive white foam, tinged with green in places, around the entire lagoon. The water in the lagoon was dark green in colour, water level stood at 5.12m O.D. Poolbeg and the ambient air temperature was 9°Celsius. The weather was overcast with heavy and persistent mist in the morning followed by intermittent light mist, bright spells and light winds in the late morning and afternoon. As a result of the exceptionally dry weather in recent weeks, most of the arable land around the lagoon had been tilled.

(3) Risk assessment. Overall, Lady's Island Lake was assessed as 'probably at significant risk' (Category 1b) (Source: SERBD website).

Waterbody Report for Lady's Island Lake Transitional Waterbody		
Report Creation Date: 21 May 2006		
Waterbody Category:	Transitional Waterbody	
Waterbody Name:	Lady's Island Lake	
Waterbody Code:	IE_SE_060_0100	
Area (km2)	2,960.49	
RBD Name:	South Eastern River Basin District	
Overall Risk Result:	1b Probably at significant risk	
Test Date:	01 January 2005	

Risk Test Description		Risk Test Result
Abstraction	Transitional water balance	2b Not at significant risk
Morphology	Intensive landuse	2a Probably not at significant risk
	Built structures - port tonnage	2b Not at significant risk
	Built structures - power or industrial intakes	2b Not at significant risk
	Channelisation	2b Not at significant risk
	Coastal defenses	2b Not at significant risk
	Deposition	2b Not at significant risk
	Impoundments	2b Not at significant risk
	Section 4 (Local Authority licensed discharges)	1b Probably at significant risk
Point Source	Combined sewer and treatment plant overflows	2b Not at significant risk
	IPPC	2b Not at significant risk
	Waste water treatment plants	2b Not at significant risk
	Water treatment plants and other pressures	2b Not at significant risk
	Risk results for point sources of pollution and MDI (worst case):	1b Probably at significant risk
Risk MDI	Risk result for all morphological pressures (worst case):	2a Probably not at significant risk
Risk Morphology	Risk result for all point sources of pollution (worst case):	1b Probably at significant risk
Risk Point Source	Risk results for all risk tests carried out on this waterbody (worst case):	1b Probably at significant risk

(4) Water quality. In May, the EPA produced a report on water quality monitoring at Lady's Island Lake (Neill, 2006) (see presentation by Michael Neill below).

(5) Public meeting. On 25 May 2006, Wexford County Council (WCC), in partnership with the EPA Regional Laboratory, the Eastern Regional Fisheries Board and the National Parks and Wildlife Service (NPWS), hosted 'an information and education meeting' to discuss Lady's Island Lake. The public meeting was advertised in the press (*New Ross Standard*, issue dated 10 May 2009, page 57) and invitations were sent to interested parties. The meeting was held at 8.30pm in the Community Centre at Lady's Island. Councillor Leo Carthy chaired. The top table comprised five other people: Éamonn Hore, WCC Senior Executive Engineer (Environment), Yvonne Mullooly, WCC Senior Executive Scientist, Tony Quirke, WCC Executive Engineer, Michael Neill, Regional Chemist, EPA Regional Inspectorate, Kilkenny, and Dave Daly, Tern Warden at Lady's Island Lake for the NPWS. About 80 people were present in the body of the hall. While the meeting was a follow-on from the public meeting held on 8 October 2003, minutes of that meeting were not available. The Chair advised that three presentations would be made and that after these presentations he would allow questions from the floor but would not permit any other contributions or speeches.

Yvonne Mullooly gave a wide-ranging presentation. She spoke quickly, showed a lot of slides and had no handouts. She outlined the results of the WCC surveys carried out since the first public meeting held on 8 October 2003. Some 800 water samples were taken. A biological survey of the feeder streams was carried out and a survey of lake sediments was commissioned. Expenditure on surveys was €65,000. 81 inspections

were made, 21 warning notices were served, and 3 Section 12 notices and 3 Section 23 notices were issued. There was 67% compliance with these notices. Of the sites surveyed 11 had deteriorated significantly, 8 had improved, 4 showed no change and 1 was bad. She appealed to farmers for their support and asked them to stop ploughing to within 1.5m of watercourses to prevent siltation and diffuse pollution. She said the WCC WWTP was commissioned in 1993. In 2004 a Phosphorus Removal Plant (PRP) was installed. In 2005, a new Rotating Biological Contactor (RBC) system was installed at a cost of €116,000. However, there were some on-going problems with that plant. In March 2007 it was planned to pump sewage from Lady's Island to Rosslare Harbour and to decommission the existing plant. She thanked all concerned for their inputs to the surveys.

Michael Neill handed out copies of the May 2006 EPA report on water quality in the lagoon and its twelve feeder streams, commissioned by WCC. His presentation consisted of an overview and executive summary of that report. He advised that water quality was satisfactory in 9 of the 12 streams, was unsatisfactory in 2, and was poor in 1. Results from WCC's new RBC plant were disappointing as the ortho-phosphate concentrations in the final effluent was more than twice what it should be. Water quality in the lagoon was very poor with values for chlorophyll-a being so high as to be "off the scale completely".

Dave Daly gave a presentation with regard to the terns breeding on Inish. He showed several excellent close-up images of different species of birds.

Several questions were asked following the three presentations. In answer to a question as to whether the proposed pipeline to Rosslare Harbour could accept sewage from individual septic tanks, Éamonn Hore said the combined population equivalent for Rosslare Harbour, Kilrane and Rosslare Strand was high so that the volume that could be accepted from Lady's Island would be 'limited'.

Jim Hurley asked if WCC intended to introduce nutrient management planning for the lake catchment as recommended by the EPA in its 2004 report. In reply, Yvonne Mullooly said that the Nitrates Directive would regulate that for the whole country. Éamonn Hore supported and said that as a result of meetings between WCC and the main farm organisations about 500 applications for planning permission for slurry storage tanks were expected before Christmas 2006.

Jim Hurley asked if the NPWS intended to produce a management plan for the lagoon. Lorcán Scott, District Conservation Officer, replied that the production of management plans was an EU-wide issue and that while it was intended to produce a management plan for Lady's Island Lake at some stage, he could not give a commitment with regard to dates.

At the end of questions, Jim Hurley attempted to raise the issue of the Foxtail Stonewort but was ruled out of order by the Chair. He subsequently wrote, on 29 May 2006, to Dr Jim Ryan, Head of the NPWS Wetlands Division, as follows.

Dear Jim,

Wexford County Council, in partnership with the National Parks and Wildlife Service, the Environmental Protection Agency and others, organised a Public Meeting at Lady's Island last Thursday evening. The purpose of the meeting, as advertised in the local press, was to discuss the lake and surrounding area. However, opportunities for discussion proved rather limited as contributions from the floor were confined to asking questions of those at the top table. At the very end of the meeting I did get a chance to raise the issue of Foxtail Stonewort. In this letter I would like to develop the points I wanted to make about that plant at the public meeting and to copy these thoughts to the parties listed overleaf.

Foxtail Stonewort *Lamprothamnium papulosum* is a species of wild plant that is very

rare. It was first recorded in Ireland in July 1973 growing on the lagoon bed at Lady's Island Lake and at Lough Murree, County Clare (Moore, Jermy and Mullin, 1975). It is a lagoonal specialist known to occur at only a few other locations in Ireland; no doubt, your rare plant database will have more up-to-date records.

Its tolerated salinity range is 8-32‰ and its preferred range is 8-28‰ (Bamber *et al.*, 2001 page 177 and Symes and Robertson, 2004 page 20, Table 3). The salinity range recorded at Lady's Island Lake in 2004 was 3.40-35.6‰ (ASU, 2004 and Neill, 1994). That range is outside both the tolerated range and the preferred range of the species in question suggesting that salinity fluctuations in the lagoon during that year were likely to have had significant adverse impacts on the plant's continued survival, assuming, of course, the species was still present in the lake at the time. Since it spreads partly by spores and partly by bulbils (Stewart and Church, 1992 page 86), the species may, hopefully, have survived in some form. I understand that a recent dive survey of aquatic vegetation conducted by Dr Cilian Roden at Lady's Island Lake failed to find Foxtail Stonewort, or indeed any vegetation at all growing on the bed of the lagoon.

In addition to salinity changes, other factors causing losses and declines elsewhere in the species' European range include changes in water quality. Changes in water quality are issues of serious concern at Lady's Island Lake (Neill, 2006). Since Foxtail Stonewort is restricted to nutrient-poor situations and is therefore highly sensitive to nutrient enrichment (Bamber *et al.*, 2001 page 177) its future at Lady's Island Lake would appear to be under severe threat.

That said, Foxtail Stonewort is a legally protected species in Ireland in that it is specified in the Schedule attached to the *Flora (Protection) Order, 1999* (S. I. No 94 of 1999). Notwithstanding its protection on paper, and the fact that the lagoon is a protected area of international importance, the species is likely to face extinction at Lady's Island Lake if urgent action is not taken to formulate a management plan for it, and, indeed, for all the other heritage resource values of the wetland of European importance.

Integrated management planning, the prioritising of conservation objectives, the setting of targets, and the formulation of policies to achieve these targets, are all functions of government at both central and local level. I understand that draft Management Plans for areas on conservation importance are being prepared by the National Parks and Wildlife Service as required under Article 6 of the Habitats Directive (EC, 2000). I hope you can be instrumental in prioritising the advancement of any proposed plan for Lady's Island Lake and for bringing it forward for publication in the near future in consultation with all interested parties.

I look forward to hearing from you in due course.

Yours sincerely,

Jim Hurley

References

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- Bamber, R. N., Gilliland, P. M. and Shardlow, M. E. A. (2001). *Saline lagoons: a guide to their management and creation*. (Interim version). Written and issued on behalf of the Saline Lagoon Working Group. Peterborough: English Nature.
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- Moore, J. A., Jermy, A. C. and Mullin, J. M. 1975. *Lamprothamnium papulosum*, a new record for Ireland. *Ir. Nat. J.*, Volume 18, Number 8, pages 233 - 237.
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- Neill, M. 2006. *Water Quality in Lady's Island Lake and Feeder Streams – April 2006*. A report commissioned by Wexford County Council. Kilkenny: Environmental Protection Agency Regional Water Laboratory.
- Stewart, N. F. and Church, J. M. 1992. *Red Data Books of Britain and Ireland: Stoneworts*. Peterborough: Joint Nature Conservation Committee.
- Symes, N. C. and Robertson, P. A. (Editors). 2004. *A Practical Guide to the Management of Saline Lagoons*. Sandy: Royal Society for the Protection of Birds.
- Cc Eamonn Hore, Senior Executive Engineer, Wexford County Council
 Yvonne Mullooly, Senior Executive Scientist, Wexford County Council
 Tony Quirke, Executive Engineer, Wexford County Council
 Leo Carthy, Councillor, Wexford County Council
 Lorcán Scott, District Conservation Officer, NPWS
 Tony Murray, Conservation Ranger, NPWS
 Dave Daly, NPWS Tern Warden, Lady's Island Lake
 Michael Neill, Regional Chemist, EPA Regional Water Laboratory, Kilkenny
 Karin Dusky, Coastwatch Ireland

(6) Summary report. In November, Jim Hurley produced a report summarising the results of water quality monitoring in the period 1984-2006 (Hurley, 2006).

(7) Time of sampling versus time of breaching. Water quality in the lagoon was sampled by the EPA on fourteen occasions. Water level in the lagoon at time of sampling is tabulated (Table 15) together with water depth, in metres above Ordnance Datum (Poolbeg), at each of the eleven sampling stations (Numbers 14-24) (Table 16), and some details with regard to breaching (Table 17).

No	Year	Dates of sampling	Date of report	Report reference	Water level
1	1984	17 April	November	Neill, 1984	?
2		21 May			?
3		9 July			?
4		19 Sept			c 3.30
5	1990	7 June	15 June	Neill, 1990	<3.16
6	1992	30 June	20 July	Neill, 1992	<3.16
7	1994	6 July	2 August	Neill, 1994	c 4.44
8	1995	25 April	9 May	Neill, 1995	c 3.24
9	1998	29 April	5 June	Neill, 1998	4.56
10	2001	27 August	October	Neill, 2001	4.13
11	2003	12 August	August	Neill, 2003	c 4.10
12	2004	21 June	October	Neill, 2004	c 3.69
13		9 September			c 3.61
14	2006	24 April	May	Neill, 2006	c 4.11

Table 15: Dates on which the EPA sampled Lady's Island Lake.

Date of sampling	n	14	15	16	17	18	19	20	21	22	23	24	Source
17 April 1984	0												Neill, 1984
21 May 1984	0												Neill, 1984
9 July 1984	11	2.5	2.5	1.0	1.0	0.8	2.0	2.0	0.7	1.4	1.2	0.6	Neill, 1984
17 September 1984	6						>2.0	>2.0	1.5	1.3	1.3	1.2	Neill, 1984
7 June 1990	11	1.4	2.6	0.6	0.6	0.9	2.0	2.0	1.8	0.5	0.8	1.3	Neill, 1990
30 June 1992	10	1.7	3.0	1.6	1.0	2.2	2.2	2.3		1.6	0.9	1.3	Neill, 1992
6 July 1994	11	3.0	2.5	1.8	1.1	2.0	3.0	3.0	1.3	2.3	1.6	2.0	Neill, 1994
25 April 1995	0												Neill, 1995
29 April 1998	11	1.8	3.3	1.4	1.4	2.0	3.2	3.3	1.5	2.3	1.6	2.5	Neill, 1998
27 August 2001	11	0.6	3.5	1.2	1.6	1.2	1.8	2.7	1.5	1.8	1.2	2.1	Neill, 2001
12 August 2003	0												Neill, 2003
21 June 2004	11	1.7	2.0	0.9	1.1	2.2	2.5	3.0	0.9	1.4	1.8	1.7	Neill, 2004
9 September 2004	0												Neill, 2004
24 April 2006	11	1.5	3.1	1.1	0.9	1.6	2.2	2.9	1.7	1.2	1.3	2.3	Neill, 2006

Table 16: Water depth (m) at each of eleven sampling stations (Numbers 14-24).

Year	No	Date of breaching (with water level)	Days open	Breach width	Tidal?	Interval	Salinity
	a)		b)	c)	d)	e)	f)
1984	1	11 April (?)	21	58		1	?
1990	1	3 April (5.62)	c.14	68		9	32.2
1992	1	23 March (c 4.53)	?	28		14	18.8
1994	1	17 Feb. (5.64)	c.21	93		19	10.0
1995	3	19 Jan. (c 5.10)	1	23			
		9 Feb. (5.50)	4	58			
		25 March (c 4.81)	2-3	53		4	29.0
1998	2	17 Feb. (5.67)	5	71			
		3 June (4.39)	24	35		10	14.5
2001	2	18 Jan. (c 5.87)	3	94	Yes		
		12 June (c 4.68)	10	22	No	10	8.8
2003	1	22 Apr. (c 4.78)	2.5-3	78	Partially	10	5.5

Table 17: Barrier breaches and water quality sampling.

Notes:

- a) Number of times the barrier was breached that year.
- b) Number of days the breach was open.
- c) Final width of breach, in metres.
- d) Did the lagoon become tidal?
- e) Interval, as approximate number of weeks, between the last date of a barrier breach and the first date of water quality sampling. The mean interval was c 10 weeks (range 1-19).
- f) Mean salinity in the lagoon calculated from data given in EPA reports for up to 11 stations.

(8) **Rosslare link-up.** Questions were asked at a County Council meeting with regard to linking the village of Tagoat to the Rosslare Harbour Main Drainage Scheme. Both Eddie Breen, County Manager, and Niall McGuigan, Director of Services, advised the meeting that there was no capacity left for a link-up (*New Ross Standard*, issue dated 14 June 2006, page 20).

Web link: A link to the report with regard to interpretations and standards of the parameters of water quality is given on the EPA water quality homepage at <http://www.epa.ie/rivermap/index.html>. The report may be downloaded or ordered from Publications on the EPA homepage at <http://www.epa.ie/>.

11.2.2 The waste water treatment plant (WWTR)

References to earlier reports

- Hurley, 1997 page 114, Table 16, together with text on pages 112-113 give the results of monitoring of effluent quality from the sewage treatment plant for the period 13 April 1994 to 7 October 1996.
- Hurley, 1998 page 39 gives an update with regard to the functioning of the treatment plant.
- Hurley, 1999 pages 111-114 update the results of monitoring and cover the period October 1996 - August 1998.
- Hurley, 2000 pages 122-123 refers to loading from Lakeside housing estate.
- Hurley, 2001 page 105 contains updates with regard to the upgrading of the public toilets servicing the pilgrimage and the addition of 23 more houses in the existing 22-house Lakeside housing estate.
- Hurley, 2002 page 111 updates very briefly.
- Hurley, 2003 page 108 reported no further progress.
- Hurley, 2004 pages 137-142 updates with regard to some performance data for Waste Water Treatment Plants and presents Wexford County Council lab results for Lady's Island WWTP for the period 30 December 1996 to 8 February 2002.
- Hurley, 2005 page 121 updates with regard to (1) the installation of a phosphate removal system at Lady's Island, and (2) a new sewage treatment plant at Carrick.
- Hurley, 2006 page 113 updates with regard to the Rosslare Harbour Main Drainage Scheme.

Page link: Section 10.5 above refers to the impact of high water level in the lake on the outfall from the sewage treatment plant.

Addenda

Pilgrimage toilets. On 5 May 1999, Our Lady's Island Pilgrimage Committee applied to Wexford County Council for planning permission to 'construct extensions and carry out improvement works to the existing toilet block' (Register Ref No 991148). Permission was granted on 28 May 1999, subject to conditions.

Phosphate removal. On 5 July 2004, the Water Services department of Wexford County Council applied to the Planning department for permission to 'install a phosphate removal system' at the WWTP at Lady's Island (Register Ref No LAC0364). The works included a walk-in store 2.4 x 2.4 x 2.5m high with associated bund, dosing pumps, etc. The Planner's Report was supportive. The only submission on file was a letter from the Eastern Regional Fisheries Board welcoming any improvement in water quality. The proposed works were sanctioned by the councillors on 13 September 2004 (personal communication, Martina Donoghue, Water Services).

Updates

Waste water collection. At the September 2006 meeting of Wexford County Council councillors approved a statement of needs with regard to a waste water collection system at Lady's Island (*Wexford Echo*, issue dated 13 September 2006, page 7).

Waste-water system to rescue lake

PROPOSALS FOR A waste-water collection system aimed at reducing pollution in Lady's Island Lake will be included in the 'assessment of water needs' being sent to Minister for the Environment, Dick Roche.

At Monday's meeting of the County Council, councillors voted unanimously to approve a draft assessment of needs for the Water Services Department to be sent to the Minister later this month.

The draft assessment includes provisions for a spend totalling hundreds of millions between 2007 and 2014.

The projects listed include a €30 million spend on water supply and mains drainage in Gorey; €31 million on water supply and mains drainage in Enniscorthy; €23 million on similar projects in Ross; €10 million on upgrading waste-water treatment in Wexford; €5 million in Fardystown and €24 million for village schemes.

A collection system to reduce pollution to Lady's Island Lake was included following the period of public consultation.

A brackish lake, Lady's Island is fed by 12 freshwater streams from the surrounding catchment.

Annual water quality surveys of the lake carried out by

the Environmental Protection Agency have seen the lake repeatedly classed as eutrophic or hypertrophic.

Feeder stream 10, in particular, has consistently shown high levels of nutrients and is the largest stream feeding the lake. This stream is one of the few that has not shown improvements even with work being carried out by the Environment section of the council.

Eamonn Hore of the Environment Section recommended to the Council that a waste-water sewer be built that will intercept effluent discharged from 25 existing houses using the stream at Shad crossroads, St. Awaries and Eardownes Great.

This, he said, will hopefully have a beneficial impact on the overall water quality.

The Lady's Island waste-water collection system falls within tier two of the council's statement of needs, meaning it may take up to seven years to be built.

Pump station. Wexford County Council gave public notice that it planned the 'Construction of a pump station, comprising of an odour unit septicity dosing cabinate, control panel, holding tank and pump chamber' at Eardownes Great (Planning Ref: LAC 0434) (*New Ross Standard*, issue dated 6 December 2006, page 61).

Septic tank. At 1300hours on Saturday 30 December 2006 Jim Hurley observed a large tanker arrive at Lady's Island village. The driver parked between the public toilets and the causeway to the island. The tanker bore signage for M & T Plant Hire Ltd., The Glen, Waterford, advertising drain cleaning, CCTV inspections, and emptying of septic tanks and treatment plants. The driver stepped over the low wall, lifted the manhole cover and connected the tank below to the tanker via several lengths of hose pipe. He seemed very familiar with his surroundings. Since water level in the lagoon was exceptionally high (5.36m) it was assumed that the septic tank was flooded and that it therefore needed to be emptied.

11.3 Other areas

References to earlier reports

- Hurley, 2006 page 113 mentions (1) synoptic water quality in the years 2001-2003, (2) an integrated constructed wetland at Tintern Abbey, (3) an application to discharge treated effluent to the Corock River, (40) a planning application for a new house and constructed wetland at Inish and Ballyteige Slob.

Page links: Section 6.5.3 refers to an application for planning permission for a pig farm at Inish and Ballyteige Slob.

Updates

Fethard. Wexford County Council invited applications for the supply of consulting engineering services associated with the design and construction of the Fethard-on-Sea Main Drainage Scheme (*New Ross Standard*, issue dated 22 March 2006, page 54).

Kilmore Quay. Wexford County Council granted planning permission to Myles Crofton to build 44 houses at Beak. On appeal, An Bórd Pleanála overturned the grant of permission on the grounds that the development would contribute to a threat of pollution in the harbour area (*Wexford Echo*, issue dated 13 September 2006, page 9).

11.4 Pollution control by Wexford County Council

References to earlier reports

- Hurley, 1997 page 115, gives the overview.
- Hurley, 1998 page 37 refers to a Countryside Management Committee.
- Hurley, 1999 pages 119-120 refer to the Countryside Management Committee, a Strategic Environment Committee and a research project on nutrient management planning using the Lady's Island Lake catchment as a study site.
- Hurley, 2000 page 123 updates with regard to Bye-laws Regulations, national water quality in the period 1995-1997, a list of effluent discharge licences on the South Wexford Coast, a mention of sheep-dipping at Tomhaggard and a fish kill at Fethard. Table 42, updates with regard to water pollution control activities by Wexford County Council.
- Hurley, 2001 pages 105-106 update with regard to illegal dumping at Broadway and actions with regard to water pollution bye-laws nationally.
- Hurley, 2002 pages 111-114 update with regard to staff changes in the Environment Department of Wexford County Council, a pollution incident at Bannow Bay, the South East River Basin Management Project, sustainability guidelines. Table 16 updates with regard to water pollution control activities by Wexford County Council. That table supersedes the following references to earlier reports: Hurley, 1997 page 115, Table 17; Hurley, 1998 page 40, Table 6, Hurley, 1999 page 115, Table 17 and Hurley, 2000 page 124, Table 42.
- Hurley, 2003 page 108 updates with regard to (1) the four recommendations made the EPA following the water quality survey conducted at Lady's Island Lake in 2001, (2) the lack of water pollution control data for the year 2000, and (3) unpleasant odours at Wellingtonbridge.
- Hurley, 2004 page 143 has an addendum with regard to the *Waste Management Act, 1996*.
- Hurley, 2005 pages 122-123 updates with regard to a register to agents for waste treatment at single houses.
- Hurley, 2006 pages 114-116 has addenda with regard to water pollution and trade effluent

Page links: Section 6.4.8 refers to the Water Framework Directive. Section 11.2.1 refers to monitoring of water quality in the lagoon at Lady's Island Lake. Section 11.10 refers to dumping at sea.

11.5 Clean-up campaigns by other agencies

While statutory responsibility for the control of pollution on the South Wexford Coast effectively rests with Wexford County Council, the following agencies are in a position to have a significant input: the Department of the Environment and Local Government (DOELG) (Section 11.5.1), the Department of Agriculture, Forestry and Rural Development (DOAFRD) (Section 11.5.2), the Environmental Protection Agency (EPA) (Section 0), Teagasc, the agriculture and food development authority (Section 11.5.4), the Fisheries Boards (Section 11.5.5), the Irish Farmers' Association (IFA) (Section 11.5.6) and the Voice of Irish Concern for the Environment (VOICE) (Section 11.5.7).

11.5.1 The DOELG

References to earlier reports

- Hurley, 1998 pages 36-37 refers to *Managing Ireland's Rivers and Lakes*, the 1997 Department of the Environment and Local Government (DOELG) National Water Management Strategy, a catchment-based strategy aimed at preventing further eutrophication.
- Hurley, 1999 page 104 updates with regard to the 1997 national strategy.
- Hurley, 2000 page 121 mentions a voluntary agreement with industry for the effective phasing-out of the marketing of phosphate domestic laundry detergent products in Ireland by the end of 2002.
- Hurley, 2001 pages 106-107 updates with regard to the 1997 national strategy and mentions an ENFO 12-page leaflet titled Sustainability and Water, the OECD Environment Performance Review of Ireland and draft infringement action by the European Commission (EC) against Ireland for failure to comply with various environmental laws.
- Hurley, 2002 pages 115-116 updates with regard to phosphorus in detergents and the Government's record on controlling water pollution.
- Hurley, 2003 page 109 has a very brief update.
- Hurley, 2006 page 117 updates with regard to (1) odours or noise emissions from water treatment plants, and (2) the government's Water Services Investment Programme 2005-2007.

Page link: Section 5.7 above with regard to the protection of groundwater.

Web link: The Department of the Environment, Heritage and Local Government (DOELG) website is at <http://www.environ.ie/>.

11.5.2 The DOAFRD

References to earlier reports

- Hurley, 1998 page 37 refers to land use policy of the Department of Agriculture, Forestry and Rural Development (DOAFRD) and Hurley, 1998 page 38 refers to Rural Environment Protection Scheme (REPS).
- Hurley, 1999 pages 105-106 refers to REPS in the catchment of Lady's Island Lake and a proposed revised scheme.
- Hurley, 2000 page 122 refers to revised REPS specifications and page 126 mentions the National Scheme for the Control of Farmyard Pollution.
- Hurley, 2002 page 117 updates with regard to a press report that claimed that the REPS failed to control water pollution.
- Hurley, 2003 page 109 updates with regard to the REPS.

Page link: Section 0 with regard to the Rural Environment Protection Scheme (REPS).

Web link: The Department of Agriculture, Forestry and Rural Development website is at <http://www.agriculture.gov.ie/>. The site has a good search facility.

11.5.3 The EPA

References to earlier reports

- Hurley, 1999 page 117 gives the overview with regard to the Environmental Protection Agency (EPA).
- Hurley, 2000 page 125 updates with regard to publications and a workshop.
- Hurley, 2001 page 107 refers to the April 2000 State of the Environment report, water quality in Co Wexford and differences with the EC regarding the definition of 'satisfactory' water quality.
- Hurley, 2002 page 118 updates with regard to appropriate farm management and nutrient management on all farms to minimise pollution of rivers and lakes.
- Hurley, 2004 pages 144-145 updates with regard to the monitoring activities deemed to be necessary for the protection of the Irish maritime environment, and the establishment of an Office of Environmental Enforcement.
- Hurley, 2006 page 118 updates with regard to an EPA Phosphorus Regulations National Implementation Report.

Page links: Section 6.1 with regard to EPA state-of-the-environment reports and Section 6.2.7 with regard to the OSPAR Convention. Section 6.4.3 refers to the Habitats Directive. Section 6.4.5 with regard to the Urban Waste Water Directive. Section 6.4.8 refers to the Water Framework Directive. Section 11.2.1 with regard to monitoring by the EPA of water quality at Lady's Island Lake.

Web link: The EPA website is at <http://www.epa.ie/> and the new OEE is at <http://www.epa.ie/oeel/>.

11.5.4 Teagasc

References to earlier reports

- Hurley, 1998 pages 37 and 38-39 refer to a campaign by Teagasc to reduce the amount of phosphorus used on farms.
- Hurley, 1999, page 106 suggests that the catchment of Lady's Island Lake be designated a phosphorus campaign site.
- Hurley, 2000 page 122 updates with regard to the campaign.
- Hurley, 2002 page 118 details revised fertiliser recommendations made in December 2001.
- Hurley, 2003 page 110 has an update with regard to fertiliser use.

Page links: Section 6.5.5 refers to the *Water Pollution Acts, 1977-1990*.

Web link: The Teagasc website at <http://www.teagasc.ie/> provides good links.

11.5.5 The Fisheries Board

Kiln Bay is the boundary between the area of the Southern Regional Fisheries Board (SRFB) and the Eastern Regional Fisheries Board (ERFB).

Reference to earlier report

- Hurley, 1998 page 38 refers to a survey of Lady's Island Lake and the Board's five-year plan, 1997-2002.
- Hurley, 2003 page 110 defines the fisheries boards' boundary.

Web link: The Eastern Regional Fisheries Board website is at http://www.cfb.ie/regions/eastern_board.htm.

11.5.6 The IFA

Reference to earlier report

- Hurley, 1998 pages 37-38 outlines the nutrient management code of the Irish Farmers' Association (IFA).

Web link: The Irish Farmers' Association (IFA) website is at <http://www.ifa.ie/>.

11.5.7 VOICE

References to earlier reports

- Hurley, 1998 page 38 refers to the launch of the Voice of Irish Concern for the Environment (VOICE).
- Hurley, 2000 page 107 mentions an exhibition on Water Conservation and Quality held at ENFO headquarters.

11.6 Overview of tidal waters

References to earlier reports

- Hurley, 2001 page 108 is the sole reference. It lists some Regulations that seek to control marine pollution in Irish waters and/or ports.
- Hurley, 2004 page 147 has an addendum with regard to an English Nature publication and updates with regard to a definition of tidal waters and monitoring of nutrients in winter off the South Wexford Coast.

Page link: Section 6.2.7 with regard to the OSPAR Convention. Section 11.1 refers to non-marine and estuarine waters.

Web link: Reports produced by English Nature are at <http://www.english-nature.org.uk/uk-marine/reports/reports.htm>.

11.7 Monitoring of marine pollutants

References to earlier reports

- Hurley, 2000 page 126 with regard to remote sensing and pages 130-131 with regard to contamination by metals, organochlorides and TBT. Quality status is mentioned on page 131.
- Hurley, 2001 pages 108-109 refer to an addendum with regard to a pollution incident in March 1992 involving an emulsified paraffin wax, together with updates with regard to toxic substances profiles, concentrations of metals in sediments at Dunmore East, Co Waterford, a shipping collision off Hook Head in June 2000 and revised legislation.
- Hurley, 2002 pages 119-120 has an addendum with regard to polychlorinated biphenyls (PCBs) and an update with regard to 2001 Regulations that give further effect to EU Directive 76/464/EEC that aims to reduce water pollution by certain dangerous substances and support implementation of the Water Framework Directive (2000/60/EC).
- Hurley, 2003 page 111 has an update with regard to two vessels colliding at sea in August 2002 south-east of Rosslare Harbour.
- Hurley, 2004 pages 147-148 updates with regard to a breakdown of the passenger ferry *Stena Europe*, the *Prestige* oil spill, a ban on the carriage of heavy-duty oil by single-hull tankers, monitoring of shellfish at Bannow Bay, and the presence of yellow grease balls at The Cut.
- Hurley, 2005 pages 125-126 updates with regard to a tug at Rosslare Harbour, a coastal pollution plan for County Wexford, the designation of Particularly Sensitive Sea Areas, the MATSIS project, measurement of nutrients in the Irish Sea, and the SMART project at Bannow Bay.

Page link: Section 5.41.3 refers to bird ringing, in this case relevant because of rings recovered from oiled seabirds. Section 6.4.8 refers to the Water Framework Directive (2000/60/EC) that refers to coastal waters. Section 11.10 refers to dumping at sea. Section 17.28 refers to aquaculture at Bannow Bay.

Update. On 17 January 2006, three oiled Guillemots were present on the beach at T 001 047, Seaview (personal communication, Orla Bates).

Web link: Reports with regard to the *Prestige* oil spill are available at <http://www.seo.org/2002/prestige/graficos-030113.asp>; the text is in Spanish but the graphics are self-explanatory. The Coastal Observatory for Liverpool Bay is at <http://coastobs.pol.ac.uk/>.

11.8 Ionising radiation

References to earlier reports

- Hurley, 1997 pages 21-22 gives an overview with regard to monitoring of ionising radiation.
- Hurley, 1998 page 18 updates with regard to on-going monitoring of ionising radiation.
- Hurley, 1999 pages 18-20 updates with regard to on-going monitoring of ionising radiation and tabulates results for the seven-year period 1991-1997. Pages 20-21 refer to the control of discharges from Sellafield. Pages 21-22 refer to obligations under the OSPAR Convention and page 22 refers to a proposed waste dump at Fishguard.
- Hurley, 2000 pages 127-129 update monitoring data for 1998 and 1999 and page 130 updates with regard to the OSPAR Convention and the proposed waste dump at Fishguard. Hurley, 2000 page 129, Table 42 updates and supersedes Hurley, 1999 page 19, Table 1.
- Hurley, 2001 page 109 refers, very briefly, to a review of radionuclide status in the Irish Sea.
- Hurley, 2002 pages 120-123 has an addendum with regard to events surrounding the proposed location of a nuclear power station at Carnsore Point in the early 1970s and updates with regard to MOX processing at Sellafield and legal action via the UN International Tribunal for the Law of the Sea.
- Hurley, 2003 pages 111-113 updates with regard to monitoring at Sellafield, Ireland's National Plan for Nuclear Emergencies, monitoring of air at Rosslare Harbour, transport of MOX fuel pellets at sea, and legal action by Ireland against Sellafield.
- Hurley, 2004 pages 148-150 update with regard to Calder Hall closing, RPII reporting, and continuing legal action.
- Hurley, 2005 page 126 updates with regard to legal action by the European Commission against the British government.
- Hurley, 2006 pages 120-121 updates with regard to "*chronically inadequate*" resources at Sellafield.

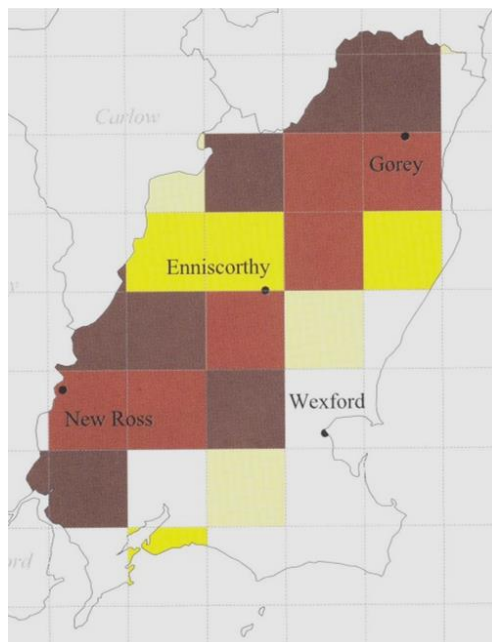
Page link: Section 6.2.7 refers to the OSPAR Convention.

Updates

Radon. The Radiological Protection Institute of Ireland (RPII) has to date measured radon levels in over 1,100 houses in County Wexford. The results show that nearly 14% of houses had levels in excess of the acceptable 200Bq/m^3 (*Wexford Echo*, issue dated 9 August 2006, page 19). Previous surveys showed that levels on the South Wexford Coast were low (McGarry *et al.*, 1997 Figure 14, right, showing the percentage of dwellings predicted to exceed 200Bq/m^3 in each 10km grid square. Legend: dark brown >20%; brown 10-20%; gold 5-10%; cream 1-5%; off white <1%).

Web link: The homepage of the Radiological Protection Institute of Ireland (RPII) is at <http://www.rpii.ie/>. A map showing the sampling locations of its marine monitoring programme is at

<http://www.rpii.ie/radiation/marine.html>. Radon gas survey results for Co Wexford are given at <http://www.rpii.ie/radon/maps/wexford.html>. Details with regard to the Quality Status Report for Irish coastal waters may be accessed at <http://www.marine.ie/information+services/data+and+info+products/mrm+products/stat+e+of+the+irish+marine+environment+report+.htm>. The full text of the government's booklet National Planning for Nuclear Emergencies is available on the Department of Public Enterprise website at <http://www.dpe.ie> and on the RPII website at <http://www.rpii.ie/>. The final award of the OSPAR Tribunal is available at www.pca-cpa.org.



11.9 Coastwatch Ireland surveys

References to earlier reports

- Hurley, 2000 pages 131-138 gives the Questionnaire returned for a survey of The Coombe beach on 9 October 1999.
- Hurley 2001 pages 109-110 mentions the launch of the report on the 1999 Coastwatch Europe Survey.

11.10 Dumping at sea

References to earlier reports

- Hurley, 2000 pages 126-127 refer to the *Dumping at Sea Acts, 1981-1996* and to three dump sites off the South Wexford Coast (off the Lady's Island Lake barrier, off Forlorn Point and off Hook Head).
- Hurley, 2001 page 110 has a correction and updates with regard to the dump site off Hook Head.
- Hurley, 2002 pages 123-124 updates with regard to an application by four fish processors at Kilmore Quay for a permit to dump fish waste at sea.
- Hurley, 2004 page 151 updates with regard to the October 2003 application by the New Ross Port Company for permission to dump an estimated 349 950 tonnes of dredge spoil off Hook Head.
- Hurley, 2005 page 127 updates with regard to fish and shellfish offal washed ashore east of Kilmore Quay.
- Hurley, 2006 page 122 has an addendum with regard to permits issued to dump at sea off Kilmore Quay in the period 1996-2000.

Page link: Section 11.4 refers to Effluent Discharge Licences on the South Wexford Coast.

Addendum: The port authorities at Waterford city and New Ross town regularly carry out maintenance dredging at and around their respective port facilities. As a result of these operations dredged spoil — mainly sand and silt — is regularly dumped at sea off Hook Head. Permits granted to the port authorities by the Minister for Communications, Marine and Natural Resources under the *Dumping at Sea Act, 1996*, to dump dredge spoil off Hook Head are summarised below (Table 18).

Permit No.	Permit holder: the port at	Date of issue	Period of validity	Quantity (tonnes) permitted
250	Waterford	29 November 1996	29/11/96-31/12/96	35,000
303	Waterford	3 June 1999	3/6/99-31/12/99	750,000
304	New Ross	15 July 1999	15/7/99-31/12/99	113,000
321	Waterford	11 August 2000	11/8/00-31/12/00	450,000
331	Waterford	22 May 2001	22/5/2001-31/12/01	450,000
346	Waterford	19 July 2002	19/7/02-31/12/02	400,000
355	Waterford	31 July 2003	31/7/03-31/12/03	502,500
360 ¹	Waterford	23 January 2004	23/1/04-29/2/08	2,321,250
364	New Ross	16 September 2004	20/9/04-28/2/05	100,000
372 ²	New Ross	15 September 2005	15/09/05-29/09/05	12,000

Table 18: Permits granted for dumping at sea off Hook Head.

(Source: Department of Communications, Marine and Natural Resources)

Notes on the table:

1. On 10 June 2004, 20 July 2004 and 27 January 2005 amended permits Number 360 were issued to accommodate the names of new vessels.
2. On 22 September 2005 an amended permit Number 372 was granted extending the period of validity to 17/10/05.

Contamination: The total quantity of dredge sediment from Waterford port dumped off Hook Head and in Waterford Harbour during 1996 was 331,797 tonnes (dry weight). The quantities of priority contaminants in these sediments were 0.01t mercury (Hg), 0.01t cadmium (Cd), 1.96t arsenic (As), 4.80t chromium (Cr), 2.10t copper (Cu), 5.76t

lead (Pb), 3.68t nickel (Ni), 19.6t zinc (Zn) and 0kg polychlorinated biphenyls PCBs (Marine Institute, 1999 pages 88-89).

In April 2000, the New Ross Port Company gave public notice that it had forwarded to the Department of the Marine and Natural Resources an application for a permit under Section 5 of the *Dumping at Sea Act, 1996* for the disposal of dredge spoil at sea. The volume of dredge spoil, consisting of silt only, was estimated to be 270,000 tonnes. The intention was to restore the navigable channel to its design depth (*New Ross Standard*, issue of 19 April 2000, page 53). The dumpsite was located 2 miles due west of Hook Head. The Waterford Port Authority used the same site for the disposal of its spoil. Co-ordinates of the corners of the box were: 520745/0658.8; 520745/0658.1; 520701/0658.1; 520701/0658.8; (personal communication, Luke Foley, New Ross Port Company). It appears that the required permit was not granted.

In August 2003 Ms Karin Dubsky, Coastwatch, and members of the East Waterford Lobster Fishermen's Association expressed concerns that dredging at Dunmore East the on-going dumping of sediment off Hook Head by the Port of Waterford Company was impacting negatively on lobster numbers in the area and on the clarity of the water in the candidate Special Area of Conservation as reported by SCUBA divers (*The Irish Times*, issue dated 2 August 2003, page 2). Mr Ben Gavin, Chairman of the Port of Waterford authority stated that dredging operations had only about a week left to run and that any silting was more likely to be generated by spring tides (*The Irish Times*, issue dated 22 August 2003, page 2). On Tuesday 4 November 2003 a meeting to discuss the issue was convened (copy of agenda attached). Mr Mike Haberlin told the meeting that some fines tend to be washed away during hopper-dredging so dump material tends to be 50%+ sand and consequently that sinks fairly quickly. He also explained that natural turbidity tends to be elevated in the period from half-tide to full tide. Video footage of the seabed showed that there were no problems with regard to silting outside the dump site. Terry McMahon said March to June was a prohibition period for dumping as Shad migrated through the estuary at that time. Ben Gavin said the port authority had asked for a five-year licence but were only granted a three-month one; they would be renewing their application for a five-year permit.

In October 2003 a discussion document with regard to monitoring in transitional, coastal and marine waters addressed the issue of contaminants in dredge sediments was addressed (EPA, 2003 pages 155-156).

DREDGING AND DREDGE SPOIL DISPOSAL IN THE WATERFORD ESTUARY INFORMATION MEETING

Nov 4th 5.30 till 8.00 pm
New Geneva Passage East Co Waterford

5.30 pm Coffee/Tea, meeting starts 6 sharp

6.00 pm Introduction, Karin Dubsky Coastwatch Ireland

6.05 pm Three key pieces of dredge/dump information:

- How is dredging and dredge spoil disposal controlled?
Dr. Terrence McMahon- Chair of the Department of the Marine License Vetting Committee.
- **Monitoring results:** Impact of recent Waterford Harbour dredging
Mr. Mike Haberlin Hydrographic surveys Cork. Consultants who undertook the work
- **Future** dredging and dumping plans in Waterford estuary.
Mr. Ben Gavin, Chairman, Port of Waterford
Mr. Tom Meehan, Chief Executive, New Ross Port Company

6.45 pm Overview of estuary **Nature protection** status and implications
Representative of NPWS. To be confirmed

7.00 pm Questions and Answers chaired by Noel Mc Donagh, businessman,
with introductory remarks on *monitoring results* by *Mr. Trevor Simpson* chairman *E Waterford Lobster Fishermen's Coop*

7.40 pm Concluding statements from Stakeholders around the estuary.

7.55 Close

Please come, listen and contribute your knowledge.

This public meeting is being organised by a coalition of fishing, recreational and environmental interests in the Waterford estuary. Many have serious concern about the future of the estuary's resources, with expanding port activities and lack of information and stakeholder participation in decision making. More information may allay or confirm concerns. Either way it should guide future planning and action.

Further information:

Karin Dubsky Coastwatch Ireland 055 25843, 086 8111 684, Coastwatch@eircom.net
James McCarthan Coastwatch Waterford 086 265 63 08
Trevor Simpson, SE Fishermen's Coop 051 383157

On 11 November 2003 Mr Dan Boyle, T. D. (Green Party) asked a parliamentary question (Ref. No. 26341/03) with regard to the dumping of spoil from dredging in Waterford Harbour. The answer that issued is reproduced below (Dáil Record, Written Answers, 11 November 2003, pages 166-167).

Dumping at Sea.

161. **Mr. Boyle** asked the Minister for Communications, Marine and Natural Resources his Department's plan for the disposal of spoil from the dredging of Waterford Harbour; the timescale, budget and locations for dumping that are planned for the project; and the environmental impact assessments which have been carried out. [26341/03]

Minister for Communications, Marine and Natural Resources (Mr. D. Ahern): Responsibility for maintenance of the navigation channels at Waterford Port, including the planning of dredging operations which are required from time to time and the funding thereof, rests with Port of Waterford Company. All dumping at sea arising from such dredging works requires a permit, under the Dumping at Sea Act 1996, from my Department.

In April of this year, my Department received an application from Waterford Port Company for the disposal at sea of over 2.5 million tonnes of dredged material from maintenance dredging requirements for the next three to four years. The application was accompanied by copies of analyses of the sediment to be dumped, detailed mathematical modelling and other surveys of the dumpsite. The dumpsite is located in the vicinity of Hook Head and has been in use by the Port of Waterford Company and the New Ross Port Company since 1996.

The application is now at an advanced stage following a consultation process which included the publication of a notice of the application in a local newspaper inviting objections from anyone who wished to do so. The proposal has been fully examined by my Department's marine licence vetting committee, MLVC, whose expertise includes navigation, engineering, biology, oceanography and fishing. While satisfied from the

scientific evidence to hand that there should be no negative impacts from the proposed project, the MLVC recommended that an ongoing monitoring programme be put in place to assess such matters as impacts on lobsters and fishing in general, and also on the Hook Head candidate special area of conservation.

The Port of Waterford Company was issued with a permit to dispose of 502,500 tonnes of spoil during the period July to October 2003, with a condition that monitoring as detailed above be carried out. The final report from this monitoring programme has recently been submitted to the Department and is currently being assessed by MLVC. It is understood that the port company wishes to carry out further dredging works in December and the results of the monitoring carried out will be taken into consideration prior to any further dumping at sea being allowed.

In November 2003 the New Ross Port Company applied for a permit (copy of Public Notice herewith) to dump 349,950 tonnes of dredge spoil off Hook Head (*New Ross Standard*, issue dated 19 November 2003, page 42). Jim Hurley made a three-page representation (copy below) to the Department. His letter was duly acknowledged on 18 December 2003.

PUBLIC NOTICE

DUMPING AT SEA ACT 1996

NOTICE is hereby given that it is the intention of New Ross Port Company to dump an estimated 349,950 tonnes of dredge spoil (consisting of mainly sand and silt) at sea, at a marine dumpsite located in the vicinity of Hook Head, from maintenance dredging works to restore the navigable channel of New Ross Port to its design depth (subject to the issue of a Permit under Section 5 of the Dumping at Sea Act 1996). These dredging and dumping works are provisionally scheduled to take place during the period from May 2004 to December 2004.

Any person who wishes to make an objection to, or a representation in respect of, the grant of the Permit should do so in writing to the Coastal Zone Management Division of the Department of Communications, Marine & Natural Resources, Leeson Lane, Dublin 2, within twenty-one days of publication of this notice. Persons sending in written objections / representations should be made aware that copies of these objections / representations shall be posted on the Department's website www.demor.gov.ie.

Copies of this application, and other related documentation, may be inspected at the Offices of New Ross Port Company, Harbour Office, The Quay, New Ross, or purchased from there at a reasonable cost (Tel: 051-421303).

Dated this 19th Day of November, 2003.

Signed:

THOMAS MEEHAN,

On behalf of New Ross Port Company.

SWC Promotions

Grange, Kilmore, Co Wexford, Ireland.

Telephone: +353-53-2 96 71. Mobile: (086) 163 7199.

E-mail: swc@eircom.net



The South Wexford Coast (SWC) — a natural heritage coastline

2 December 2003

Mr Daniel Shine,
Coastal Zone Administration Division,
Department of Communications,
Marine and Natural Resources,
Leeson Lane,
Dublin 2.

Re: **Dumping at Sea off Hook Head.**

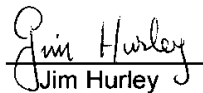
Dear Mr Shine,

I wish to make a representation to your Department in respect of the recent application made by the New Ross Port Company for a permit to dump an estimated 349,950 tonnes of dredge spoil at sea off Hook Head, Co Wexford (Public Notice in the *New Ross Standard*, issue of 19 November 2003, page 42).

My concern is that the proposed dumpsite is located about 850m from the western boundary of candidate Special Area of Conservation (cSAC) No. 000764 (see map attached). Analyses of grab samples from the River Barrow show that the material to be dredged comprises 1.20 - 35.30% silt when wet (moisture content 20.20 - 36.10%) [Source: Application Form, Section C 1. (v)]. No tracer studies have been carried out to establish the movement, if any, of silt from the dump box to the cSAC. In the absence of such data, it seems reasonable to assume, if the proposed dumping is permitted, that a degree of siltation is likely to result in the cSAC. The heritage resource values that the cSAC seeks to protect are summarised in the second paragraph of the attached Site Synopsis (Source: www.heritagedata.ie/). Considering the lack of data with regard to siltation, the long-term on-going need for maintenance dredging at the ports at New Ross and Waterford, and the cumulative impacts of repeated dumping at Hook Head over several years, the Precautionary Principal should, in my view, now apply. A much greater effort should be made to find a beneficial reuse for the dredge spoil on land for reclamation or beach nourishment, or, if the spoil has to be dumped at sea, a dump site should be chosen farther away from the three marine cSAC that form such important elements of the South Wexford heritage coastline.

I trust these points will receive due consideration.

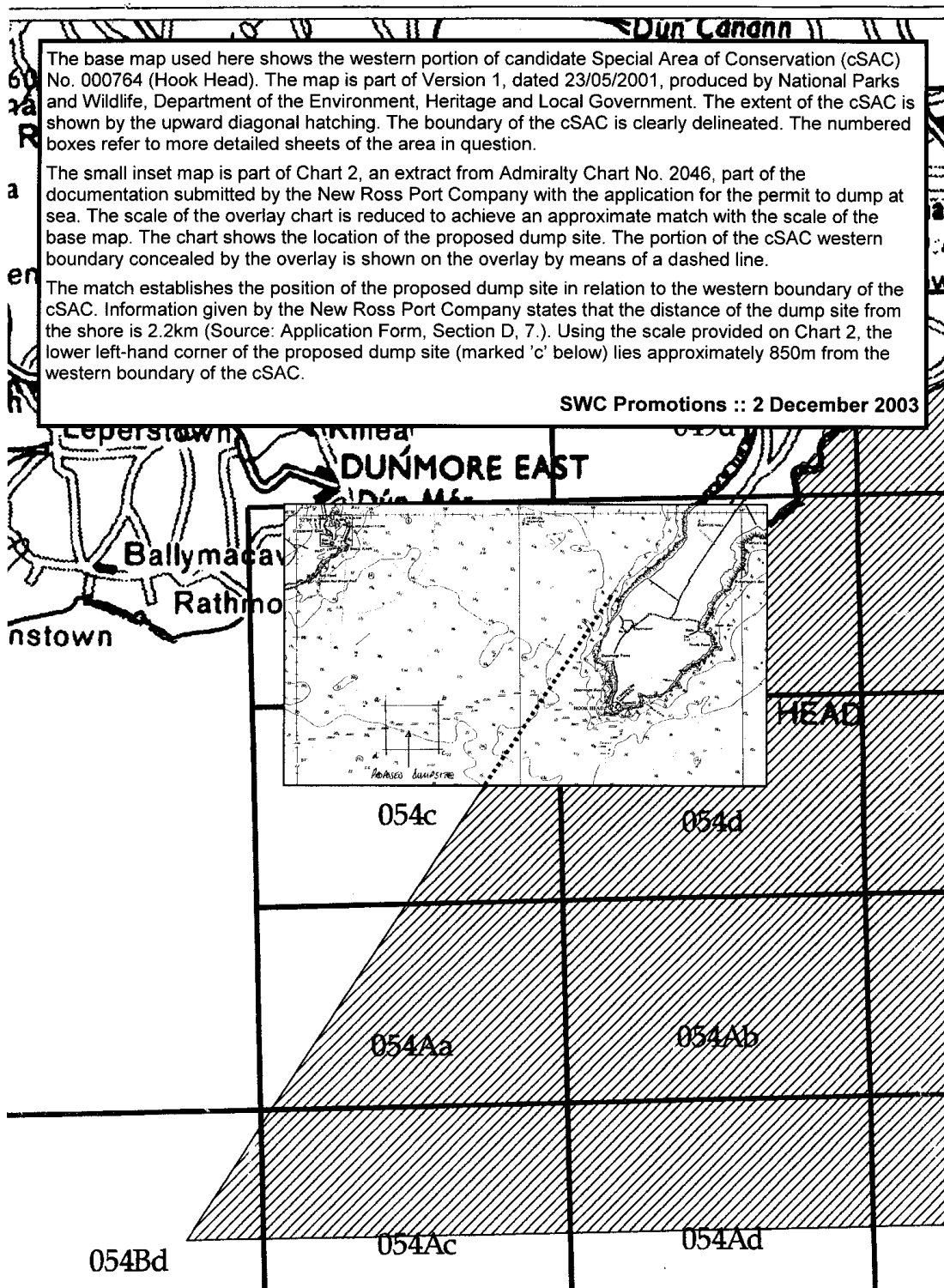
Yours sincerely,


Jim Hurley

Enclosed: Map showing the proposed dumpsite in relation to the cSAC boundary.
Site Synopsis for cSAC No. 000764.

cc: Dr Liz Sides, Marine Unit, National Parks and Wildlife
Lt. Crd. Thomas Meehan, C.E.O., New Ross Port Company

• SWC Promotions: promoting the natural heritage resource values of the South Wexford Coast •



SITE SYNOPSIS

SITE NAME: HOOK HEAD

SITE CODE: 000764

The site of conservation interest at Hook Head comprises an area of marine subtidal reefs to the south and east of the Hook Head Peninsula and includes the sea cliffs from Hook Head to Baginbun and Ingard Point. The site adjoins the estuary mouth of Bannow Bay. Hook Head itself is composed of Carboniferous limestone overlain by Devonian Old Red Sandstone and is palaeontologically of international importance. The site contains two habitats listed under the EU Habitats Directive, i.e. reefs and sea cliffs.

Subtidally the reefs are aligned in a north-east/south-west orientation and are typically strewn with boulders, cobbles and patches of sand and gravel. They are exposed to prevailing winds and swells from the west and tidal streams tend to be moderate but are strong in some areas. There are also a number of isolated reefs that project from a sand plain. The reefs around Hook Head have excellent examples of tideswept communities and species richness is high in both the shallow and deep-water communities. The latter is characterised by cushion sponges, with branching sponges and the rose 'coral' *Pentapora foliacea*. In addition the sponge *Stryphnus ponderosa*, the sea squirts *Sidnym elegans*, *Distomus variolosus* and *Stolonica socialis* and the brittlestar *Amphiura securigera* are present. These species have a limited distribution in Ireland. The rare red algae *Schixymenia dubyi* also occurs.

The rocky shorelines and vegetated sea cliffs are characterised by species such as Thrift (*Armeria maritima*), Rock Samphire (*Crithmum maritimum*), Rock Sea-lavender (*Limonium binervosum*), Sea Plantain (*Plantago maritima*), Buck's Horn Plantain (*Plantago coronopus*), Rock Sea-spurrey (*Spergularia rupicola*) and Sea Mayweed (*Matricaria maritima*). The cliffs and headlands are also of ornithological interest for breeding Choughs (*Pyrrhocorax pyrrhocorax*), Ravens (*Corvus corax*) and Peregrines (*Falco peregrinus*), and as a landfall for migrants.

In summary, this site is of conservation importance for its subtidal reef communities, and their diversity of species, and for the vegetated sea cliffs, both habitats listed under the EU Habitats Directive. The rocky coastline is also important for breeding Ravens, Choughs and Peregrines. The latter two are listed on Annex I of the EU Birds Directive.

8.3.2000

The following press report, published in April 2004, gave an overview of the findings of the report on monitoring referred to by the Minister in his aforementioned November 2003 reply to a parliamentary question tabled by Mr Boyle.

"The Port of Waterford has welcomed the findings of the Coastal Zone Management Division at the Department of Communications, Marine and Natural Resources that the disposal of dredge spoils from the port at a marine dump site near Hook Head had no adverse impact.

Responding to a query from Mr Brian O'Shea TD, the Coastal Zone Management Division noted that a number of environmental studies have been carried out to determine the suitability of the dump site for the reception of dredge material from the ports of Waterford and New Ross.

These included an impact hypothesis, benthic studies and mathematical modelling of dispersal patterns at the site. Most recently, key sensitive areas near the dump site (such as the lobster beds and the Special Area of Conservation at Hook Head) were monitored to determine whether they are being impacted upon. The results of this monitoring have been assessed by the Marine Institute's staff who have advised the Department that there is no evidence of any negative impacts upon these sensitive locations.

Following the positive findings from the monitoring programme, a further permit has been granted to the Port of Waterford for the disposal of over 2.3m tonnes of dredge material at sea during the four-year period to February 29, 2008. The permit is subject to rigorous conditions and requirements, including additional precautionary monitoring.

Commenting on the findings, port chairman Cllr Ben Gavin noted that the Dumping at Sea Act 1996 provides for strict controls on dumping of material at sea.

"All permit applications for the dumping of dredge spoil at sea are processed by the Coastal Zone Management Division. The Minister for Communications, Marine and Natural Resources, Mr Dermot Ahern TD may decide to grant or refuse a dumping at sea permit.

"This decision follows consultation with other relevant Ministers and is based on the recommendations of the Marine Licence Vetting Committee (MLVC). This multi-disciplinary committee has representatives from the Department; the Marine Institute; the Marine Survey Office and the Central Fisheries Board. The committee has expertise in fisheries, biology, chemistry, oceanography, navigation and engineering disciplines and assesses in detail all permit applications prior to making a recommendation to the Minister," Cllr Gavin continued.

"Other statutory bodies which are consulted include the Regional Fisheries Board responsible for the area and the relevant local authority. Those organisations may require certain surveys to be carried out at the expense of the applicant. When, and only when, a range of stringent criteria have been met the Minister will issue a dumping at sea permit with binding conditions attached. Minister Ahern's decision to grant such a permit to the Port of Waterford for the next four years is itself proof that our disposal of dredge spoil during the period from July to September last was fully compliant with the terms of our previous permit and was not in any way harmful to the environment."

The port chairman also recalled that the Port had been intensely criticised by environmentalists and fisheries interests during 2003 amid accusations that shellfish beds, lobster breeding grounds and herring spawning grounds were being adversely affected.

"These attacks came despite the findings of an independent hydrographic survey which vindicated the on-going dredging programme. The final report of consultants Hydrographic Surveys Ltd of Crosshaven, Co Cork was unequivocal that the dredging, which keeps the shipping channel to the busy ports of Waterford and New Ross open for business, has not damaged the environment in the Hook Head-Waterford Harbour area.

"In fact, Mr MJ Haberlin who was a key member of the consultancy team concluded in that report that, 'Camera evidence indicates a very clean environment at the sites examined, there is no visible sign of outside contamination of any description and there is abundant marine life'.

"The Port is always conscious of its environmental responsibilities and will continue to address all reasonable concerns. However, we also have a statutory responsibility to maintain the shipping channel and to ensure that maritime trade, which has been carried on

from Waterford since the city's foundation, is facilitated." (*The Marine Times*, 4 April 2004)

Update: A Public Notice was published giving notice of an application by the New Ross Port Company for permission to dump dredge spoil from the port off Hook Head (*New Ross Standard*, issue dated 25 January 2006, page 57). The following letter has forwarded to the Department of Communications, Marine and Natural Resources.

9 February 2006

Ms Margaret Mulhall,
Coastal Zone Management Division,
Department of Communications,
Marine and Natural Resources,
Leeson Lane,
Dublin 2.

Re: **Dumping at Sea off Hook Head.**

Dear Ms Mulhall,

Thank you for sending me a copy of the Port of Waterford Dredge Monitoring Final Report September 2003.

I studied the report with interest. The conclusions of the studies carried out appear to indicate that dumping at the disposal site does not impact adversely on areas away from the immediate site such as candidate Special Area of Conservation (cSAC) No. 000764. However, I would be happier if the methodology, findings and conclusions drawn were subject to independent expert review.

I should have raised the matter of contaminants in my letter to you dated 30 January 2006. Data submitted to OSPAR show that the quantity of dredge sediment dumped in Waterford Harbour during 1996 was 331 797 tonnes (dry weight). The quantities of priority contaminants in these sediments were 0.01t mercury (Hg), 0.01t cadmium (Cd), 1.96t arsenic (As), 4.80t chromium (Cr), 2.10t copper (Cu), 5.76t lead (Pb), 3.68t nickel (Ni), 19.6t zinc (Zn) and 0kg polychlorinated biphenyls PCBs (Boelens, R. G. V., Maloney, D. M., Parsons, A. P. and Walsh, A. R. 1999. *Ireland's Marine and Coastal Areas and Adjacent Seas: An Environmental Assessment*. Dublin: The Marine Institute. Pages 88-89).

Dumping sediment so close to the cSAC boundary remains a concern. To ensure that the marine natural heritage resources of Hook Head are conserved for the common good, the Precautionary Principle should, in my view, be rigorously applied to any conditions, requirements for monitoring, etc., attached to any permit that may be granted by your Department.

With renewed thanks,
Yours sincerely,

Jim Hurley

Web links: The regulation of dumping at sea is explained at <http://www.marine.ie/scientific+services/consultancy+advice/dumping+at+sea/>. For a description of the port at New Ross see <http://www.imdo.ie/new-ross-port.htm> or <http://www.newrosschamber.ie/business/port.htm>. The text of the *Dumping at Sea Act*, 1996 is available at http://www.irishstatutebook.ie/1996_14.html. An overview of procedures to be followed with regard to dumping at sea is given at

<http://www.marine.ie/scientific+services/consultancy+advice/dumping+at+sea/>, and guidelines for applicants who wish to apply for permits are detailed at <http://www.dcmnr.gov.ie/Marine/Coastal+Zone+Management/Dumping+of+Dredge+Spoil+at+Sea/>. A copy of the 2006 application (5.82MB) from the New Ross Port Company may be accessed at <http://www.dcmnr.gov.ie/NR/rdonlyres/EADC7A27-8ECB-402B-891A-F8192607D7EB/0/ApplicationfromNewRossPortCompany16January2006.pdf> on the website of the Department of Communications, Marine and Natural resources at <http://www.dcmnr.gov.ie/Marine/Coastal+Zone+Management/Applications+for+Dumping+at+Sea/>. The item from Dan Boyle's website is at <http://www.danboyle.ie/resources.php?id=6&pid=3> (Dan Boyle is a Green Party T.D.). Copies of the 2004 permits are available at <http://www.dcmnr.gov.ie/NR/rdonlyres/41611398-24FA-4AE6-A47D-A38781EA2AD9/0/DumpingatSeaPermits2004.doc>. Copies of the 2005 permits are available at <http://www.dcmnr.gov.ie/NR/rdonlyres/55DF8265-8DED-464A-BE1A-C48BC581CCDF/0/271005.doc>.

12 WATER LEVEL MANAGERS

12.1 Lady's Island Lake

References to earlier reports

- Hurley, 1997 page 117 gives a brief overview. Pages 117-119 detail the historical position with regard to local landowners, <1682-1953. Pages 119-120 detail the historical position with regard to Wexford County Council, 1954-1988. Page 120 details the historical position with regard to the Office of Public Works, 1989-90 and pages 120-122 details the position with regard to the Lady's Island Lake Drainage Committee, 1990-1996 (Meetings No 1-14).
- Hurley, 1998 page 41 has a correction with regard to the decision to breach the barrier in 1990. Pages 41-46 give an update for 1997 with regard to the Lady's Island Lake Drainage Committee (Meetings No 15 & 16).
- Hurley, 1999 pages 121-127 gives an update for 1998 with regard to the Lady's Island Lake Drainage Committee (Meetings No 17, 18 & 19).
- Hurley, 2000 pages 139-145 gives an update for 1999 with regard to the Lady's Island Lake Drainage Committee (Meetings No 20, 21 & 22).
- Hurley, 2001 pages 111-112 gives an update for 2000 with regard to the Lady's Island Lake Drainage Committee (Meetings No 23 & 24).
- Hurley, 2002 pages 125-127 gives an update for 2001 with regard to the Lady's Island Lake Drainage Committee (Meetings No 25, 26 & 27).
- Hurley, 2003 pages 114-123 gives an update for 2002 with regard to the Lady's Island Lake Drainage Committee (Meetings No 28-32).
- Hurley, 2004 pages 152-157 update for 2003 with regard to the Lady's Island Lake Drainage Committee (Meetings No 33 and 34).
- Hurley, 2005 pages 128-142 update for 2004 with regard to the Lady's Island Lake Drainage Committee (Meetings No 35 and 36).
- Hurley, 2006 pages 123-126 update for 2005 with regard to the Lady's Island Lake Drainage Committee (Meeting No 37).

Page link: Section 5.20.1 with regard to vegetation surveys.

Updates

Drainage Committee meetings: Hurley, 1997 page 121, Table 19 is updated as follows (Table 19) to the end on 2006.

No	Meeting Date	Secretary
01	24 July 1990	Niall McDonnell
02	28 November 1990	Niall McDonnell
03	22 March 1991	Niall McDonnell
04	5 March 1992	Seán Mythen
05	18 March 1993	Peadar McDonald
06	26 November 1993	Peadar McDonald
07	12 January 1994	Noirín Byrne
08	28 April 1994	Martina Donoghue
09	14 October 1994	Peadar McDonald
10	18 January 1995	Peadar McDonald
11	23 March 1995	Peadar McDonald
12	19 January 1996	Martin McDonald
13	7 February 1996	Martin McDonald
14	16 September 1996	Martin McDonald
15	26 February 1997	Martin McDonald
16	16 September 1997	Martin McDonald
17	28 January 1998	Martin McDonald
18	16 February 1998	Martin McDonald
19	26 May 1998	Jim Power
20	8 February 1999	Martin McDonald
21	8 March 1999	Martin McDonald
22	29 July 1999	Martin McDonald
23	23 March 2000	Gerry Forde
24	7 September 2000	None
25	16 January 2001	Martin McDonald
26	24 May 2001	Martin McDonald
27	11 December 2001	Martin McDonald
28	12 March 2002	Alice Doyle
29	3 April 2002	Alice Doyle
30	10 April 2002	None
31	26 November 2002	None
32	10 December 2002	None
33	16 April 2003	Alice Doyle
34	26 May 2003	Alice Doyle
35	1 March 2004	Adrienne Larkin
36	29 March 2004	Adrienne Larkin
37	13 April 2005	Yvonne Mullooley
38	11 January 2006	Michele Brown

Table 19: Dates of Drainage Committee meetings.

One meeting of the Drainage Committee was held during 2006 (Meeting No 38).

The 38th meeting of the Lady's Island Lake Drainage Committee took place at 10.30am on Wednesday 11 January 2006 in The Island Bar, Lady's Island.

Ten of the twelve committee members attended. Two committee members were absent: Tony Murray and Jim Hurley. Both sent apologies. Eight committee members attended the meeting: Leo Carthy, Bob Butler, Richard Davis, Yvonne Mullooley, David Ormonde, Fintan Parle, Paddy Pettit, and Seán Pettit. Two new members attended: Michele Browne, newly-appointed Secretary, and Fr Colm Murphy replacing Fr Tom McGrath.

Also present were John Browne, T.D., Minister of State, Pádraig Comerford, NPWS, Lorcán Scott, NPWS DCO, and Dave Daly, Tern Warden.

A copy of the minutes follows as provided by Michele Browne.

Minutes of Our Lady's Island Lake Drainage Committee
Meeting held in the Island Bar, Our Lady's Island
On Wednesday 11th January, 2006

In Attendance: Cllr Leo Carthy (Chair), Paddy Pettitt, Richard Davis, Fintan Farrell, David Ormonde, Bob Butler, Fr. Colm Murphy, Padraig Comerford (NPWS), Sean Pettitt, Yvonne Mullooly, Lorcan Scott (NPWS) Dave Daly, John Browne, Minister for State and Michele Browne (Secretary to Committee).

Apologies: Eamonn Hore and Jim Hurley.

Leo Carthy welcomed everyone to the meeting. Questions were raised with relation to the lack of action since last meeting.

Lorcan Scott spoke about the survey and advised that the NPWS does not have any funding for the survey or for construction of the drainage project. Yvonne Mullooly advised the meeting that the NPWS were to prepare a brief and that it did not come within remit of the Wexford County Council. Padraig Comerford advised that NPWS would not be taking responsibility for any brief. He advised that surveys were being done on Tacumshane Lake at present and nothing was on commission for Lady's Island. Tacumshane Lake drainage scheme is successful and conclusions with regard to Ecological stability are still outstanding.

David Ormonde asked John Browne, Minister of State why the promised deputation with Minister Cullen never happened. The Minister advised that Minister Cullen was not available to meet with them at the time, and subsequently his brief was changed. John Browne advised that he had spoken to Minister Dick Roche regarding Lady's Island and Minister Roche was willing to meet with the committee, however Minister Roche raised queries as to whether it was within his remit.

Padraig Comerford advised that Lady's Island was classed as a special area of conservation and as such came within the remit of the Minister for the Environment. John Browne enquired with regard to state of play with the plans for the lake. Padraig Comerford advised that all the information was available and that no huge debate would be necessary, it had previously been identified that piping the lake was the best option and we were talking about an estimated figure of €2m.

David Ormonde informed the committee that there had been three fish kills in Lady's Island Lake in recent years. Yvonne Mullooly advised the committee that this was because of a lack of dissolved oxygen in the lake and not due to the sewage treatment plant on the Island. She advised that of the thirteen sites surveyed six have improved in quality with all of the other sites except one have maintained their status. Several of the streams assessed are small and slow-flowing. Consequently it is considered

likely that they might not have the potential to show further improvements. She also advised that the one feeder stream showing pollution, was primarily flowing through an agricultural area and that Wexford County Council was trying to identify the source of the problem. David Ormonde advised that the County Council were doing a poor PR job in relation to their activities and he suggested that a public meeting should be arranged. Yvonne Mullooly advised that as Wexford County Council was informing the Lady's Island Lake committee of the work being carried out by the Council and she assumed that they were passing the word on, however she advised that a public meeting could be arranged if the committee thought it was necessary.

John Browne asked the secretary to the committee if she would draft a letter to Minister Roche, inviting him to meet with the Lady's Island Committee.

Bob Butler proposed that the committee should organise to cut the lake as soon as possible. Pádraig Comerford advised that before the lake could be cut that a safety statement must be carried out. He requested that the lake not be cut before the 15th February, so that the safety statement could be prepared. The committee agreed.

He also advised the committee that payment for cutting the lake could only be made upon receipt of an invoice to the NPWS, shortly after work is done and that this should be stressed to the contractor in order to avoid any confusion in the future.

This concluded the business of the meeting.

LAKE MEETING

The Minister of State for Agriculture, Mr. John Browne, attended the meeting of Our Lady's Island Lake Committee held in the Island Bar on Wednesday of last week and was welcomed to the parish by Committee Chairman Leo Carthy, who also welcomed Rev. Colm Murphy, Adm, who was attending his first meeting, and Michelle Browne, the Committee Hon. Sec. Apology was received from Mr. Jim Hurley who was out of the country. Mr. Pádraig Comerford briefed the committee on the progress to-date and surveys carried out. It was decided to drain the lake within the next two weeks. Tea was served by the staff of the Island Bar.

The attached (left) brief report was published in the local press (*Wexford People*, issue dated 25 January 2006, page 25).

Pádraig Comerford, for the NPWS, was said to have informed the meeting of the Drainage Committee held on 11 January 2006 that the former practice of building bunds to plug the breach would have to cease as it not be in keeping with the contractor's Health and Safety Statement (personal communication, David Ormonde on 25 May 2006).

12.2 Tacumshin Lake

References to earlier reports

- Hurley, 2002 page 127 comments on water level during 2001.
- Hurley, 2003 pages 123-4 with regard to management and water level in the lagoon.
- Hurley, 2004 page 158 updates with regard to the position on 12 December 2003.

Page links: Section 5.20.4 concerns rare plants; Hurley, 1998 Annex 1, pages 84-98 details the history of the occurrence of Cottonweed *Otanthus maritimus* on the Tacumshin Lake barrier. Section 14.2 deals with water levels and Section 18.2 deals with engineering works.

13 BREACHING THE BARRIER

References to earlier reports

- Hurley, 1997 page 123 gives a very brief overview.
- Hurley, 2001 page 113 has an equally brief update.

13.1 The normal sequence

References to earlier reports

- Hurley, 1997 pages 123-124 details the normal sequence of breaching the barrier in the period 1984-1989. Breaching each year since 1997 is described in Section 13.8.
- Hurley, 1999 page 128 contains a minor correction.

13.2 The location of the breach

References to earlier reports

- Hurley, 1997 pages 125-127 describes the location of the breach site on the barrier.

Page link: Section 13.8 details the location of breaches since 1997.

13.3 Timing of the breach

References to earlier reports

- Hurley, 1997 page 128 details the position with regard to the timing of the breach in the period 1975-1986.
- Hurley, 1998 page 46 contains an update for 1997.
- Hurley, 1999 page 128 contains an update for 1998.
- Hurley, 2000 page 151 contains an update for 1999.
- Hurley, 2001 pages 112-113 has an addendum. Updates for 2000 onwards are detailed in Section 13.8.
- Hurley, 2005 pages 144-145 has an addendum showing the breaching of the barrier in 1930.

Addendum: Breaching the barrier in late March is favoured for the following three reasons.

It is traditional. If the barrier is breached very early in the spring the sea is usually rougher resulting in a less successful breaching due to both early closure of the breach by the sea and saline intrusion into the lake due to overwashing of the low-level barrier breach throat plug. On the other hand, if the barrier is breached too late in the spring the sea is usually calmer resulting in a danger of late closure of the breach with much consequent saline intrusion due to tidal action together with erosion of the barrier itself. Climatological data from Met Éireann (Figure 13) suggest that March is an ideal month in which to breach the barrier. March is ideal because mean wind speeds have dropped and the occurrence of gales has declined significantly from the values recorded earlier in the year.

WIND (knots)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
mean monthly speed	12.9	12.8	12.4	11.8	11.4	10.1	9.5	10.0	10.7	11.6	12.1	12.8	11.5
max. gust	76	76	66	75	57	51	50	56	72	87	71	80	87
max. mean 10-minute speed	46	44	42	52	35	38	35	37	47	50	45	50	52
mean no. of days with gales	2.5	1.5	1.1	1.3	0.3	0.2	0.1	0.2	0.5	0.9	1.3	1.9	11.7? (1.0)

Figure 13: 30-year monthly and annual means at Rosslare Harbour, 1961-1990.

(Source: <http://www.meteireann.ie/climate/rosslare.asp>)

In local folk wisdom, the traditional and best time to breach the barrier is “*after the St Patrick’s Day springs*”, that is, during the neap tides following the vernal equinoctial spring tides that occur about 21 March. Considering that that ‘traditionally best time’ evolved at a time when the work of breaching the barrier was still done largely by hand by farm workers, it is not known how much the timing of the breach was influenced by the demands of the spring sowing and the level work that had to be done in the land (Hurley, 1997 page 128). In recent years there has been a tendency to bring the breaching forward to facilitate land drainage for earlier sowing.

It helps wild birds. Breaching the barrier in late March aids the conservation of wild birds. Lady’s Island Lake is a Special Protection Area (SPA). The primary objective of the classification of the lagoon as a SPA is to maintain or enhance the favourable conservation status of twenty species of wild birds (Dúchas, 2002 pages 3 and 48).

Ten of the aforementioned twenty species are Annex 1 species. Five of the ten Annex 1 species are largely winter visitors: Little Egret *Egretta garzetta*, Bewick’s Swan *Cygnus bewickii*, Whooper Swan *Cygnus cygnus*, Golden Plover *Pluvialis apricaria* and Bar-tailed Godwit *Limosa lapponica*. The remaining five of the Annex 1 ten are summer breeders: Mediterranean Gull *Larus melanocephalus*, Sandwich Tern *Sterna sandvicensis*, Roseate Tern *Sterna dougallii*, Common Tern *Sterna hirundo* and Arctic Tern *Sterna paradisaea*. It is important for the summer breeders that water level has been lowered by late March to expose the maximum area of nesting habitat before the birds start to arrive towards the end of March.

The remaining ten other important species are waterbirds and are either winter visitors, summer breeders, or both: Gadwall *Anas strepera*, Pintail *Anas acuta*, Garganey *Anas querquedula*, Shoveler *Anas clypeata*, Pochard *Aythya ferina*, Tufted Duck *Aythya fuligula*, Scaup *Aythya marila*, Red-breasted Merganser *Mergus serrator*, Lapwing *Vanellus vanellus*, and feral Greylag Goose *Anser anser*. Again, it is important for the summer breeders that water level is lowered to expose nesting habitat. If they breed, the breeding season of some of these species (Lapwing and feral Greylag Goose) may start as early as late March but most are later, either mid-April (Pintail, Garganey, Shoveler, Pochard, and Tufted Duck), or May (Gadwall, Scaup, and Red-breasted Merganser) (Harrison, 1975).

It helps wild plants. Breaching the barrier in March aids the conservation of wild plants by exposing areas of marginal wetland around the lagoon thereby facilitating the germination of annuals including the rare Lesser Centaury *Centaureum pulchellum* that grows around Lady’s Island Lake.

13.4 Frequency of breaching

Reference to earlier report

- Hurley, 1997 page 129 details the historical position with regard to the frequency of breaching. The frequency of breaching since 1997 is described in Section 13.8.

13.5 Opening the breach

References to earlier reports

- Hurley, 1997 pages 129-130 details the historical position with regard to the opening of the breach in the barrier. Breach opening since 1997 is described in Section 13.8.
- Hurley, 1998 page 46 contains a minor correction.

13.6 How the water flows

Reference to earlier report

- Hurley, 1997 pages 130-131 details the position with regard to how the water flows out of the lake when the breach is open. Page 131 describes how the breach may wind. Pages 131-133 explain a barrier burst with details of such an event in 1990. Pages 134-137 comment on the final shape of the breach with details of widths for the period 1983-1996. Events since 1997 are described in Section 13.8.

13.7 Closing the breach

Reference to earlier report

- Hurley, 1997 pages 137-141 detail the position with regard to closing the breach with details for the period 1975-1989 and some comments with regard to coast erosion. Closure since 1997 is described in Section 13.8.

13.8 Breaching since 1997

References to earlier reports

- Hurley, 1998 pages 46-48 describes barrier breaching during 1997.
- Hurley, 1999 pages 128-137 describes barrier breaching during 1998.
- Hurley, 2000 pages 151-153 describes barrier breaching during 1999; furthermore, pages 146-150 contain an update based on aerial photographs.
- Hurley, 2001 pages 115-117 describes barrier breaching during 2000.
- Hurley, 2002 pages 129-133 describes barrier breaching during 2001.
- Hurley, 2003 pages 125-134 describes barrier breaching during 2002.
- Hurley, 2004 pages 159-163 describes barrier breaching during 2003.
- Hurley, 2005 pages 147-153 has an addendum with regard to topographical and hydrographical contours at the breaching site, and updates with regard to breaching during 2004.
- Hurley, 2006 pages 129-131 describes barrier breaching during 2005.

Page link: Section 9.7 refers to the combined impact of several factors.

Updates

The state of the barrier early in the year: On 1 January 2006, water level in the lagoon stood at 5.04m (Figure 14.1).

Breaching: The barrier was breached once, on 19 February.

Decision of the Lake Drainage Committee: The 38th meeting of the committee, held on 11 January, decided to breach the barrier (Section 12.1).

Water level before breaching: 5.12m OD (Poolbeg) on 13 February.

Phase of the Moon: Waning from the Full Moon on 13 February.

Excavation work started: Denis Carroll, contractor, started work on Thursday 16 February.

Location of the breach: The line of the breach was at the traditional location. All of the spoil was heaped on the eastern (Carnsore Point) side of the breach.

Water ran: The lagoon water started to run to the sea on Friday 17 February but stopped again. For Llanelli, Wales, high water (7.1m) was predicted for 2045hours GMT on that day. The blockage was cleared on Saturday (18th); the water ran but stopped again. The blockage was cleared on Sunday (19th) and the water ran steadily.

How the water flowed: From Sunday (19th), the exiting water ran steadily for three days. The breach was only 4m wide on Tuesday (21st) but had widened to an estimated 20m the following day (22nd) as the water gathered momentum. Water level stood at 5.0m at 1600hours on Wednesday (22nd) and there was a fresh north-easterly wind aiding the flow. On Sunday (26th) water level stood at 3.88m in the morning and fell to 3.50m at 1300hours. The outflow was still running steadily and was eroding at the seaward side. The breach was S-shaped and turned to the east at its mouth. The water appeared to be very deep and the fringing cliffs were >3m tall. It was unusual for the wind to remain northerly for a week resulting in a combination of both a good run in the exiting water and an exceptionally calm receiving sea. The barrier did not burst.

Closing the breach: To close the breach, Denis Carroll built a bund across it. The bund was located on the lagoon side of the breach and was built on 27 February. He sourced material for the bund by excavating the adjoining floor of the lagoon. The bund held at high water on the 27th (7.8m at 1801hours) but was breached at high water on the 28th. As a result, the lagoon tided and water level in the lagoon fell to 3.20m. The position on 2 March was as follows (Figure 14.2).

- The eastern end of the western rampart had been eroded.
- A spoil heap was intact 25m from the cliff line at the western end of the eastern rampart.
- The breach was tiding.
- An island appeared at the inlet to the breach.
- Tiding created several new beaches.
- The western cliff line was 19m from the nearest dune.

The seaward end of the breach closed naturally on 3 March.

Fall in water level: The fall in lagoon level as a result of the breach in February 2006 was >1.72m (from 5.12m on 13th to 3.40m on 27th and on 4 March).

Final width of the breach: 70m.

Length of time the breach was open: 11 days [8 days (19th - 27th) + 3 days (28th February – 3rd March)].

Subsequent events: On 4 March, a significant bank was built by the sea plugging the seaward end of the breach. Water level stood at 3.40m (3.20m on 2 March + 0.20m of saline intrusion on 3 March). The breach plug overwashed intermittently. On 30 March, overwashing was on-going at high water and there was an open, knee-deep channel

along the western cliff line (Figure 14.3). The summer of 2006 was the warmest, driest and sunniest summer in eleven years (*The Irish Times*, issue dated 2 September 2006, page 4). In September, warnings were issued with regard to the possibility of coastal flooding occurring if adverse meteorological factors happened to coincide with the predicted exceptionally high astrological tides. The high tides were predicted as a result of forcing of the already-high equinoctial spring tides by high tidal ranges associated with the peak of the 18.6-year lunar nodal cycle. [The cycle relates to the points, or nodes, where the orbit of the Moon crosses the ecliptic (the apparent path of the Sun across the heavens against the background stars)]. The highest tides were predicted for the period around 10 September and 9 October (*The Irish Times*, issue dated 4 September 2006, page 4 (Brendan Mc William); issue dated 6 September 2006, page 3; Government press release dated 6 September 2006; *Wexford People*, issue dated 6 September 2006, page 6; *Wexford Echo*, issue dated 6 September 2006, page 3; and the Marine Institute website). As it happened, the exceptionally high tides did not coincide with adverse weather conditions or storm surges leading to no flooding and criticisms of the Minister for crying wolf (*Wexford Echo*, issue dated 13 September 2006, page 16). Weather systems associated with the tail end of hurricane Gordon struck on the night of Thursday 21 September bringing high winds and downpours of rain. Otherwise, the hurricane season was notably quiet. The period spanning the end of November and the start of December was unsettled with gale to storm force winds. The ramparts on both sides of the breach suffered from significant wind erosion. The western rampart was breached in three places, the spoil heap adjoining the breach was reduced to one small mound, and former cliff lines were softened into extinction. The breach plug measured 110m between the ramparts and was overwashed on its western flank (Figure 14.4).

Web links: The Fourmilab, Switzerland, website with calculating lunar apogee and perigee values is at <http://www.fourmilab.ch/earthview/pacalc.html>. The Wind Guru is at <http://www.windguru.cz/>. Met Éireann monthly weather data for Rosslare Harbour are at <http://www.met.ie/recentweather/monthlydata/rosslare>.

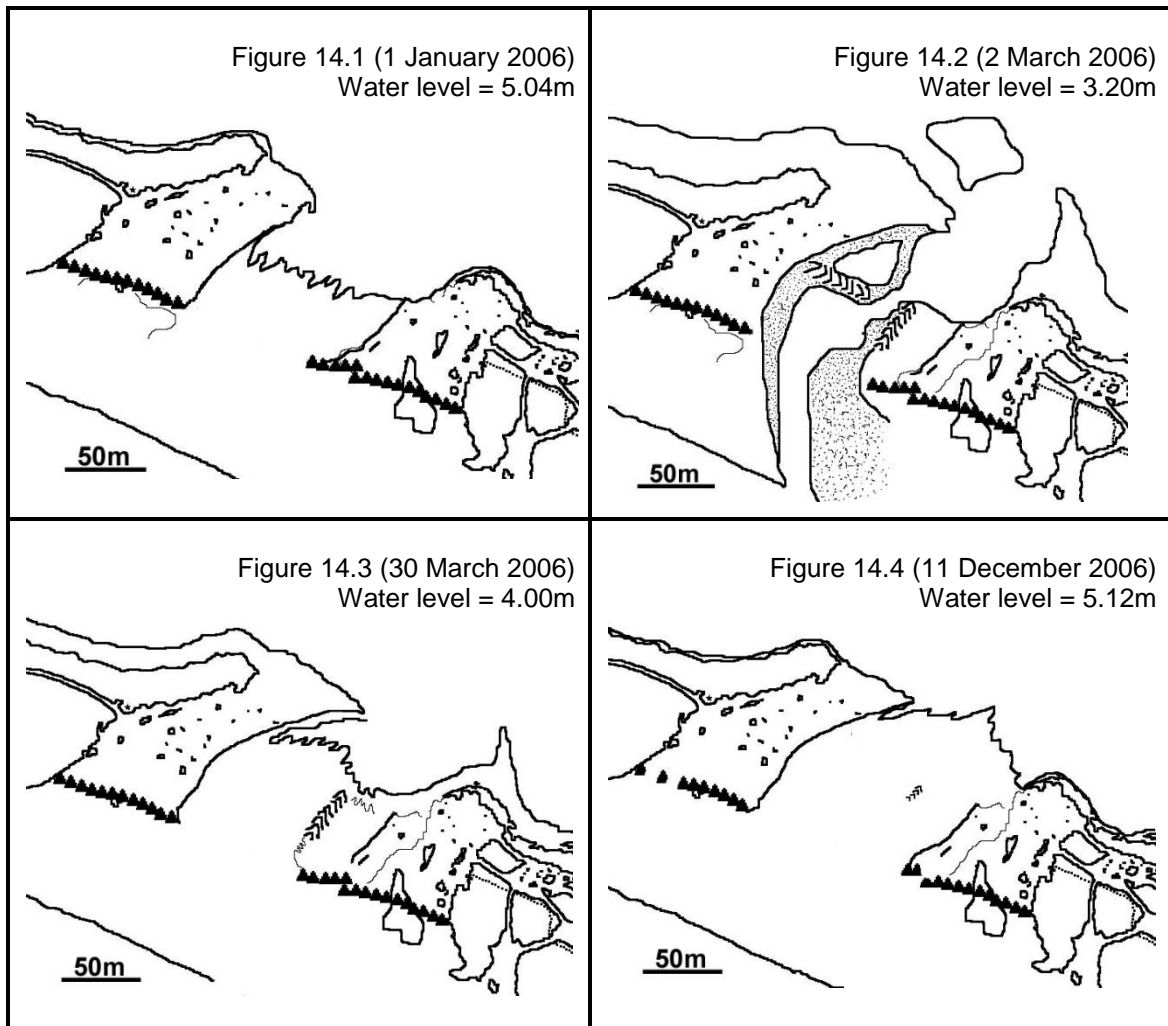


Figure 14: Evolving shape of The Cut at Lady's Island Lake in 2006.

14 CHANGES IN WATER LEVEL

14.1 Lady's Island Lake

Changes in water level in the lagoon were recorded in two ways: manually on a staff gauge (Section 14.1.1) and automatically (Section 14.1.2).

14.1.1 Staff gauge data

References to earlier reports

Note: Hurley, 2003b consolidates all tables of water level data from September 1984 to the end of May 2003. The following references to earlier reports refer to matter other than tables of water level data.

- Hurley, 1998 page 49 has a chart of the gross trend in water level during 1997.
- Hurley, 1999 page 138 has a chart of the gross trend in water level during 1998.
- Hurley, 2000 pages 154-158 has a chart of the gross trend in water level during 1999 and a summary table of monthly mean water levels for the period 1976-1981.
- Hurley, 2001 page 118 has a chart of the gross trend in water level during 2000.
- Hurley, 2002 pages 134-135 has a chart of the gross trend in water level during 2001 and a chart showing rainfall at Rosslare Harbour.
- Hurley, 2003 pages 135 -137 has a chart of the gross trend in water level during 2002. Page 137 has a summary table and chart of monthly mean water levels for the period 1984-2002.
- Hurley, 2004 pages 164-166 has an update, chart of the gross trend in water level, and rainfall data for 2003.
- Hurley, 2005 pages 154-156 has updates and a chart of the gross trend in water level for 2004.
- Hurley, 2006 pages 132-134 has updates and a chart of the gross trend in water level for 2005.

Page link: Section 3 refers to the survey method, Section 5.9.1 give climatological data for Rosslare Harbour. Section 7 gives details with regard to the staff gauge and Section 13.8 reviews water level in the lagoon prior to breaching the barrier.

Updates

Water level: Jim Hurley took readings of water level at Lady's Island Lake throughout 2006 and the data obtained are set out below (Table 20).

Date	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
1									4.11			
2			3.20				4.22					
3											4.43	
4			3.40		4.13							4.89
5		5.12		4.10		4.32						
6												
7									4.11			
8												
9									4.11			
10												
11												5.12
12		5.12										
13		5.12								4.24		
14												
15												
16							4.21					
17						4.27						
18								4.08				
19												
20												
21	5.15								4.12			
22		5.00							4.12			
23												
24												
25					4.30							
26		3.50										
27												
28												
29	5.13	-										
30		-	4.00	4.12							4.82	5.36
31		-		-		-	4.16		-		-	

Mean, estimated or trend water level for month.

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
5.14	4.77	3.53	4.11	4.22	4.30	4.20	4.08	4.11	4.24	4.63	5.12

Table 20: Water levels during 2006.

Note

Some water level readings are estimates due mainly to the surface of the lake being choppy but due also to the graduations on the staff gauge being unclear because of fouling and/or fading.

The greyed cell indicates the one date (19 February) on which the barrier was breached during 2006.

Gross trend: The gross water level trend during the year is summarised in the overview below (Figure 15). Since water level readings were taken on an irregular, opportunistic basis, the chart is a smoothed line chart generated from the monthly averages of all water level readings recorded (Table 20). Water level in the lagoon was 5.15m at the beginning of the year. It fell slightly from its January peak until the barrier was breached on 19 February. Water level in the lagoon level fell by 1.92m (from 5.12m on 13 February to 3.20m on 2 March). A mean water level of 4.18m was maintained in the lagoon from May to September but water level rose again to reach a peak of 5.12m at the end of the year.

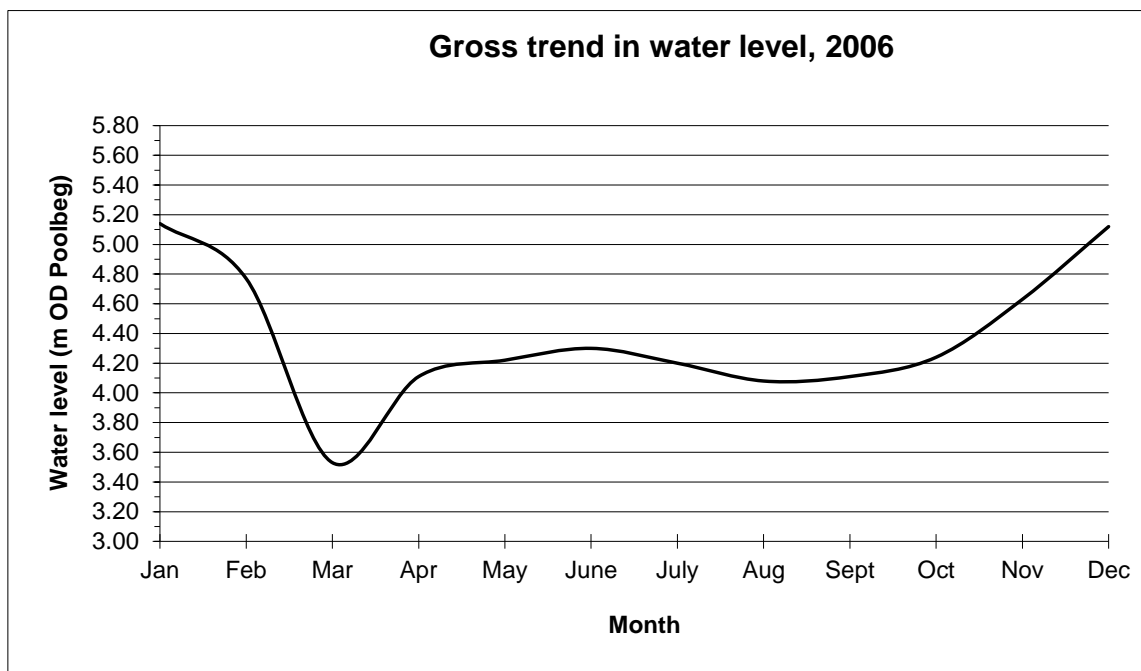


Figure 15: Gross trend in water level, 2006.

(Source: Table 20)

14.1.2 Automatic recorder data

References to earlier reports

- Hurley, 1999 page 154 is the principal entry.
- Hurley, 2000 page 158 comments on the data recorded.
- Hurley, 2001 page 120 updates briefly.
- Hurley, 2002 page 137 repeats the brief update from Hurley, 2001 page 120.

Page link: Section 7 with regard to the staff gauge. Section 12 with regard to water level managers and Section 18 with regard to proposed engineering works aimed at relieving flooding.

14.2 Tacumshin Lake

Reference to earlier report

- Hurley, 2002 page 137 updates for 2001.
- Hurley, 2006 page 135 has an addendum and updates for 2005.

Page link: Section 12.2 deals with water level management at Tacumshin Lake and Section 18.2 deals with engineering works carried out there.

Update: A full-page newspaper feature gave the history of drainage at the lake together with a picture from 1976 (*Wexford Echo*, issue dated 8 November 2006, page 27).

14.3 Inish and Ballyteige Slob

15 TOWARDS A BETTER SOLUTION

References to earlier reports

- Hurley, 1997 pages 159-160 gives the overview.
- Hurley, 1999 page 140 has a minor correction.
- Hurley, 2001 page 120 has an addendum with regard to the historical position during a period of severe flooding.

Page link: Section 14.1.1 with regard to water level in the lagoon, Section 5.20.3 with regard to the impacts of water level on flood zone vegetation and Section 12.1 with regard to meetings of the Lady's Island Lake Drainage Committee.

16 UNRESOLVED ISSUES

Reference to earlier report

- Hurley, 1997 page 161 gives the overview and identifies seven unresolved issues detailed below.

16.1 Special Protection Area (SPA)

References to earlier reports

- Hurley, 1997 pages 161-162 addresses the unresolved issue of how objectives to conserve the SPA can be reconciled with breaching the barrier without appropriate assessment of possible negative impacts arising from the breaching.
- Hurley, 1998 page 52 has an update with regard to the possible revision of the SPA boundary so as to incorporate a seaward extension to the existing area.
- Hurley, 1999 page 140 notes a lack of progress during 1998 with regard to advancing the proposed SPA extension.

- Hurley, 2000 page 159 notes the on-going lack of progress during 1999 with regard to advancing the proposed SPA extension.
- Hurley, 2002 page 138 updates.

Page link: Section 6.4.2 with regard to the Birds Directive and Sections 6.4.3 and 16.7 with regard to the Habitats Directive.

16.2 Planning permission for works

Reference to earlier report

- Hurley, 1997 pages 162-163 discusses the unresolved issue of the possible need for planning permission for breaching the barrier.

Page link: Section 6.5.3 refers to the *Planning Acts, 1963-2000*.

16.3 Environmental Impact Assessment (EIA)

Reference to earlier report

- Hurley, 1997 page 163 mentions the possible need for Environmental Impact Assessment (EIA) of the impacts of breaching the barrier.

Page link: Section 6.4.4 refers to the EIA Directive.

16.4 Foreshore licence for breaching

References to earlier reports

- Hurley, 1997 page 163 discusses the possible requirement of a foreshore licence for breaching the barrier.
- Hurley, 1998 page 52 contains a minor correction.

Page link: Section 6.5.4 refers to the *Foreshore Acts, 1933-1998*.

16.5 Removal of beach material

References to earlier reports

- Hurley, 1997 pages 163-164 deals with the removal of beach material when the barrier is breached.
- Hurley, 1999 page 140 mentions unauthorised removal of beach material from The Coombe during 1998.
- Hurley, 2000 page 159 mentions unauthorised removal of beach material from Carnsore Point during 1999.

Page link: Section 6.5.4 refers to the *Foreshore Acts, 1933-1998*.

16.6 Defining the lake foreshore

References to earlier reports

- Hurley, 1997 pages 164-165 detail issues with regard to the definition of the lake foreshore, reclamation of wetlands and intaking of portions of the flood zone of the lagoon SPA.
- Hurley, 1998 page 52 details two case studies with regard to land intakes from the lake foreshore.
- Hurley, 1999 pages 140-141 contains an update with regard to land intakes.
- Hurley, 2000 pages 160-162 has an addendum with regard to defining the boundary of the lagoon.

Page link: Section 5.20.2.5 with regard to defining the foreshore by the distribution of flood zone vegetation.

Addendum: On 6 August 1996, Jim Hurley wrote to Kieran O'Brien, then Environment Officer with Wexford County Council, with regard to the reclamation and intaking of areas of coastal wetlands designated as important natural heritage areas. He stated that some of the areas in question appeared to be part of State foreshore and appeared to have been intaken without the benefit of either a Foreshore Licence, required under the *Foreshore Act, 1933*, or appropriate assessment required by the Habitats Directive (Council Directive 92/43/EEC of 21 May 1992). His letter pointed out that in their *Wexford Coastline: Coastal Zone Management Plan*, commissioned by Wexford County Council in 1992, Brady Shipman Martin made the following observation regarding the internationally important wetlands on the South Wexford Coast: *"It was pointed out by the OPW that these seawater marshes officially constitute part of the foreshore and as such require a foreshore licence before development can take place. This is not currently adhered to as regards infill and reclamation on the seawater marshes which gives cause for concern."* (page 20).

Jim Hurley's letter of 6 August 1996 focused attention on the following three sites.

- **Saltmills.** An area of foreshore in the estuary of the Tintern River at the north-western corner of Tintern Bridge, portion of the Bannow Bay Special Protection Area, appeared to be undergoing development as a picnic area. The damming the tidal river to create an area for paddle-boating and other recreational water sports had been suggested.
- **Barrystown.** The small, former, roadside salt-marsh with brackish pans rich in invertebrate life had been totally destroyed by landfill. It was located on the boundary between the townlands of Maudlintown and Barrystown and was part of the Bannow Bay Special Protection Area.
- **Eardownes Great.** Builders' rubble and other landfill material were dumped on State foreshore immediately north of the Community Centre at Lady's Island village. The wetland dump site is in a Special Protection Area.

The letter was acknowledged on 9 August 1996 (Ref: PMcD/CC) with an assurance that the issues raised would be investigated. Jim Hurley wrote again on 19 September 1996 attaching a news item from the local press that stated that Wexford County Council was actively involved in the works at Saltmills (*New Ross Standard*, issue dated 28 August 1996, page 8) and inviting comment. Mr O'Brien replied on 11 November 1996 (Ref: KOB/CC) acknowledging that works were carried out as alleged but that in each case the works were carried out by local community development associations.

Jim Hurley replied on 18 November 1996 suggesting that to advance the conservation of coastal biotopes, the matter of unauthorised wetland reclamation be referred to the County Council's Coastal Zone Management Committee (CZMC). He pointed out that representatives of the National Parks and Wildlife Service (NPWS) sat on that committee and the reason for setting up the committee in the first instance was out of concern for the conservation of Natural Heritage Areas in the county. Mr O'Brien acknowledged on 3 December 1996 advising that the issue of reclamation of areas of coastal wetlands would be considered at the next meeting of the CZMC. There was no further communication with regard to the CZMC but members of the Tintern/Saltmills Development Group were awarded a plaque and cheque for £100 by Wexford County Council at the 1996 Keep Wexford Beautiful Awards for their great work that included *"efforts to clear the foreshore"* (*New Ross Standard*, issue dated 11 December 1996, page 3 and *Wexford Echo*, issue dated 12 December 1996, page 26).

16.7 Special Area of Conservation (SAC)

References to earlier reports

- Hurley, 1997 page 165 details the unresolved issue of Ireland's transposition of the requirements of the Habitats Directive into domestic legislation.

- Hurley, 1998 pages 53-58 record the progress made leading the proposed designation of Lady's Island Lake a Special Area of Conservation (SAC) pursuant to the Habitats Directive.
- Hurley, 1999 pages 141-144 updates for 1998.
- Hurley, 2000 page 163 updates for 1999.

Page link: Section 6.4.3 with regard to the Habitats Directive.

17 MANAGEMENT ISSUES

References to earlier reports

- Hurley, 1997 pages 166-169, gives the overview with regard to the need for integrated management plans for Lady's Island Lake in particular and for the South Wexford Coast in general. Bottom-up suggestions made in the period 1979- 1996 are detailed.
- Hurley, 1998 page 58 has a minor correction.
- Hurley, 2001 page 123 ranks 25 management issues in order of the importance attached to them by the OSPAR Commission.

Page link: Sections 17.1-17.28 below address individual management issues.

17.1 Global issues

References to earlier reports

- Hurley, 1998 page 58 mentions the Biodiversity Convention very briefly.
- Hurley, 1999 page 144 has a very brief cross-reference.

Page link: Section 6.2.5 is the principal entry with regard to the Biodiversity Convention.

17.2 EU issues

References to earlier reports

- Hurley, 1998 pages 58-59 refers to resolutions with regard to Coastal Zone Management (CZM) and EU financial support for the development of management plans and emergency actions aimed at conserving candidate Special Areas of Conservation (SACs).
- Hurley, 1999 page 145 has a very brief cross-reference.
- Hurley, 2002 page 141 has an update with regard to the Race to Protect Europe's Natural Heritage.
- Hurley, 2003 page 140 has an update with regard to plans to reform the Common Agricultural Policy.

Page link: Section 17.5 is the principal entry with regard to Coastal Zone Management (CZM). Section 6.4.3 deals with the Habitats Directive and Special Areas of Conservation (SPAs).

17.3 National plans

References to earlier reports

- Hurley, 2000 page 165 mentions the National Development Plan and the National Heritage Plan.
- Hurley, 2002 page 141 updates with regard to a submission from Dúchas to the Cabinet sub-committee monitoring implementation of the IR£40 billion National Development Plan.
- Hurley, 2003 page 140 refers to an An Taisce reviewed the manifestos of the Government parties.

17.4 Management tools

Reference to earlier report

- Hurley, 2003 page 141 refers to the mix of management tools needed to maintain the ecological character of protected areas, and the development of experimental software aimed at predicting long-term large-scale changes in the morphology of estuaries.

Page link: Section 6.4.3 addresses management obligation under the EU Habitats Directive. Section 17.19 is relevant with regard to beach bye-laws.

Web link: The software developed by Posford Haskoning and HR Wallingford is available at <http://www.erp1software.net/>.

17.5 Integrated Coastal Zone Management (ICZM)

References to earlier reports

- Hurley, 1998 pages 59-60 gives the overview and details developments with regard to coastal zone management planning. The South Wexford Coast is identified as a Coastal Cell / Major Planning Unit in a national context.
- Hurley, 1999 page 145 has a correction and an update for 1998.
- Hurley, 2000 pages 165-166 updates very briefly for 1999.
- Hurley, 2001 pages 123-125 updates for 2000 with regard to a policy for Ireland, a strategy for Europe and the need for a regional approach to the Irish Sea.
- Hurley, 2002 pages 142-143 with regard to the relevance of the Water Framework Directive (WFD) and initiatives reported during 2001.
- Hurley, 2003 page 141 updates with regard to moves aimed at advancing ICZM at EU and national level.
- Hurley, 2004 page 170 updates with regard to the Bantry Bay Charter and the Clew Bay Marine Forum.
- Hurley, 2005 pages 160-161 has an addendum with regard to Wexford County Council's Coastal Zone Management Strategy and updates with regard to both an ICZM plan for Ireland and 'The Wexford Declaration'.
- Hurley, 2006 page 138 updates with regard to the draft beach bylaws and a Green Coast award for Cullenstown Strand.

Page links: Section 5.1.1 gives a description of the report area. Section 5.9.2 addresses climate change and sea level change. Section 6.2.5 refers to the Biodiversity Convention. Section 6.4.8 is the principal entry with regard to the EU Water Framework Directive (WFD). Section 6.5.4 refers to the *Foreshore Acts*. Section 11.10 refers to dumping at sea. Section 17.2 refers to CZM planning at EU level. Section 17.19 is relevant with regard to beach bye-laws.

Addendum: Under the EU Water Framework Directive, which came into force in 2000, Ireland is expected to develop a national Integrated Coastal Zone Management (ICZM) strategy. The following extract with regard to Bannow Bay is from an article that reviews the mechanisms, legislation and role of Geographic Information Systems (GIS) in developing ICZM (Connolly and Cummins, 2002 page 9).

“The Bannow Bay Coastal Zone Management Group was established in 1996 as a local voluntary initiative to encourage and assist the development of a coastal zone management plan for the bay. Bannow Bay is an SAC and hosts a wide variety of activities within its relatively small, sheltered estuarine environs. The group succeeded in bringing representatives of all the bay users together to create a forum where views could be shared and a mutual understanding be developed regarding the sometimes conflicting activities present.

The work of the Bannow Bay Group has laid the foundation for further development of ICZM in the local area. However, such work is hugely dependent on the personal commitment of a few local individuals and is unsustainable without adequate funding and government recognition.

In 1998 BIM introduced a system for coastal aquaculture management known as CLAMS (Co-ordinated Local Aquaculture Management Systems). The CLAMS initiative aims to produce tangible outputs in the form of: description of the bay (physical characteristics, history, aquaculture operations, future potential); integration of codes of practice for aquaculture; expansion of single bay management to species other than salmon; a development plan for aquaculture; and communication networks. Bannow Bay is one of three pilot areas successfully implementing the system; the others are in Roaringwater Bay and Killary Harbour.”

Updates

EEA report. The Copenhagen-based European Environment Agency (EEA) published a state of the environment report on coastal areas in Europe (EEA, 2006). The report noted that “between 1990 and 2000, artificial surfaces in coastal zones increased in almost all European countries. Economic restructuring has been a driver for infrastructure development, which in turn has attracted residential sprawl. The highest increase in artificial surfaces (20-35%) has been observed in the coastal zones of Portugal, Ireland and Spain” (*ibid.*, page 12). The report continued “On the basis of the annual growth rates observed during 1990-2000, it is projected that by 2004 the 1990 levels will have been exceeded by 12%. The fastest development has taken place in Portugal (34%), Ireland (27%), Spain (18%), followed by France, Italy and Greece” (*ibid.*, page 15).

Heritage Council report. In April, The Heritage Council published a 75-page policy paper *Conserving Ireland’s Maritime Heritage* (Heritage Council, 2006). The report called for a number of measures to be put in place by Government.

Local CZM. To raise public awareness of coastal issues, the County Wexford Partnership announced on its website “**Walk on the Wildlife Side – South Wexford Coastal Path.** A self guided information booklet is drafted and new map boards are almost ready for installation.” (<http://www.wexfordpartnership.ie/CZM.htm>).

Environment award: At Wexford County Council’s environment awards ceremony, the parish of Lady’s Island was awarded second prize in the Best Community Coastal Management Initiative section (*Wexford People*, issue dated 15 November 2006, page 48).

Web links: The EU’s ICZM Strategy is at <http://www.europa.eu.int/comm/environment/iczm/comm2000.htm>. A profile of ICZM in Ireland is given at <http://www.icm.noaa.gov/country/ireland.html>. The Bannow Bay CZM Group website is at <http://indigo.ie/~word/bannow.htm>. The Spatial Vision for North West Europe (2000) is at http://www.uwe.ac.uk/fbe/vision/English/downloads/vision_e. The Wexford Declaration is at <http://coconet.ucc.ie/index.htm>. Details with regard to the Green Coast award for Cullenstown are on the Wexford County Council website at www.wexford.ie/Environment/GreenCoast. The Bannow Bay initiative is described at http://cmrc.ucc.ie/publications/conf_proceedings/RioICZM-VCNC4.pdf. The 2006 EEA state of the environment report is at http://www.eea.europa.eu/publications/eea_report_2006_6. The Heritage Council policy paper is at http://www.heritagecouncil.ie/fileadmin/user_upload/Publications/Marine/Marine_Policy_06_Eng.pdf. The County Wexford Partnership CZM web page is at <http://www.wexfordpartnership.ie/CZM.htm>.

17.6 Waste management

References to earlier reports

- Hurley, 2000 page 166 lists four recommendations with regard to the ecological impacts of the location of waste facilities.
- Hurley, 2002 page 143 mentions car bodies dumped on the barrier at Lady’s Island Lake and an unauthorised dump opened adjacent to Ring Marsh.
- Hurley, 2003 page 142 updates with regard to a pilot waste minimising programme at Saltmills and abandoned cars at Lady’s Island Lake.
- Hurley, 2006 page 139 updates with regard to case C-494/01.

Update: Under the umbrella of An Taisce's Green Coast Award scheme, the newly-formed local Carnsore Coast Care Group organised a litter pick at Carnsore Point on Saturday 22 July at 3pm. Equipment and refreshments were provided. The contact person was Eadaoin Quinn, telephone (053) 913 1591 (*Wexford People*, issue dated 19 July 2006, page 43). The former Carnsore Coast Care Group comprised a class group from Light of Christ Girls School, Dunmore East, Co Waterford. A sub-committee of the Green School Committee, the group carried out a day of beach activities, a beach clean-up, and studies of local marine life in October 2004. These activities were repeated in 2005, grant aided by An Taisce.

17.7 Wildlife management

Reference to earlier report

- Hurley, 1999 page 145 mentions the proposed Dúchas wildlife management plans for natural heritage sites.
- Hurley, 2005 page 162 updates with regard to hare hunting at Ballyteige Burrow.

17.8 Golf courses

References to earlier reports

- Hurley, 1998 pages 61-62 and 99-107 detail developments with regard to an application for planning permission to extend Castle View Pitch and Putt Course at Eardownes Great into the flood zone of Lady's Island Lake.
- Hurley, 1999 pages 145-149 has an update.
- Hurley, 2002 pages 143-147 review two earlier applications with regard to the proposed extension of Castle View Pitch and Putt Course and details a third application for planning permission.
- Hurley, 2003 pages 142-149 has (1) three corrections with regard to Hurley, 1999 page 145, (2) an update with regard to a fourth application for planning permission for the proposed extension to the Castle View Pitch and Putt Course, and (3) a review of the position of the flood zone over all four applications.
- Hurley, 2004 page 171 has an update with regard to land drainage works carried out at Castle View Pitch and Putt Course.
- Hurley, 2005 page 162 has an addendum with regard to a contour map of the Castle View Pitch and Putt Course.

17.9 Land management

References to earlier reports

- Hurley, 1998 page 62 focuses on management of the barrier at Lady's Island Lake by the landowners.
- Hurley, 2004 page 171 updates with regard to the barrier on the Lane to The Cut.

Page link: Section 17.11 with regard to temporary dwellings refers to the swing-over barrier on the Lane to The Cut.

17.10 All terrain vehicles (ATVs)

References to earlier reports

- Hurley, 1998 page 62 addresses the issue of the use of natural heritage areas by motorbike scramblers.
- Hurley, 1999 page 149 updates with regard to motorbikes and includes dune buggies and quads.
- Hurley, 2000 page 166 updates and mentions court actions taken against bikers scrambling on dunes.
- Hurley, 2002 page 147 updates for 2001.
- Hurley, 2003 page 150 updates with regard to motorbike scrambling and quad activities during 2002 at Ballyteige Burrow Nature Reserve.
- Hurley, 2005 page 163 updates with regard to motorbike scramblers at Ballyteige Burrow, Lady's Island Lake and Carnsore Point.

Page link: Section 17.9 refers to land management of the barrier at Lady's Island Lake. Section 17.11 has a photo' showing pathway erosion. Section 17.19 is relevant with regard to beach bye-laws.

Update: The Carnsore Coast Care Group had significant problems during the summer with quad bike tearing up the dunes in the cSAC. An Taisce organised a meeting with Wexford County Council and the NPWS to see where they stood on the issue with regard to implementing the Local Authority's beach byelaws and the Wildlife Act respectively (personal communication, Jimmy McVeigh, Clean Coast Project, An Taisce's Environment Education Unit).

17.11 Temporary dwellings

References to earlier reports

- Hurley, 1998 pages 62-64 report with regard to a group of twenty hippies living on the barrier at Lady's Island Lake and in the woodlands at Tintern Abbey.
- Hurley, 1999 page 149-150 updates with regard to the hippies and mentions travellers' camps and tourists over-nighting in the Lady's Island area.
- Hurley, 2000 pages 167-169 updates with regard to hippies, travellers' camps, tourists over-nighting in the Lady's Island area, water sports enthusiasts and a beach party. It also has a photo showing pathway erosion.
- Hurley, 2001 page 125 mentions swing-over metal barriers erected on the three access roads to the Lady's Island Lake fringing barrier to restrict access by tall vehicles.
- Hurley, 2002 pages 147-148 updates with regard to warning notices of road barriers ahead and a group of travellers camping at Carnsore Point.
- Hurley, 2003 page 150 updates with regard to the swing-over arm of the barrier at the Lane to The Cut during 2002.

Page link: Section 17.10 refers to similar and/or related issues. Section 17.19 is relevant with regard to beach bye-laws.

17.12 Outdoor musical events

References to earlier reports

- Hurley, 1998 page 65 mentions a rock concert held on 16 August 1997.
- Hurley, 2002 pages 148-149 reports on a nine-day festival called Carnvaha held on the barrier at Lady's Island Lake.
- Hurley 2004, page 172 with regard to a meeting to discuss the commemoration the 25th anniversary of the first 'no nuke gig' at Carnsore Point.

Page link: Sections 17.9, 17.10 and 17.11 are relevant with regard to pathway erosion on the barrier at Lady's Island Lake.

Web link: The Carnvaha website is at <http://www.carnvaha.com>.

17.13 Swimming

References to earlier reports

- Hurley, 1999 page 151 details the prohibition on swimming on the barrier at Lady's Island Lake together with a map.
- Hurley 2004, page 172 with regard to the sign referred to at Hurley, 1999 page 151 being moved.
- Hurley 2005, page 164 updates with regard to beach maintenance on the Hook Peninsula, and the second annual sponsored swim from Saltee Island Little to Kilmore Quay.

17.14 Shooting

Reference to earlier report

- Hurley, 1999 page 151 mentions clay pigeon shoots held on the barrier at Lady's Island Lake.
- Hurley, 2006 page 140 updates with regard to a Peregrine Falcon shot at Lady's Island.

Update: On the evening of 1 March 2006, access to the lake shore was gained by tearing a trackway through a large stand of Gorse scrub thereby allowing excavator contractor Denis Carroll to build a 180m-long bund from Ringsherane to Codd's Inish (Figure 16). The bund was built by pulling large erratics into a line and covering them with bucketfuls of sediment and subsoil excavated from the lagoon floor. It was understood that the contractor was working for the local gun club and that the purpose of the exercise was to impound an area of water for ducks as an amenity for wildfowling. As it had no permission and constituted a Notifiable Action, the activity was seen to be unlawful. Following the intervention of the National Parks and Wildlife Service, the work done was undone and the area restored.



Figure 16: Location of the bund (red line) built and dismantled in March 2006.

(Source: base map Geological Survey of Ireland Public Viewer)

17.15 The extractive industry

References to earlier reports

- Hurley, 1999 pages 151-152 deals with the removal of boulders from Ringsherane in 1998.
- Hurley, 2001 page 125 refers very briefly to gravel extraction at Carnsore Point in 2000.
- Hurley 2004, page 173 with regard to damage to marine gravel beds, and draft guidelines on environmental management of the extractive industry.
- Hurley 2005, page 164 updates with regard to a paper on offshore marine aggregates.

Addenda

Sea stones: Many of the farm buildings, out-buildings and boundary walls close to the South Wexford Coast are built from cobbles and small boulders collected from local strands. These cobbles and small boulders are known locally as 'sea stones'. Boulders are classified as 'one-man stones' and 'two-man stones' depending on how heavy they are to lift. In the past, gravel, pebbles and stones were also extracted from local beaches for filling holes and surfacing lanes and yards.

Boulders at Carnsore Point: In July 1991, the Government announced IR£18.8 million port development works at the Europort at Rosslare Harbour. The proposed development involved reclamation works and the construction of a new 7.5m-deep berth with associated facilities. The works were part-financed by the European Regional Development Fund. It became obvious that a need was likely to arise for boulders for coast protection works. Stephen Byrne, Plant Hire and Civil Engineering Contractors, Dublin Road, Gorey, was already drawing rocks for coastal protection. He used to acquire erratics from farmers with lands near Carne but the farmers stopped supplying him due to the poor state in which he left their lands after extracting the boulders. As a result he had to haul quarried rock from Enniscorthy. It was alleged locally that the quarried rock was brittle and that it often broke when being dumped. He requested permission from the ESB to extract boulders from their lands at Carnsore Point. On 26 November 1991, Jim Hurley requested the National Parks and Wildlife Service (NPWS) to enter into discussions with the ESB with a view to safeguarding the landform at Carnsore Point. NPWS responded that since Carnsore Point had no legal standing, since it supported no protected flora, since it was not an Area of Scientific Interest (ASI), and since no law was being broken, the NPWS was not in a position to take any action; the importance of maintaining the goodwill of the other parties involved was stressed (personal communication, Pat Fitzgibbon, ASI Section). At the time, Paddy Browne, Plant Hire, Hillcastle, Tagoat, was extracting boulders with impunity from the ASI at Raheenmore, Ring Marsh, to facilitate the local gun club's initiative to create pools there and to grow corn to attract dabbling ducks.

On 25 February 1992, Jim Hurley wrote to Mr Tim Mooney, Property Group, ESB Head Office, 27 Lower Fitzwilliam Street, Dublin 2, with regard to the proposed removal of boulders from the ESB property at Carnsore Point. He enclosed a copy of the following position paper (reformatted here). The paper was circulated to other interested parties on the same date.

ITEM: Position Paper.

DATE: 25 February 1992.

FROM: Jim Hurley.

TO: All interested parties.

RE: Proposed removal of boulders from Carnsore Point, Co Wexford.

INTRODUCTION: This paper has two aims:-

- it sets out the position at the moment of the various parties involved as understood by the present author, and
- it explains the IWC position relative to other groups.

IARNRÓD ÉIREANN: Iarnród Éireann (IÉ) (Irish Rail), the port authority at Rosslare Harbour, Co Wexford, is seeking permission from the Electricity Supply Board (ESB) to remove c 30,000 tonne of large rounded boulders from the Board's property at nearby Carnsore Point. IÉ views the ESB boulders as ideal for armouring the seaward side of its IR£18.8 million development works at the Europort (1991-1995).

ELECTRICITY SUPPLY BOARD: The ESB is agreeable in principle to facilitate IÉ but is keen to establish if there is a downside to the proposed development. Further to its objective to operate in as environmentally friendly a way as possible, the Board

does not want to unwittingly contribute to any environmental degradation of its property.

WEXFORD COUNTY COUNCIL: The County Council is keen to facilitate the proposed IÉ development. However, it is also concerned that since the proposed removal of boulders is not a 'development' as such, the proposed removal is exempt under the *Local Government (Planning and Development) Acts, 1963-1983* and the Environmental Impact Assessment regulations. The County Council is concerned that some of the landscape at Carnsore Point is preserved intact. This objective relates to the Council's Development Policy Statement regarding the coastline as set out in the County Wexford Development Plan, 1985 (pages 97-100).

OFFICE OF PUBLIC WORKS: The National Parks and Wildlife Service of the OPW is not involved officially as the site has not yet been designated an Area of Scientific Interest (ASI) and does not appear to come under the terms of the *Flora (Protection) Order, 1987*. However, the OPW has had a number of informal talks with interested parties and is keen to have sufficient time to carry out site investigations so as to formally establish the heritage value of the site.

OTHER GROUPS: The Taggart Community Council and others have already expressed concern regarding any loss of heritage amenities as a result of the proposed developments. An Taisce has not been actively involved to date but it is also concerned that an environmentally acceptable solution be found to the present problem.

IRISH WILDBIRD CONSERVANCY: The IWC does not attach any ornithological significance to the site as such, but the area is part of a heritage coastline identified by the IWC as worthy of special protection. The site forms part of a proposed Coastal Park (copy of proposal document attached; Figure 04 on page 17, and text on pages 86-88 refer). Like other interested parties, the IWC is keen to further the development of the Iarnród Éireann Europort at Rosslare Harbour, but it is equally keen to ensure that the heritage interest of the Carnsore site is maintained and safeguarded through the goodwill of the parties involved.

The boulders on the ESB property at rounded erratics of coarse Carnsore granite. They were deposited there during the last glaciation. Evidence from land reclamation at neighbouring sites suggests that for every one boulder lying on the surface of the land, there are c 20-30 boulders buried in the soil. The littering of the landscape with boulders is a major landform feature in the area. Over the years farmers have cleared most of the adjoining fields. The ESB property is the last sizeable, intact example of the landform and is, therefore, worthy of special consideration for preservation.

Because the soil is full of large boulders there is great variation in soil depth. Over a short distance the soil can plunge from being a few centimetres deep to being over 1m deep. This results in a variable and interesting flora. The area also contains some good examples of low-fertility, old grassland sward. Extraction of boulders would lead to major disruption of the existing vegetation and soil seed banks. This would have knock-on consequences for the invertebrate fauna and the high density of breeding skylarks in the area. It is estimated that some 10% of the landform may be lost through this proposed development.

Boulders on site tend to fall into four groups: small ones (mass 0.5-3t), medium ones (8-10t), large ones (c12t) and very large ones (upwards of 20t). IÉ would appear to require boulders of medium size; minimum mass 3t. This would indicate that the number of boulders required would be of the order of 3,000-10,000 individual stones, about 300-400 loads. The land area involved might be some 20ha. Searching for these stones underground, extracting them and drawing them away would result in considerable site disturbance.

If the proposed boulder extraction goes ahead it is likely that the existing small fields will be merged into one big unit, the traditional stone walls will be knocked, the land will be pock-marked with extraction cavities up to 1m deep. When extraction has finished it is likely that the site will be bulldozed and rotavated. If this happens the ESB will probably bring the land into agricultural production or plant it with Sycamore trees. With the present reorganisation by the EC of its CAP programme, together with increased environment awareness, bringing wilderness land in a heritage area into agricultural production is undesirable. Turning existing mixed native waste ground/scrubland in a heritage area into a monoculture of foreign tree weeds is also undesirable ecologically.

RECOMMENDATION: The IWC feels that the most equitable way forward might be as follows:-

- That the ESB formally requests the OPW to assess the heritage value of its property at Carnsore Point.
- Pending agreement, that the OPW conducts this assessment at the earliest possible date and publishes its findings.
- That other interested parties be afforded an opportunity to comment on the OPW findings.
- That a report be circulated by Iarnród Éireann showing where exactly it intends to extract boulders from, the quantities involved and how the boulders are to be extracted and carried away.
- That in the event of boulder extraction going ahead that clear plans be drawn up for site reinstatement.

In response to the position paper, head office of the Irish Wildbird Conservancy stated that it did not see the Carnsore matter as a bird issue and asked that its name be withdrawn from any further involvement.

Prompted by Jim Hurley, as a private individual, the Planning Authority of Wexford County Council contracted Shane O'Neill, Landscape Architect, to advise with regard to environmental impact.

On 4 April 1992, Paddy Browne, Plant Hire, Hillcastle, Tagoat, telephoned Jim Hurley and made the following points

- He was awarded the contract by Iarnród Éireann to provide boulders.
- It was agreed that boulders would be extracted from Ring Marsh, where he was already working, rather than from the ESB property at Carnsore Point.
- To do the work, he had taken on six men and had hired IR£100,000 worth of plant.
- Wexford County Council had granted him the necessary road permits to draw boulders.
- However, he had visits from *"the wildlife"* and the *"Department of the Environment"*. The visiting inspectors said they were investigating a complaint and an objection. He wondered who the objector might be. He said he faced financial ruin and *"would have to take the boat"* if the work was not allowed to proceed.

On 7 April 1992, Shane O'Neill, Landscape Architect, telephoned Jim Hurley and made the following points

- He had made a site visit in the past few days and had talked to Paddy Brown who made him very aware of the social dimension.
- He felt that all that was needed in the way of an EIS was a letter from the contractor setting out his plans.
- He advised that the impact on the area would be minimal once the site was allowed to re-vegetate naturally.
- He suggested that the site be surveyed to identify areas of high sensitivity that should be avoided and areas of low sensitivity from which boulders could be freely extracted.

In May 1992, the NPWS acquired some land at Ring and at Carnsore Burrow and it planned to protect the boulders there (personal communication, Eugene Wallace, Wildlife Ranger).

On 3 and 4 June 1992, Myles Conan, ESB, telephoned Jim Hurley and made the following points

- He had taken over from Tim Mooney and wanted to meet. The ESB wanted to facilitate IÉ and wanted to get everyone's goodwill.
- The ESB had 160 acres of its 202-acre site at Carnsore Point rented to Paddy Pettit for early potatoes and grazing and would not be touching boulders in that land. Boulders would be taken from scrubland only and the OPW had no problem with that. The OPW had advised the ESB that they no interest in acquiring the site.
- IÉ would be applying for planning permission and would be submitting an EIS.
- A meeting was held with Niall McGuigan of Wexford County Council and it was agreed that the Council's coastal path could run through the ESB property.

On 6 July 1992, a meeting took place on site. Michael Sheedy, Iarnród Éireann, advised

- The EIS had been completed.
- The planning application would be finalised within one week.
- The OPW advised IÉ that the site was "*of no scientific importance*".
- 50,000t of rock would be needed. About 20,000t had already been extracted from Ring Marsh, about 15,000t would be sourced from blasting bedrock on site, and the remaining 15,000t would come from "*the fields behind St Vogues*".

In August 1992 the Planning Authority of Wexford County Council asked that removal of boulders cease "*pending a planning application and an Environmental Impact Statement, should these prove necessary.*"

On 17 August 1992, Iarnród Éireann applied for planning permission to recover and remove 20,000t of 1t-6t boulders from twelve fields in the ESB property to provide rock armouring for the seaward face of newly constructed revetted bunds at Rosslare Harbour (Ref 92/1160). The twelve fields had a combined area of 9.444ha. A ten-page EIS was submitted with a nine-page botanical report appended. The botanical report stated that the area was of "*no worthwhile scientific significance*". A letter from Tom Wright, OPW, to Tim Mooney, ESB, dated 6 April 1992, stated "*The results of a preliminary inspection of the site, carried out in mid-February indicate that the site is of no particular scientific interest.*" Consequently, the NPWS had no objection to the proposed development. In 1977, two of the fields (No 3 and No 6) were identified as "*areas and site of high botanical interest*" (Coulter *et al.*, 1977 map preceding page 55 and Specific Site No 9 in Table 7 on page 91). These fields supported a *Junco (acutiflori)-Molinietum* grassland community with Bitter-vetch *Lathyrus montanus* [*L. linifolius* var *montanus*] and Western Gorse *Ulex gallii*.

In the 1993 revision of the *County Wexford Development Plan* one of the stated objectives of the County Council was to prevent the removal of boulders from Carnsore Point [WCC, 1993 page 140, Section 6.28.1(j)].

Boulders at Lady's Island: On 13 October 1995, Jim Hurley wrote to Mr Michael Canny, Director, National Parks and Wildlife Service, advising him that a meeting had been held on Wednesday 10 October 1995 at Lady's Island village. The meeting was attended by about 25 people together with the newly-appointed parish priest Very Rev Fr Tom McGrath. The matter under discussion was a proposal, promoted by Fr McGrath, to place a circle of fifteen large boulders beside the pilgrimage path around Lady's Island. These boulders were to symbolise the fifteen decades of the rosary and to act as focal points for the Stations of the Cross. The boulders were to be within the boundary shown on the consult maps for proposed NHA No. 704. Fifteen suitably large stones had been identified for the project. These stones were also within the proposed

NHA boundary. Access to some of the stones may have been through NPWS property. In its *County Development Plan, 1993*, it was a development objective of Wexford County Council to seek the “*prevention of the removal of boulders and other alterations to the landscape*” at Lady’s Island Lake, a designated Special Amenity Area No. 4 [S. 6.28.1 (j)]. However, it was not known if an application for planning permission would be made. (The pilgrimage altar was built by the church against a listed monument without any consultation and without planning permission.)

Considering the environmental sensitivity of the issue, Jim Hurley brought this matter to the attention of both the local Planning Authority and Mr Eugene Wallace, Wildlife Ranger, with the suggestion that the unsubstantiated reports received are investigated and that appropriate consultation be entered into before the proposal is firmed up and/or advanced any farther.

Updates

Placename markers: It became popular to mark the entrances to villages with large rounded erratics of Carnsore granite either bearing plaques or with names cut into the stone. During 2005 and 2006, Wexford County Council employees harvested several stones from the beach at Nethertown. Stones suitable for removal were identified and marked with circle of white spray paint.

Imagin: Started on 3 February 2005, the Irish Sea **Marine Aggregates Initiative** (IMAGIN) is a two-year project funded under the Ireland/Wales INTERREG IIIA Community Programme 200-2006.

Web link: With regard to coastal erosion caused by dredging marine aggregates see ‘Our disappearing coastline’ at <http://www.members.aol.com/wwanglia/gowenl.htm>.

17.16 Housing and development

References to earlier reports

- Hurley, 1999 page 152 details three reasons for refusal of planning permission to build houses at Chour.
- Hurley, 2000 pages 170-173 updates with regard to house development in the Chour area.
- Hurley, 2001 pages 125-128 contains further updates with regard to the Chour area.
- Hurley, 2002 pages 149-151 updates with regard to a site for sale at Chour, an application for outline planning permission to build a new serviced dwelling house at Eardownes Great, and a news item in the press reporting that a farmer at Rostonstown was in breach of planning laws.
- Hurley 2004, pages 173-174 with regard to the stone house at Chour being offered for sale, a nearby site previously offered for sale, and a farm building at Rostonstown built without planning permission.
- Hurley 2005, page 164 updates with regard to Vincent Devereux, Rostonstown.
- Hurley 2006, page 141 updates with regard to Vincent Devereux, Rostonstown.

Page links: Section 6.3.6 refers to areas of landscape importance and section 6.5.3 refers to the Planning Acts.

17.17 Wind farming

Reference to earlier reports

- Hurley 2004, page 174 with regard to the electricity regulator temporarily halted allowing new wind farm to connect to the national grid, and the publication of a review of potential issues with regard to birds and wind farms.
- Hurley 2005, pages 165-166 has an addendum with regard to a definition of a decibel, and an update with regard to *Wind Farm Development Draft Guidelines* for planning authorities.

Update: In July 2006, new guidelines for wind energy farms were published by the Department of the Environment and Local Government. The 130-page document updated the 1996 guidelines and the 2004 draft guidelines.

Page links: Since the South Wexford Coast (Section 17.17.1) has a good wind regime the area attracts the attention of wind farmers. Attention was focused on a number of sites in the coastal strip: Carnsore Point (Section 17.17.2), Hook Head (Section 17.17.3), Richfield, and other areas (Ballycogley, Duncormick, Kilbraney, Loughgunnen, Tacumshin, etc.)

Web link: The 2006 Wind Farm Development Planning Guidelines are at <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownload,1633,en.pdf>

17.17.1 South Wexford Coast

Reference to earlier reports

- Hurley 2004, pages 174-175 with regard to the remains of several ruined windmills, and the development of wind energy strategy for County Wexford.
- Hurley 2005, page 166 has an addendum with regard to an on-line wind atlas for Ireland, and an update with regard to a proposed wind farm in Ballyteige Bay.
- Hurley 2006, page 142 has an addendum with regard to wind and water mills and updates with regard to wind turbines at Ballyteige Burrow, and failure to agree on a wind strategy for County Wexford.

Update: Discussion on a confidential Draft Report on a wind energy strategy for the county was deferred at the February meeting of Wexford County Council (*New Ross Standard*, issue dated 15 February 2006, page 60). A week later, details of the confidential report were published. The area from Bannow Bay to Bridgetown was the only area on the South Wexford Coast assessed as 'Open for Consideration' (*New Ross Standard*, issue dated 22 February 2006, page 20). The draft strategy was released for public consultation and it proved controversial (*Wexford Echo*, issues dated 22 February 2006, page 18, 15 March 2006, page 18, and 17 May 2006, page 28; *New Ross Standard*, issues dated 29 March 2006, page 21, 10 May 2006, page 21, and 31 May 2006, page 24; *Wexford People*, issue dated 7 June 2006, page 6). At their June meeting, Councillors rejected the draft strategy (*Wexford People*, issue dated 14 June 2006, page 22). The issue came up for discussion again in November (*New Ross Standard*, issue dated 8 November 2006, page 16). No decisions were taken but parts of the strategy were carried through to a Wind Energy Development Strategy forming part of the Draft County Development Plan 2007-2013. The Wind Energy Strategy in the Draft Plan excluded much of the South Wexford Coast "due to the great environmental wealth which epitomises the south coast" and a "development-free buffer of at least 500m from the rear of sand dune systems will apply" (page 9). The area from Bannow Bay to Bridgetown assessed as 'Open for Consideration' remained (page 10 and Map 6).

Web links: The Sustainable Energy Ireland (SEI) on-line wind atlas is at <http://esb2.net.weblink.ie/SEI/MapPage.asp>. The Marine Institute's website is at <http://www.marine.ie/industry+services/technology/renewable+energy/offshore+wind+energy.htm>.

17.17.2 Carnsore Point

References to earlier reports

- Hurley, 1999 pages 152-153 details developments with regard to the advancement of a proposed wind farm.
- Hurley, 2000 pages 174, 192 and Annex 1 (8 pages) and Annex 2 (5 pages) updates with an objection to the proposed development and an appeal against the granting of planning permission.
- Hurley, 2001 page 129 updates and Annex 1 on page 142 (19 pages) has a statement put in evidence at an oral hearing.

- Hurley, 2002 page 151 updates with regard to commencement work on the wind farm and an application by a local resident (Terence O'Leary) for planning permission to erect a wind turbine on a site at Nethertown/Shilmore adjoining the ESB wind farm site.
- Hurley, 2003 pages 151-166 has the June 2000 decision and direction of An Bord Pleanála as an Addendum and updates with regard to the commencement of work, bird surveys (Condition No 7), and a renewed application from Terence O'Leary.
- Hurley, 2004 pages 175-176 has an addendum with regard to the history of wind farming at Carnsore Point prior to 1993 and pages 177-179 update with regard to the current development.
- Hurley 2005, pages 167-170 has an addendum with regard to the layout of the fourteen turbines, and updates with regard to planning decisions, unauthorised barriers erected by the ESB, promotion of the benefits of the wind farm by Hibernian Wind Power, clarification with regard to condition No 7, and the results of bird surveys.
- Hurley 2006, pages 143-145 updates with regard to ecological tours at Carnsore Point and Condition 7.

Page link: Section 5.9.2 refers to the Kyoto protocol. Section 5.40.1.4 refers to tern movements.

Update: Further to on-going correspondence with Wexford County Council with regard to Condition 7 of the planning permission granted, Jim Hurley sought further information on bird studies carried out and wrote as follows.

13 November 2006

Mr Niall McDonnell,
Senior Executive Officer,
Planning and Development,
Wexford County Council,
County Hall,
Wexford.

Re: **Wind Farm at Carnsore Point**

Dear Mr McDonnell,

In April 2005 I made a FOI request (No. FOI/0330/05) with regard to Condition No 7 attached to the planning permission granted by Wexford County Council for the wind farm at Carnsore Point (Planning Reg. Ref. No. 98/0301).

Condition No. 7 states: *"Arrangements for the carrying out of bird surveys and of monitoring of bird casualties shall be agreed with the planning authority prior to the commencement of development, having regard to the recommendations for such contained in paragraphs 6.3 and 6.6 of the Environmental Impact Statement."*

The outcome of my FOI request was that no arrangements had been agreed between the planning authority and the developer as required by Condition No. 7 even though work on the wind farm had commenced in March 2002 some three years earlier.

Since you were handling my request last year I would be grateful for an update setting out the present position with regard to the arrangements detailed in Condition No. 7.

I look forward to hearing from you in due course.

Yours sincerely,

Jim Hurley

No reply was received by the end of the year.

17.17.3 Hook Head

Reference to earlier report

- Hurley, 2004 page 180 refers to planning permission to erect a temporary wind measuring mast at Templetown.
- Hurley, 2005 page 171 updates with regard to the grant on 5 June 2003 of the permission sought subject to conditions.

17.18 Horses

References to earlier reports

- Hurley, 2000 pages 169-170 mentions the use of the barrier at Lady's Island Lake by horses.
- Hurley, 2001 page 129 mentions the use of the barrier at Tacumshin Lake by horses.
- Hurley, 2002 page 152 mentions the annual Sponsored Trek from Kilmore Quay to Carne in aid of the lifeboats.
- Hurley, 2005 pages 171-172 updates with regard to Killinick Harriers hunt meets, a new sand gallop at Inish and Ballyteige Slob, and the sand gallop on the barrier at Tacumshin Lake.
- Hurley, 2006 page 146 has an addendum with regard to the possible banning of horse riding on Curracloe beach an update with regard to Wexford Pony Club's new grounds at Killag.

Page link: Section 6.4.3 refers to the Habitats Directive and Special Areas of Conservation. Section 17.19 is relevant with regard to beach bye-laws.

Update: On Sunday 5 February 2006, Killinick Harriers Hunt organised a canter at Kilmore Quay to raise funds for Wexford Hospice Homecare (*Wexford People*, issue dated 01 February 2006, page 69). The event was well attended with a very big turnout.

Web links: The *Planning and Development Regulations, 2001* (S. I. No 600 of 2001) may be accessed at <http://www.environ.ie/DOEI/DOEIPol.nsf/wvNavView/Planning?OpenDocument&Lang=#I3>.

17.19 Beach bye-laws

References to earlier reports

- Hurley, 2000 page 170 details draft beach bye-laws proposed by Wexford County Council.
- Hurley, 2001 page refers to the adoption of the bye-laws by Wexford County Council and their coming into effect on 1 July 2000.
- Hurley, 2005 pages 172-173 updates with regard to the proposed amendment of the beach bye-laws and their extension to apply to twenty-one beaches.
- Hurley, 2006 pages 146-147 updates with regard to the adoption by Wexford County Council of the 2006 beach bye-laws.

Page links: Section 17.5 refers to Integrated Coastal Zone Management (ICZM). The following management issues are addressed specifically by the beach bye-laws: Section 17.10 (all terrain vehicles), 17.11 (temporary dwellings), 17.18 (horses), 17.21 (water sports) and 17.22 (beach parties).

17.20 Forestry

References to earlier reports

- Hurley, 2001 pages 129-130 mentions an environmental forest management system launched by Coillte, the Irish Forestry Board, for the period 2001-2005.
- Hurley, 2003 page 157 updates with regard to its Indicative Forest Strategies (IFSs).

Page link: Section 6.4.3 refers to the Habitats Directive and Special Areas of Conservation. Section 17.19 is relevant with regard to beach bye-laws.

Update: The status of forestry in County Wexford in the national context was outlined in the following press report.

Wexford is one of least forested counties

WEXFORD remains one of the least forested counties in Ireland, according to statistics carried in the latest edition of the 'Forestry and Timber Year-book'.

The figures suggest that over 3,300 hectares of trees were planted in the Model County over the period 1988-2004, bringing the total to 14,530 hectares. This represents just over six per cent of the total land area, a sharp contrast to neighbouring woody Wicklow where over 21

per cent of the county is planted - the highest in the State. The national average of forest is ten per cent.

However, landowners in Wexford who plant trees are more likely to put their fields under broadleaved trees such as oak, ash and beech than under conifers. In contrast, the national average is overwhelmingly in favour of conifers, which are found on seven out of every ten Irish hectares converted to timber in 2004.

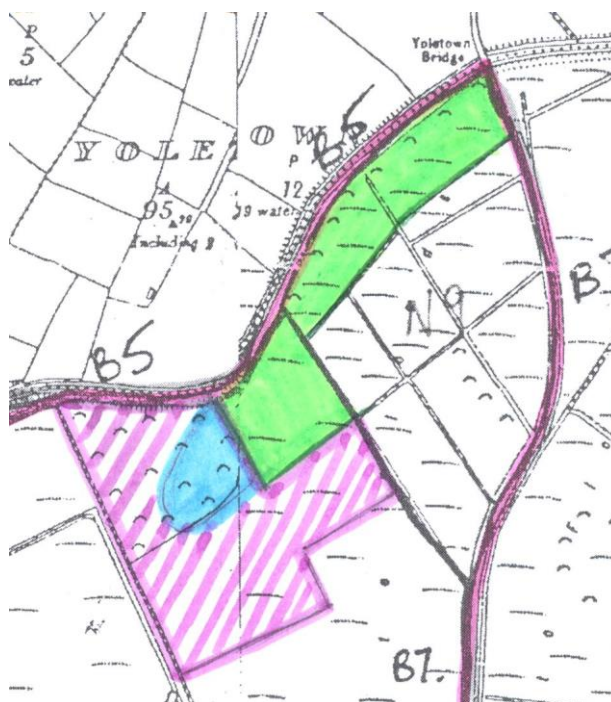
The statistics suggest that, around the Republic, only Meath (2.7%), Louth (3.8%), Dublin (3.9%), Monaghan (4.5%) and Kildare (5.1%) are less prosperous territory for lumber-jacks. The percentage of forest in next door Carlow is very similar to Wexford, again just over six per cent.

Planting has slowed in recent years. The number of Wexford hectares converted to trees in 1995 was around 650, compared with 187 hectares in 2004.

(New Ross Standard, issue dated 11 January 2006, page 14)

All of the South Wexford Coast is located in Coillte's Wexford Lowlands Forest Management Unit (FMU).

On 11 October 2006, public consultation notice was given by the Forest Service of the Department of Agriculture and Food of a proposal for afforestation at Inish and Ballyteige Slob, an environmentally sensitive area (*Wexford Echo*, issue dated 11 October 2006, page 15). The proposed 10.7ha plantation (Contract No CN42457) was located in the Ballyteige Burrow pNHA 696 and adjoined watercourses were in hydrological connection with the Ballyteige Channels cSAC. The proposed plantation was located adjoining the public road west of an existing plantation (green) extending south-west of Yoletown Bridge. The 10.7ha site comprised two plots: No 1 (1.5ha; blue) Rowan, and No 2 (9.2ha, pink) Alder. Planting involved ripping, mounding at 8m, drainage, and stock fencing. It was not proposed to apply any fertiliser and it was anticipated that weed control would be manual.



Web links: The Coillte website may be accessed at <http://www.coillte.ie/>.

17.21 Water sports

References to earlier reports

- Hurley, 2002 page 152 mentions the powers of the Minister for the Marine apply conditions to the use of pleasure craft, jet skis and powerboats and enable local authorities to make by-laws regarding their use.
- Hurley, 2003 pages 157-158 has addenda with regard to SCUBA diving, snorkelling and inshore sailing on the South Wexford Coast and updates with regard to provisions on exhaust and noise emissions of engines in recreational craft, Kilkenny Sub Aqua Club and powerboat racing.

- Hurley, 2004 pages 180-181 update with regard to the *Merchant Shipping (Passenger Boat) Regulations 2002*, and boat-building by members of St Kearns Rowing Club.
- Hurley, 2005 pages 173-174 updates with regard to a water skiing accident at Fethard Bay, the third annual regatta at Bannow Bay, a Scuba diving centre at Kilmore Quay, and a kite surfing speed competition planned for Lady's Island Lake.
- Hurley, 2006 pages 147 updates with regard to board sailing at Lady's Island Lake, scuba dive sites at the Saltee Islands and Hook Head, and the St Kearns Rowing Club.

Page link: Section 5.40.1.3 refers to the conservation of tern nesting habitat. Section 17.19 refers to beach bye-laws.

Updates

Scuba diving. Four sub-aqua clubs (SACs) operate in the south-east region; these are located at [1] Kilkenny, [2] Hook, [3] Wexford, and [4] Waterford (Source: the Irish Underwater Council website at www.cftclub.com/scubaireland).

[1] Kilkenny SAC. Each weekend, weather permitting, members of the Kilkenny club travel to the Wexford coast. The most popular dive sites are Hook Head and the Saltee Islands. Hook Head offers splendid shore diving and is ideal for inexperienced divers (Source: Kilkenny SAC at <http://homepage.eircom.net/~kilkennysubaqua/Dive.htm>).

[2] Hook SAC members dive at a variety of different locations based around Hook Head and the South East Coast. Details as follows from their website at www.hooksubaqua.com/divesite.html.

Tower Hole. Tower Hole is an easy dive which makes a very nice night dive or novice dive. The bottom consists of many gullies and rocky outcrops and the maximum depth in the hole itself is around 10m although this will increase as you move away from the shore. It must be noted that there is a strong tide around Hook Head itself and as a result diving is only advisable during slack.

Solamans. This dive is situated about 300m from the harbour and consists of a large rock arch with a shallow depression underneath. This bowl-shaped depression makes a perfect area for kitting up and is a very easy entry for less experienced divers. The first part of the dive consists of a gulley which drops to about 12m in which you'll see lobsters, crabs and wrasse. At the end of the gulley (~20m) the bottom gets stony and starts to shallow out before the gulley opens into a mixture of kelp and smaller gullies. It's possible to see pollack, shrimps and the odd wrasse here. On your way back make sure that you find the gulley and it will guide you back into the bowl again. All in all an enjoyable dive best suited to novice divers or to winter diving.

Girl Arlene. The Girl Arleen is the wreck of a fishing trawler, which went down in 1995 after the collision with another boat in the fog. The wreck is mostly broken up but the wheelhouse is intact and absolutely teeming with life. The wreck lies in 27m, due east of Baginbun head and is 4 miles from Slade harbour or 10 miles from Kilmore Quay. The wreck and is normally shotted by local diving clubs. For the 2005 diving season it was marked with a string of 3 small bead shaped floats, which became submerged on a high tide. The upside down wheelhouse is the most interesting section of the wreck and one can get inside and see the crew's toilet and sink stuck to the roof! The rest of the wreckage is quite flattened and strewn across the seabed next to the wheelhouse with lots of congers and lobsters hiding underneath. This is a sports diver dive. It can be dived on any state of the tide.

Royal Arthur. In 1850 the "Royal Arthur" ran aground here with her cargo of walrus tusks. None has been found recently but it is thought that there may still be some present.

Western Rock. This is another submerged rock, south-east of Hook Head about half a mile west of Three Mile Rock. This is a slightly deeper dive and is more of a

rock plateau than the pinnacle shape of Three Mile Rock. The top of the rock is in about 22m and the surrounding seabed is 35m to 40m. Again divers should descend using the shot and should not return to the shot but should ascend using DSMBs. On descending to the top of the rock, you will be met with a series of massive gullies. Pick one gully and follow it out away from the rock. The gullies end in about 35m with some massive boulders. Less fish than in Three Mile Rock but lots of congers, lobsters and wrasse in the crevices. This is a sports diver dive. It is better to attempt this dive as the first of the day as most of the dive will be spent in 29 to 30m and you will clock into decompression quickly. Like Three Mile Rock there can be a slight current on this dive but it is usually very sheltered once inside the gullies.

The Brandies. The Brandies are a pair of rocks south of the smaller Saltee Island. It is a really pretty scenic dive teeming with life with interesting rock formations, gullies and boulder fields. Expect to dive between twenty and thirty metres. A dive report states "We dropped in close to the rock, which was showing about 2m above the surface, and worked our way down and roughly north. Initially, we found a series of narrow gullies running down from the rocks. These opened out into a rocky slope. The rocks were covered in jewel anemones, dahlia anemones and other anemone species. Near where we dropped in we came across a pair of dozing dogfish, and a number of large spider crabs, edible crabs and other crustaceans. As we worked north, we came to a broad east-west gully in the rocks that allowed the tide through. Here there were hundreds of wrasse of different species, finning about in the current, and a shoal of large sinister-looking pollock hovering downstream. Choosing to stay out of the tide, we turned round to work our way back south and up the rocks (depth was about 25m here) to where we'd dropped down. As we went, we found a lobster and two large crayfish hiding under boulders - they'd sensibly vanished before the next divers went in." One thing to note is that there are a couple of large submerged rocks close to the main rock, so take care when picking up and dropping divers. As with the other scenic dives be wary of currents. An alternative second dive site would be the nearby East Brandy. This apparently doesn't drop at such a sheer angle as West Brandy, but has the wreck of the Verfradio at 20m.

Coningbeg Rock. Coningbeg rock is fully submerged at high water, which can make it hard to find on a flat calm day. However, the slightest swell means that the sea can be seen breaking over the top. It is very easy to find depths up to 45m here, although the impressive rock formations also allow great shallow dives. The remains of a lighthouse may be seen around the bottom as well as parts of an unknown wreck. A good place to drop divers is on the landward side of the rock. We dropped divers landward and seaward and they all reported a superb dive. The rocks are covered with all sorts of coloured anemones. Large wrasse of all types curiously stare at you as you descend into the depths, swimming amongst ling, pollack and bib. Lobsters, spider crabs and congers all await you at the bottom, happily moving about in the light as if they don't have a care in the world. The rock is covered with large gullies through which the currents will gently pull you along. This has got to rate amongst the most beautiful Irish scenic dives. However, it must be noted that strange currents may be encountered at all depths, including up and down currents, making decompression a tricky business, and to be avoided if possible. Slack is a must. There are reported to be inquisitive seals bobbing about on the surface on the seaward side of the rock. None were spotted underwater though.

Coningmore Rock. This is the larger of the two Coning rocks. It can be seen as it lies above water. The area is full of seals, which can be observed underwater close to the rock. The general depth is around 20-30m with good fish life and rock formations. This is a slack water dive. Divers report it is a nice dive but a bit on the boring side. They recommended that it be ignored in favour of some of the more fabulous dives in the area.

Lismore. The wreck of the Lismore lies in 35m (LW) / 38m (HW) of water. It is approximately six nautical miles south-west of Kilmore Quay (half way between Kilmore Quay and Hook Head in fact). The wreck is well broken up but it never fails to impress and it's always a really great dive. To get to the stern you should see the drive shaft extending along the bottom leading to the props beneath the stern. If you're planning on doing the bow and you see a long cylindrical pipe, turn back, you're heading towards the stern! Along the way you may spot bollards and metal plates until the impressive stern rises tall out of the sand. The stern section is stuffed full of fish life, congers, bib, whiting and pollack. Heading off towards the bow there is extensive wreckage scattered around with a few pieces making swim-throughs for those that dare. The bow section forms a small enclosed room that teems with fish life including wrasse, pollack, bib and ling. It is possible to do numerous swim-throughs at this point. The wreck is also covered in lobsters, crabs and many conger eels of all sizes, from very small to enormous. There is a huge boiler sitting on the seabed as well with lots of holes of varying sizes. These were filled with life. Due to the strange currents about the wreck, this dive should only be undertaken by adequately trained divers who are able to deal with varying conditions. It is not unusual to have a current running on the shot line with little or no water movement on the bottom. While the wreck itself is not a challenging dive, it is on the very limits for sports divers.

S.S. Lennox. More of a second dive really. The boilers are the highest point, about four metres high. Wexford SAC usually puts a marker buoy on it each year. S.S. Lennox is a steamer lying in 10-18m at the back of the Great Saltee. The wreck lies parallel to the Collough Rocks with its bow pointing out to sea. This site is suitable for novice divers and is well dived by local club for training and pleasure. Bows broken but small bits still stand. The wreck is well broken up and is mostly covered in kelp making divers wonder if they have actually found it. However, closer examination soon reveals that the wreck is scattered everywhere. The S.S. Lennox was sunk when she was chased by a submarine onto the rocks at the Great Saltee. Built in 1895 by Barclay Curle & Co., Glasgow, she grossed 3,677 tons and measured 107.44 x 13.46 x 7.72m and was powered by a 3-cylinder triple expansion engine. Kilmore Lifeboat rescued the crew of 45. Will come under the 100 year rule in 2016. Other dives nearby include Makestone Rock and West End.

Three Mile Rock. Also known as "The Big Rock" by locals, this is a rock pinnacle 4 miles from Slade or 7 miles from Fethard Harbour, south-east of Hook Head. The rock does not break the surface and you will need a sounder to locate it and a shot to mark its position. The top of the rock is in approximately 15m and the surrounding seabed is 30 to 35m. The steepest wall seems to be on the South East side of the rock although any side of the rock can be dived. This site is absolutely teeming with fish life with shoals of Pollock, coalfish, mackerel and whiting in season. At the bottom of the wall there are large boulders and gullies with lots of wrasse, conger, dogfish and a John Dory was even spotted! This is a sports diver dive. There can be a slight current around the rock during half tides but it is nothing serious and the rock can usually be dived at any state of the tide. This is also a popular rock with angling boats. Divers should descend using the shot to the top of the rock and ascend using DSMBs.

George Milburn. The George Milburn was a steel steam trawler that was converted to use as an armed minesweeper in the First World War. She was built by R. Irvin & Son, with the dimension 37.31m length x 6.75m breadth and a draft of 3.76m and a weight of 235 tonnes. Power was provided by 1 3.75 triple expansion 78hp boiler. On 12/7/1907, she was escorting the oiler SS Wylie from Queenstown to Milford when she blew up with the loss of 11 of her crew. Reports taken from the sole survivor, who was picked up by a fishing boat, indicate that a mine detonated

amidships and he was blown clear into the sea. The wreck lies in 23m of water east of Hook Head with what appears to be the bow pointed towards the lighthouse. Slack water appears to be identical to the Girl Arleen with a current running on the surface but slack on the bottom. The wreck is well broken up but was covered in fish life along with lobsters and conger eels. As you proceed east along the wreck you will note a large shadow to the left. Leave the wreck and swim towards it and you will see the ships boiler. Directly west of the boiler there is some other wreckage. This is a lovely spot for an afternoon dive as the relatively shallow depth means that a great deal of time can be spent without excessive decompression penalties.

[3] **Wexford SAC** members do the majority of their diving out of Kilmore Quay where their boat is moored at the marina. Details as follows from their website at <http://www.divewexford.org/>.

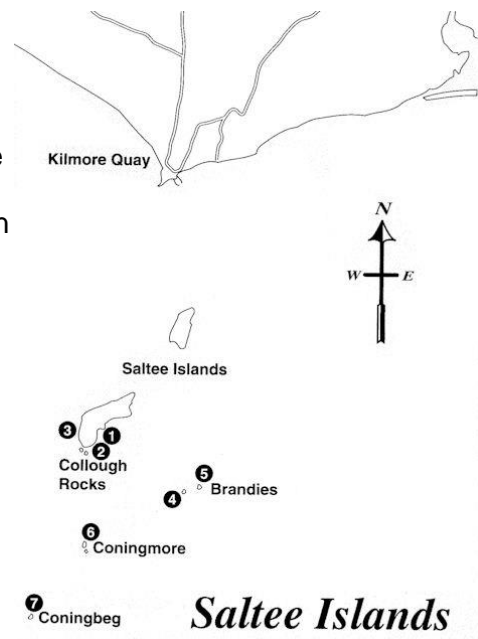
Saltee Islands. As they are situated at the south eastern corner of Ireland tidal currents affect diving in the area and it is only advisable to dive during slack water.

Lennox wreck. Here lies the wreck of the SS Lennox that went down in 1917 when it hit a rock as it tried to flee a German U-boat. This wreck is in around 15 meters and is in good condition. The boilers lie close to shore and the bow is further out to sea. A nice video of a trainees encounter with a seal on the wreck can be seen here

<http://www.youtube.com/watch?v=STGvWTXjhEA&NR=1>.

Girl Arlene wreck. A small trawler that sank in 1989 lies in 28 meters in Ballyteige Bay. Free from currents, this wreck is a great learning step in deeper diving for novices. It is always well populated by shoals of fish. The pictured cabin is home to a conger eel. Some video clips of the conger can be seen at

<http://www.youtube.com/watch?v=1NGqrgMT6E>.



4 West Brandie. This is a spectacular dive site. The rocks are covered in anemones. The seaward side has a very dramatic drop off to a depth of 35m. It is advisable to seek local knowledge on slack tide times due to strong currents in this area.

5 East Brandie. Lying to the east of West Brandie, this is another good dive site, but again is prone to strong currents. The rock shape is not as sharp as the West's but it goes down to 33m. The wreck of the "Vifredo" lies at its centre at a comfortable 20m.

6 Coningmore Rock. This is the larger of the two Coning rocks. It is easily seen behind the Great Saltee Island it can be seen as it stands high above water. The area is full of seals which can be observed underwater close to the rock. The general depth is around 20-30m with good fish life and rock formations. As with all the rock dive sites, an SMB is advisable.

7 Coningbeg Rock. The rock is submerged at high water, but can clearly be seen when the sea breaks over it. Depths up to 45m can be obtained here. The large rock formations can also make for a shallower dive, providing buoyancy control is good. Our club normally enter the water on the western side and then swim either north or south. There is a beautiful, but delicate red fan coral at this site. We ask all divers to

be very careful when diving here not to touch it. The remains of lighthouse foundations may be seen around the bottom. Like its larger namesake the Coningbeg is prone to strong currents.

Lighthouse / Hook Head. This is the channel that heads out to sea below the lighthouse. Because it is shallow at the point of entry, it is ideal for your first dive and night diving. As you head outward, a large cave lies on your left which is "guarded" by a Conger eel. For the more experienced, they can head out, turn left and return via a different channel called the Anchor Hole. Remember when diving in the Hook, to ensure that you can get out as easily as you can get in. Watch out for Cuttlefish.

Grogan wreck / Hook Head. After a two-minute walk you can dive on the wreck of this old coal ship. She lies in around 5m of water so again is very safe. A lot of the wreck remains to be seen, her large propeller being intact. This wreck is also occupied by a Conger. The gully to the left of this one has one of the most awesome sights to be seen on a sunny day. Light spills into an underground cave through the blowholes on the surface giving the cave the appearance of being a foreign dive site.

[4] **Waterford Harbour SAC** lists the following dive sites on its website <http://www.divewaterford.com/divesites.htm>. Only sites on the South Wexford Coast are listed here and there is some minor editing and reformatting.



Hook Head

Three Mile Rock. Location S.E. of Hook Head. GPS: N52 54 65 W 6 51 47. This is definitely a boat dive. It is about 20min out of Dunmore in a RIB. If a marker is not there you will need sonar to locate the rock. Depth 20-35m, an excellent dive, plenty of life and not much weed. It is a large plateau of rock approximately 15m off the bottom. You have a very enjoyable dive at 20m all around the top of the rock. Experienced divers only.

Western Rock. Location S.E. of Hook Head. GPS: N 52 49 38 W 6 51 14. Boat dive. Again another plateau of rock west of Three Mile Rock and to the seaward. It is about 30 minutes out of Dunmore East. With depths in the range of 20-45m, an excellent dive. Same type of rock as Three Mile Rock. Sonar required to find it. This rock is not normally marked. With both of these dives you can get a westward run on the surface during half tides. In these areas the sea is nearly always a little "lumpy". Experienced divers only.

Slade Harbour. The shoreline may be reached through an arch in the harbour wall, taking care to walk on the headlands. There are least three shore dives, all of which offer interesting, safe and shallow dives ideal for the inexperienced or early season divers. The sea bottom consists of rocky gullies, kelp and sand with plenty of sea life. These gullies continue as ridges, about 2-3m high, for several hundred metres out to sea. It is possible to fin out on one ridge and return on another one almost without the use of a compass. Near the shore the tidal current is always fairly slack.

Solomon's Hole. About 250m from the harbour there is a natural rock arch, under which there is a flat ledge. This ledge is one side of a gully which runs east for about 20m from the shore to a maximum depth of 12m before opening out onto sand and rock. The ledge is covered by about 1m at high tide.

Carraig Ahoy. Continuing a further 150m along the coastline there is a promontory one side of which is straight and stepped. These steps make dive entry and exit

easy in all tidal stages.

Black Chan. 200m in from Carraig Ahoy there is a natural slope in the cliff face. A steel-hulled trawler was wrecked here in the late 60's, the remains of which can still be seen. The slope facilitates entries and exits. The slope shows the general terrain of the underwater ridges.

Hook Head. There are several entry/exit points in the area below the car park. In 1850 the "Royal Arthur" was wrecked here with a cargo of walrus tusks. None have been found recently, but you might get lucky! There is a tidal race off the point so it is advisable to dive this area ONLY at slack water.

In November, Hook SAC invited people to try a dive and to marvel at the marine life. The report said the club had been in existence for 20 years (*New Ross Standard*, issue dated 1 November 2006, page 2).

Jet skis. At their monthly meeting, members of Wexford County Council voiced their concerns about the use of jet skis at several beaches. Cllr John Dwyer advised that he saw eight jet skis operating in Bannow Bay cSAC. He said they entered the water at Grange (*New Ross Standard*, issue dated 14 June 2006, page 52). The issue was raised again the following month. Cllr Pat Codd said the Community Wardens didn't have proper resources to police all the beaches. Eamonn Hore, senior executive engineer, advised that the *Marine Safety Act* covered the use of jet skis. Cllr John Dwyer again raised the issue of jet skis at Bannow Bay cSAC and said their owners were moving there from the more populated beaches (*New Ross Standard*, issue dated 12 July 2006, page 24).

Kite surfing. The two-day 'Wexford Downwinder' event planned Carnsore Point, Lady's Island Lake and Kilmore Quay in July 2006 was cancelled due to lack of suitable wind (www.kitesurf.ie).

Web link: The Irish Kitesurfing Community website is at <http://www.kitesurfing.ie/>. The Irish Underwater Council website is at www.cftclub.com/scubaireland. Websites of individual Sub Aqua Clubs (SACs) are as follows: Kilkenny <http://homepage.eircom.net/~kilkennysubaqua/Dive.htm>, Hook www.hooksubaqua.com/divesite.html, Wexford <http://www.divewexford.org/>, and Waterford Harbour <http://www.divewaterford.com/divesites.htm>.

17.22 Beach parties

References to earlier reports

- Hurley, 2002 pages 152-153 refers to a beach party at The Cut in August 2001.
- Hurley, 2003 page 160 updates with regard to assaults of four individuals at a beach party held at Baginbun.
- Hurley, 2004 page 181 updates with regard to picnic fires at Lady's Island Lake and anti-social behaviour on the beach at Cullenstown.
- Hurley, 2005 pages 174-175 updates with regard to the possibility of beach parties at Hook Head being licensed, and Cottonweed *Otanthus maritimus* growing on the weathered ashes of a former picnic fire at Lady's Island Lake.

Page link: Section 17.19 refers to beach bye-laws. Section 17.26 refers to fires.

Update: A man charged with assault, assault causing harm, and intoxication in a public place on 6 April 2003 at Cullenstown Strand, was remanded on continuing bail at a sitting of New Ross District Court (*New Ross Standard*, issue dated 1 November 2006, page 5).

17.23 Rural Environment Protection Scheme (REPS)

References to earlier reports

- Hurley, 2002 page 153 briefly reviews the objectives and history of the REPS.
- Hurley, 2004 pages 181-182 has an addendum with regard to opposition at public meetings held in 1992 to discuss a proposed Coastal Park, and updates with regard to the low uptake of REPS II.
- Hurley, 2005 page 175 updates with regard to REPS 3 and the impact of the REPS on biodiversity.
- Hurley, 2006 page 148 updates with regard to REPS4.

Page link: Section 11.5.2 refers to government clean-up campaigns with regard to water quality under the REPS.

Update: The Heritage Council advised the government to pay 'additional incentives' to farmers to protect habitats (*The Irish Times*, issue dated 10 January 2006, page 6). Announcing a new five-year environmental scheme, it was reported that between 1,100 and 1,200 farmers were paid €1.4 million in 2005 to protect designated areas and commonages (*The Irish Times*, issue dated 23 February 2006, page 2).

17.24 Aircraft

Reference to earlier report

- Hurley, 2004 page 182 has an entry with regard to the nuisance of low-flying planes and helicopters.

17.25 Infrastructure

Reference to earlier report

- Hurley, 2004 page 182 has an entry with regard to the strengthening of St Iver's bridge at Lady's Island.

17.26 Fires

References to earlier reports

- Hurley, 2002 page 153 mentions a fire on the sand dunes at Ballyteige Burrow, February 2001.
- Hurley, 2004 page 182 has an entry with regard to a fire at the Burrow and the Hill of Chour.
- Hurley, 2005 page 176 updates with regard to a Gorse fire at Ringsherane and Chour in May.

17.27 People pressures

Reference to earlier report

- Hurley, 2004 pages 182-183 has an addendum with regard to people pressures in the proposed Coastal Park.
- Hurley, 2005 page 176 has an addendum with regard to beach use at Ballyhealy and updates with regard to beach clean-ups at Blackhall and Bannow Island and vandalism at Lady's Island.

17.28 Aquaculture

Page links: Section 6.4.10 refers to the Shellfish Directive.

18 PROPOSED ENGINEERING SOLUTION

This section addresses engineering solutions proposed to relieve flooding at Lady's Island Lake (Section 18.1), at Tacumshin Lake (Section 18.2), and at other locations on the South Wexford Coast (Section 18.3).

Page links: Section 12 deals with water level managers and their management of water levels, and Section 14 deals with changes in water level and the recording of actual water levels.

18.1 Lady's Island Lake

References to earlier reports

- Hurley, 1997 pages 170-180 gives the overview and details a proposed LIFE Nature application to the EU for financial support.
- Hurley, 1998 pages 65-76 updates for 1997 and tries to unravel confusion caused.
- Hurley 1999 page 153 updates for 1998 and mentions the Malachy Walshe & Partners engineer's report.
- Hurley, 2000 pages 175-178 updates for 1999.
- Hurley, 2004, page 184 has an update with regard to a discussion held at the 34th meeting of the Lady's Island Lake Drainage Committee.

Page link: Minutes of the meetings of the Lady's Island Lake Drainage Committee (Section 12.1) contain several references to the proposed engineering solution.

18.2 Tacumshin Lake

References to earlier reports

- Hurley 1999 page 153-154 mentions an application for planning permission for drainage works and the subsequent grant of the permission requested.
- Hurley, 2000 pages 174 and 179-180 mentions the application for a Foreshore Lease, details some levels and describes the commencement of work.
- Hurley, 2001 page 130 updates and gives some water levels.
- Hurley, 2002 page 155 has an addendum with regard to an aerial photograph from 7 August 1998 and an updating note on the completion of the engineering works in July 2001.

Page link: Section 12 refers to management of water level in the lagoon. Section 14.2 has some records of water levels.

Web link: A press release with regard to the Foreshore Licence granted is at <http://www.irlgov.ie/marine/pressRelease/october99/7oct.htm>.

18.3 Drainage works at other areas

19 CONCLUSIONS AND RECOMMENDATIONS

Reference to earlier report

- Hurley, 1997 page 183 sets out four main conclusions and seven recommendations. Each of these seven recommendations is addressed separately below (Section 19.1 to Section 19.7). The background context is given in each case together with the progress achieved in the calendar year under review.

19.1 Management Plan

References to earlier reports

- Hurley, 1997 page 183 sets out the original recommendation.
- Hurley, 1998 pages 77 and page 79 (for Figure 19) update for 1997. Page 71 is also relevant as it has Figure 13.
- Hurley, 1999 page 154 updates for 1998.
- Hurley, 2000 page 180 updates for 1999.

19.2 Breaching the barrier

References to earlier reports

- Hurley, 1997 page 183 sets out the original recommendation.
- Hurley, 1998 page 77 refers very briefly to the proposed implementation of this recommendation. Pages 65-74 give details with regard to the LIFE Nature application for proposed engineering works at Lady's Island Lake.

- Hurley, 1999 page 154 updates for 1998 reporting that significant progress was made during the year in that a consulting engineer's report was published (details on page 153) and an automatic data logger for recording water levels was installed in the lagoon (details on page 154).
- Hurley, 2000 page 181 updates for 1999 reporting that a scheme of work was devised. Details are set out on pages 139-141 (Section 12.4) with regard to the 20th meeting of the Lady's Island Lake Drainage Committee and pages 175-178 (Section 18.2) with regard to the LIFE Nature application for engineering works.

19.3 EU co-financing

References to earlier reports

- Hurley, 1997 page 183 sets out the original recommendation.
- Hurley, 1998 page 77 refers very briefly to the proposed implementation of this recommendation. Pages 65-76 give details with regard to the LIFE Nature application for proposed engineering works at Lady's Island Lake.
- Hurley, 1999 page 155 updates for 1998 taking the view that the issue is irrelevant as action had already been taken in 1996.
- Hurley, 2000 page 181 notes that the contract period with regard to the LIFE Nature application for engineering works expired in December 1999.
- Hurley, 2001 page 131 suggested that EU co-financing might have been lost.

19.4 Nutrient survey

References to earlier reports

- Hurley, 1997 page 183 sets out the original recommendation.
- Hurley, 1998 page 77 updates referring to a nutrient management research project to be conducted by Eddie Bolger, Environment Technician, Wexford County Council. Page 80 contains the Figure 20 mentioned in the update.
- Hurley, 1999 page 155 updates for 1998. Eddie Bolger carried out his project but confined it to two mini-catchments: those of feeder streams Nos 5 and 10. Section 11 is also relevant in that it updates with regard to water quality in the feeder streams and in the lagoon.

19.5 Water Quality Management Plan

References to earlier reports

- Hurley, 1997 page 183 sets out the original recommendation.
- Hurley, 1998 page 77 updates stating that Wexford County Council favours such a plan but feels it has not got the human resources to advance it. Page 80 contains the Figure 20 mentioned in the update.
- Hurley, 1999 page 155 updates for 1998. No progress was reported.
- Hurley, 2000 page 182 notes that no progress was made during 1999.
- Hurley, 2001 page 131 notes that no progress was made during 2000 but the production of such a plan may become obligatory under the Water Framework Directive (see Section 6.4.8).

Page Link: Section 6.4.8 refers to the Water Framework Directive.

19.6 Local Development Plan

References to earlier reports

- Hurley, 1997 page 183 sets out the original recommendation.
- Hurley, 1998 page 78 updates stating that Wexford County Council has the matter under consideration as part of the review of the County Development Plan. Pages 91-92 are relevant as they refer to planning matters.
- Hurley, 1999 page 155 updates for 1998. No progress was reported.
- Hurley, 2000 page 182 notes that no progress was made during 1999.
- Hurley, 2001 page 131 notes that no progress was made during 2000.

19.7 Nature Reserve

References to earlier reports

- Hurley, 1997 page 183 sets out the original recommendation.

- Hurley, 1998 page 78 updates stating that there was no plan to create a nature reserve in the area in the short term.
- Hurley, 1999 page 155 repeats the position outlined in Hurley, 1998 but notes (page 91) that this proposal was first made in 1915.
- Hurley, 2000 page 182 notes that no progress was made during 1999.
- Hurley, 2001 page 131 notes that no progress was made during 2000.

19.8 Barrier height

References to earlier reports

- Hurley, 1999 page 156 made the original proposal.
- Hurley, 2000 page 182 notes that no progress was made during 1999.
- Hurley, 2001 page 131 notes that no progress was made during 2000.
- Hurley, 2003 page 162 notes that Hurley, 2001 page 131 should read 'progress' instead of 'press'.

19.9 Salinity

References to earlier reports

- Hurley, 1999 page 156 made the original proposal.
- Hurley, 2000 page 182 notes that no progress was made during 1999.
- Hurley, 2001 page 131 notes that no progress was made during 2000.
- Hurley, 2003 page 162 notes that Hurley, 2001 page 131 should read 'progress' instead of 'press'.

20 ORDNANCE DATUM CONVERSION TABLE

References to earlier reports

- Hurley, 1997 pages 184-185 is the principal entry.
- Hurley, 1999 page 156 gives some additional data.

Web link: Professor Russell Rowlett's useful *Dictionary of Units of Measurement* is on the University of North Carolina website at <http://www.unc.edu/%7Erowlett/units/index.html>.

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