
Water Level at Lady's Island Lake, 2022.

Jim Hurley



SWC Promotions - January 2023

Summary

Lady's Island Lake is a natural heritage site in south County Wexford in the extreme southeast corner of Ireland. It is among the largest and 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 the second largest breeding colony of Roseate Terns in Europe. The lake is drained regularly to prevent and/or to relieve flooding. That 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 extending from September 1984 to September 1996 together with an overview of the natural history of the site and other relevant items regarding 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 regarding 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 a series of subsequent annual reports (Hurley, 1998 - Hurley, 2022). This report (Hurley, 2023) provides an update for the calendar year 2022. Each section of this report may contain up to four of the following items, as appropriate.

References: Page numbers are given to reference entries in earlier reports.

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

Addenda: Relevant information not included in, or that came to hand after 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.

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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. Hurley, 2007 page 15. Hurley, 2008 page 15. Hurley, 2009 page 13. Hurley, 2010 page 13. Hurley, 2011 page 13. Hurley, 2012 page 13. Hurley, 2013 page 13. Hurley, 2014 page 13. Hurley, 2015 page 13. Hurley, 2016 page 13. Hurley, 2017 page 13. Hurley, 2018 page 13. Hurley, 2019 page 13. Hurley, 2020 page 16. Hurley, 2021 page 16. Hurley, 2022 page 17.

Update. Inputs in the compilation of this report via 'personal communication' by the 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 always provided invaluable and unflagging logistic support.

Jim Hurley, January 2023.

2 INTRODUCTION

Reference to earlier report. Hurley, 1997 pages 15-19.

3 SURVEY METHOD

References to earlier reports. Hurley, 2005 page 17. Hurley, 2008 page 17.

4 INFORMATION DISSEMINATION

Reference to earlier report. Hurley, 1997 page 20.

5 DESCRIPTION OF THE REPORT AREA

5.1 Introduction

An overview is given (Section 5.1.1) together with details regarding human geography (Section 5.1.2), especially population (Section 5.1.2.1) and placenames (Section 5.1.2.2), and air quality (Section 5.1.3).

5.1.1 Overview

References to earlier reports. Hurley, 1997 pages 21 and 28. Hurley, 1998, pages 13-17. Hurley, 1999 page 17. Hurley, 2000 page 37. Hurley, 2001 pages 15-16. Hurley, 2002 page 27. Hurley, 2003 page 18. Hurley, 2004 pages 18-19. Hurley, 2005 page 18. Hurley, 2006 pages 17-18. Hurley, 2007 page 18. Hurley, 2008 page 17. Hurley, 2022 page 18.

Update. On 11 September 2021, Dick Bates emailed Jim Hurley the following account of the marine biological studies conducted at Carnsore Point.

Studies of Carnsore and the South Wexford Coast by Brenda Healy and David McGrath

Apart from biologists, few are aware that the animal life of the rocky shores and sandy beaches of County Wexford is among the most studied in Ireland. This is the result of work led by Dr Brenda Healy from the Department of Zoology, University College, Dublin and Dr David McGrath of the Department of Life Sciences, Galway-Mayo Institute of Technology and also in part due to a large team of biologist who assisted them. The work got underway in the period 1976–1978 when the area was visited monthly and resulted in descriptions of the shores, their animal communities and characterisation of the region in terms of environmental influences. In these initial years the work was funded by the Electricity Supply Board as part of the baseline study conducted for a planned nuclear power station at Carnsore Point. The investigations continued for 20 years in all due to the interest of these marine biologists in the area. During this period the old Coastguard watch house at Carnsore Point served as a field laboratory.

Studies were mainly carried out on the exposed and sheltered rocky shores in the Region of Carnsore Point, Forlorn Point and Hook Head, and the sandy beaches at Kilmore Quay, Carnsore, Carne, Rosslare Harbour and Rosslare Point, but some collections were made in a wide range of coastal areas throughout the county. A number of UCD students started to do research projects on the shores of County Wexford at this time and this was a pattern for about a decade. One of these students, Kilmore Quay-man Dick Bates, undertook a two-year study of Our Lady's Island Lake from 1976 to 1978. The lake is a brackish lagoon with salinity and water level changing all the time. Jim Hurley subsequently commended a 12-year study of the Lake in 1984.

The results of the Healy-McGrath work was reported in a wide range of scientific journals and a summary of the twenty years of study was published in 1998 as "Marine fauna of County Wexford, Ireland: The fauna of rocky shores and sandy beaches" in the Marine Institute's Irish Fisheries Investigations, New Series No. 2.

A total of 482 animal species, nine of which were new Irish records, were found in all, giving one of the most comprehensive lists of intertidal animals for the Irish coast. The animal life was richer than in the Dublin area but did not contain some of the south-western species. Some of the southern species, which were found, were petering out on the Wexford coast.

The rocky shore at Carnsore Point was found to represent a transition zone where conditions and animal communities characteristic of the south and west coasts of Ireland meet those more typical of south Irish Sea coasts. Tidal front waters were judged to have a significant influence on species distribution and more so than shore layout (topography).

While Healy and McGrath's work focused on intertidal animals, various teams from, University College, Dublin, University College, Galway and University College, Cork looked at other aspects of marine life, including coastal fish, offshore seabed survey and seaweeds. A full list of the resulting publications is given along with the summary of the 20 years work in New Series No. 2, among these are a series of nine papers on various aspects of County Wexford shores in the Irish Naturalists Journal. The fact that these detailed studies exist will enable scientists in the future to measure any changes which may occur due, not to a nuclear power station at Carnsore Point, but due to changes in the marine environment, including those linked to climate change.

5.1.2 Human geography

References to earlier reports. Hurley, 2007 page 19. Hurley, 2017 page 13. Hurley, 2018 page 13.

5.1.2.1 Population

References to earlier reports. Hurley, 2000 pages 19-21. Hurley, 2003 page 19. Hurley, 2004 pages 20-21. Hurley, 2006 pages 18-21. Hurley, 2007 page 19. Hurley, 2008 page 18. Hurley, 2009 page 14. Hurley, 2011 page 14. Hurley, 2012 page 14. Hurley, 2013 pages 14-15. Hurley, 2016 page 14. Hurley, 2018 pages 13-14. Hurley, 2020 pages 17-18.

Update. The Wexford County Development Plan 2022-2028 featured a map showing settlement pattern on the South Wexford Coast (Figure 1).



Figure 1. Settlement on the South Wexford Coast.

(Wexford County Development Plan 2022-2028
Volume 1, page 58, Figure 3.2)

5.1.2.2 Placenames

Reference to earlier report. Hurley, 2019 pages 14-15.

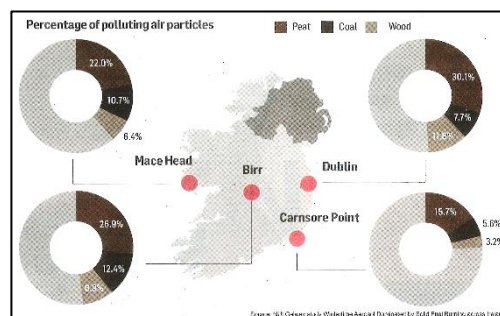
5.1.3 Air quality

References to earlier reports. Hurley, 2001 page 16. Hurley, 2003 page 19. Hurley, 2004 page 21. Hurley, 2005 page 19. Hurley, 2006 page 22. Hurley, 2007 page 20. Hurley, 2009 page 14. Hurley, 2012 page 15. Hurley, 2013 page 16.

Updates

Pollutants from burning. Air quality at Carnsore Point was reported to be the best of four sampling sites for the percentage of polluting air particles from peat, coal and wood (*The Irish Times*, issue dated 9 May 2022, page 6; data source: NUI Galway study Wintertime Aerosol Dominated by Solid Fuel Burning across Ireland).

Site/Source	Peat	Coal	Wood
Carnsore Point	15.7	5.6	3.2
Mace Head	22.0	10.7	6.4
Birr	26.9	12.4	8.9
Dublin	30.1	7.7	11.6



Radon gas. On 25 May 2022, the EPA published an updated radon risk map. The updated map was based on some 64,000 compared to some 11,000 readings used for the first map produced in 2002 (*The Irish Times*, issue dated 26 May 2022, page 2). The map (Figure 2) showed a prediction of the number of the houses in any one area that are likely to have high radon levels. Those areas in red are most at risk from radon and are called High Radon Areas. The map was based on an analysis of indoor radon measurements plus geological information including, bedrock type, quaternary geology, soil permeability and aquifer type. The areas of the map in orange and yellow are areas of medium and low risk respectively (<https://gis.epa.ie/EPAMaps/Radon?&lid=EPA:RadonRiskMapofIreland>).

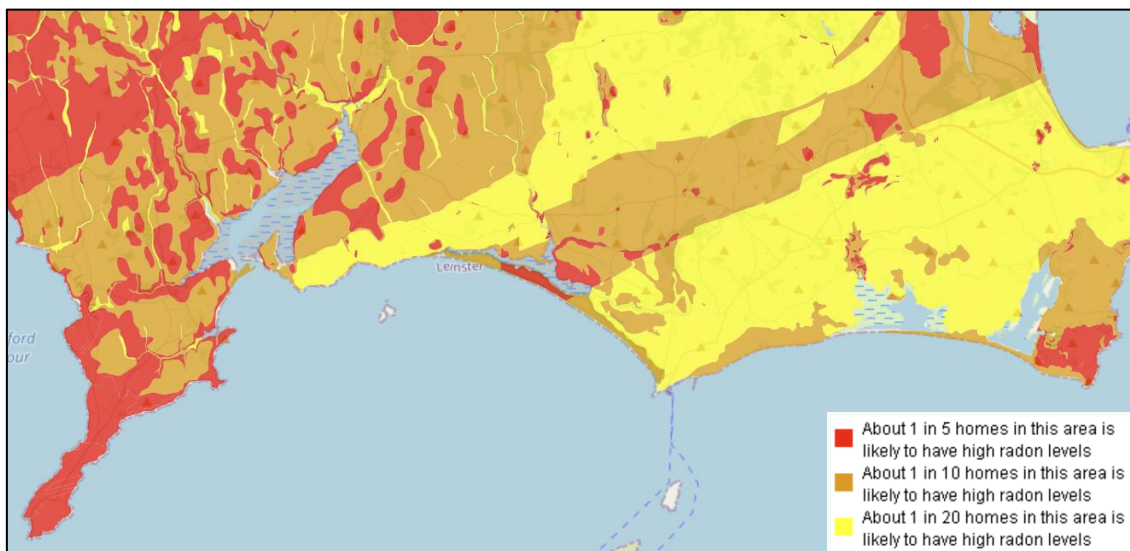


Figure 2. Extract of the radon map of Ireland.

(Source: <https://gis.epa.ie/EPAMaps/Radon?&lid=EPA:RadonRiskMapofIreland>)

5.2 Earth movements

References to earlier reports. Hurley, 1997 page 21. Hurley, 2000 page 22. Hurley, 2001 page 16. Hurley, 2003 pages 20-21. Hurley, 2005 pages 20-21. Hurley, 2006 pages 23-24. Hurley, 2007 page 21. Hurley, 2009 page 15. Hurley, 2010 page 14. Hurley, 2011 page 14. Hurley, 2013 page 16. Hurley, 2014 pages 14-15. Hurley, 2015 page 14. Hurley, 2016 page 14. Hurley, 2019 page 16.

5.3 Bedrock geology

References to earlier reports. Hurley, 1999 pages 22-23. Hurley, 2000 pages 24-30. Hurley, 2001 page 17. Hurley, 2002 page 19. Hurley, 2003 pages 22-23. Hurley, 2004 page 22. Hurley, 2005 pages 22-25. Hurley, 2006 pages 26-27. Hurley, 2007 pages 22-23. Hurley, 2008 page 19. Hurley, 2009 page 15. Hurley, 2010 page 14. Hurley, 2011, page 15. Hurley, 2012, page 16. Hurley, 2013 pages 17-18. Hurley, 2020 page 19. Hurley, 2021 page 17.

5.4 Minerals

References to earlier reports. Hurley, 1997 page 23. Hurley, 2000 page 31. Hurley, 2001 page 18. Hurley, 2013, page 19. Hurley, 2016 page 15. Hurley, 2017 page 14. Hurley, 2022 page 19.

5.5 Fossils

References to earlier reports. Hurley, 1997 page 23. Hurley, 2003 page 23. Hurley, 2007 page 24. Hurley, 2014 page 16. Hurley, 2015 page 15. Hurley, 2017 page 14. Hurley, 2019 page 17.



Sea urchins at Hook head. More than 200 complete sea urchin fossils their spines intact were found preserved in exquisite detail at Hook Head by a team from the School of Natural Sciences at University of Galway. Dr John Murray, said it was unclear why the urchins congregated in such large quantities on the seafloor, but it can be concluded they were buried quickly, with little or no post-mortem disturbance. Following successful removal, the fossil-bearing slab was transferred to the National Museum of Ireland for conservation and further study. The exceptional discovery was reported in the *Irish Journal of Earth Sciences* .(Source: Article by Mairéad Sheehy in the *Irish Examiner* online at <https://www.irishexaminer.com/news/arid-41016929.html> accessed 29 November 2022)

5.6 Near shore seabed

References to earlier reports. Hurley, 1997 page 23 and Figure 18b on page 98. Hurley, 1999 pages 24-26. Hurley, 2000 page 32. Hurley, 2001 pages 18-22. Hurley, 2018 page 15. Hurley, 2022 page 19.

5.7 Groundwater

References to earlier reports. Hurley, 2010 page 16. Hurley, 2013 pages 20-21.

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).

5.7.1 Springs and drilled wells

References to earlier reports. Hurley, 1997 page 24. Hurley, 2001 page 23. Hurley, 2006 page 28. Hurley, 2007 pages 25-26. Hurley, 2013 page 21. Hurley, 2015 page 15.

5.7.2 Piped potable water

References to earlier reports. Hurley, 1999 pages 27-28. Hurley, 2003 page 24. Hurley, 2004 page 25. Hurley, 2006 page 29. Hurley, 2007 page 26. Hurley, 2008 page 21. Hurley, 2009 page 16. Hurley, 2010 page 15. Hurley, 2011 page 17. Hurley, 2021 page 19. Hurley, 2022 page 20.

5.7.3 Protection regulations

References to earlier reports. Hurley, 2000 pages 32-33. Hurley, 2001 page 23. Hurley, 2004 page 26. Hurley, 2008 page 21. Hurley, 2010 page 15. Hurley, 2011 page 17.

5.8 The glacial legacy

References to earlier reports. Hurley, 1997 page 24. Hurley, 1999, page 29. Hurley, 2013 pages 22-23. Hurley, 2016 page 16. Hurley, 2017 page 15. Hurley, 2021 page 19. . Hurley, 2022 pages 21-22.

5.9 Climate and Weather

Reference to earlier report. Hurley, 2017 page 16.

This section gives climatological data (Section 5.9.1), has notes regarding on-going climate change (Section 5.9.2) and details some historical records of extremes of weather (Section 5.9.3). Coastal flooding is addressed elsewhere (Section 6.4.13).

5.9.1 Climatological data

References to earlier reports. Hurley, 1997 page 25. Hurley, 2000 page 35 (Section 5.9.2). Hurley, 2001 page 23. Hurley, 2002 pages 22-25. Hurley, 2003 pages 25-31. Hurley, 2004 pages 27-30. Hurley, 2005 pages 27-30. Hurley, 2006 pages 30-35. Hurley, 2007 pages 28-33. Hurley, 2008 pages 22-25. Hurley, 2009 pages 17-18. Hurley, 2010 page 16. Hurley, 2011 pages 18-19. Hurley, 2012 page 19. Hurley, 2013 pages 24-26. Hurley, 2014 page 18. Hurley, 2015 page 16. Hurley, 2016 page 17. Hurley, 2017 page 17. Hurley, 2018 page 16. Hurley, 2019 page 18. Hurley, 2021 page 20.

Update. Nationally, rainfall during December 2021 was above the long-term average (LTA). The weather station at Johnstown Castle had

- the highest above-average percentage of monthly rainfall (166% with a monthly rainfall total of 181.9mm),
- the highest daily rainfall total (58.9 mm on Christmas day, Saturday 25th),
- the highest daily fall for December on record for the south-east (length 80 years), and
- the highest number (six) of very wet days nationally.

(Source: <https://www.met.ie/climate-statement-for-december-2021>)

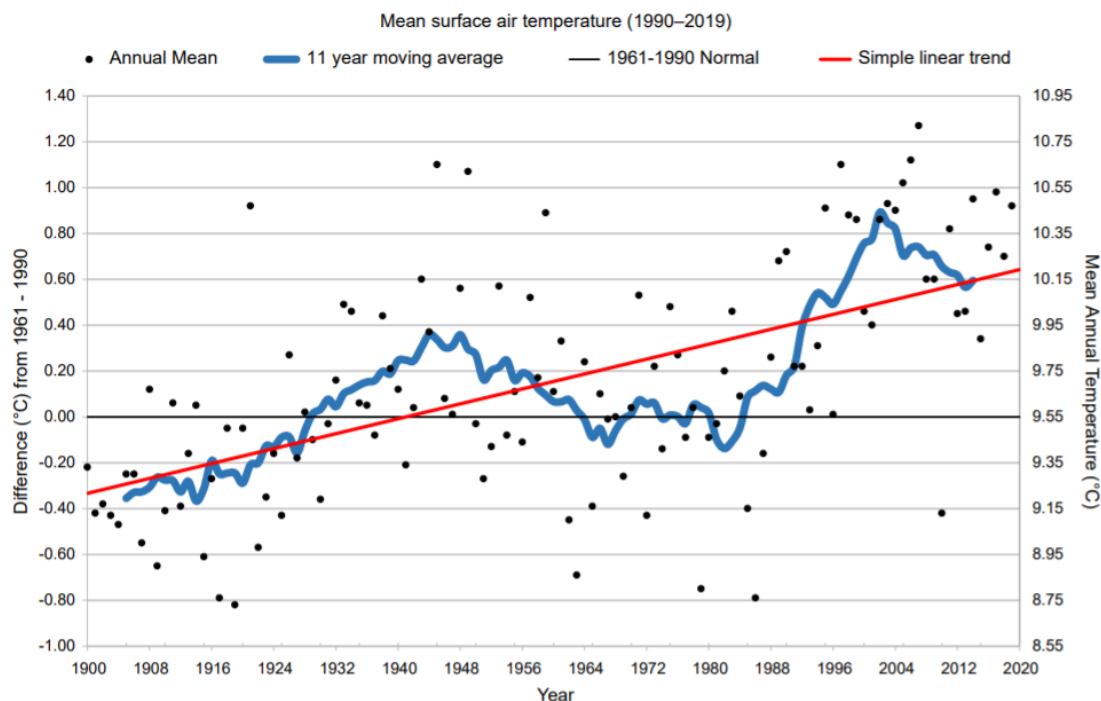
5.9.2 Climate change

References to earlier reports. Hurley, 1997 page 25 (last two paragraphs). Hurley, 1998 page 18. Hurley, 2000 pages 35-36. Hurley, 2001 page 24. Hurley, 2002 pages 26-27. Hurley, 2003 pages 32-33. Hurley, 2004 page 31. Hurley, 2005 page 31. Hurley, 2006 page 36. Hurley, 2007 page 34. Hurley, 2008 pages 26-27. Hurley 2009, pages 19-20. Hurley, 2010 pages 16-17. Hurley, 2011 page 19. Hurley, 2012 page 20. Hurley, 2013 page 26. Hurley, 2014 page 18. Hurley, 2015 page 17. Hurley, 2016 page 18. Hurley, 2018 page 17. Hurley, 2020 page 21. Hurley, 2021 pages 21-22. Hurley, 2022 page 23.

Updates

Main changes in Ireland. The main changes in Ireland as a result of climate change are

- temperatures have increased by 0.7°C in the last 118 years. Majority of that change, 0.4°C has occurred in the last 28 years.



- precipitation has increased substantially in autumn and winter, and
- sea levels have been rising at an average of 3mm per year from 1980-2010. This rate of sea level rise is projected to be maintained or increase further.

(Source: <https://biodiversityireland.ie/farmers-wildlife-calendar-2022/>)

Changes in Co Wexford. A change of just over 1°C in annual average temperature was recorded between 1950 and 2020 (Figure 3).

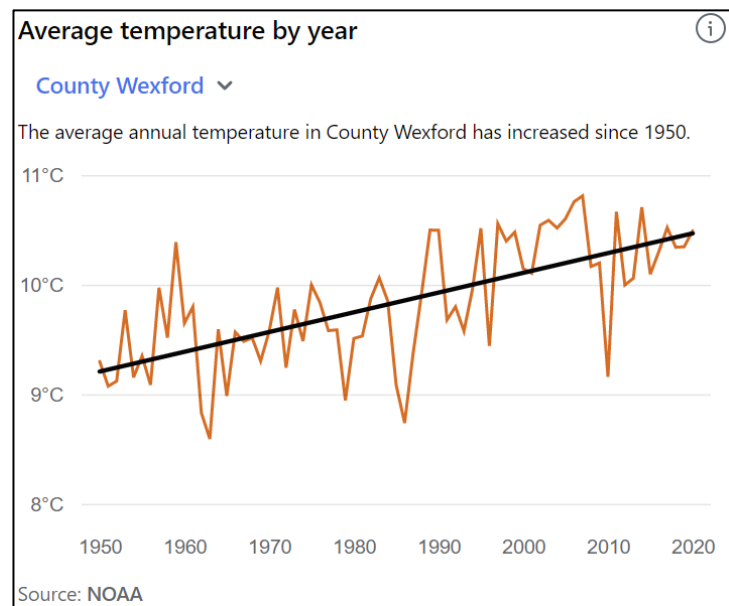


Figure 3. Change in average annual temperature.

(Source: <https://www.facebook.com/climatescienceinfo/>)

5.9.3 Extremes of weather

Reference to earlier report. Hurley, 2014 page 19. Hurley, 2022 page 24.

Updates

Wind event 1. A wind event described as a “*freak mini-tornado*” impacted on a house and farm shed at Killag, Duncormick, on Tuesday night 7 September 2022. Tillage farmer and agricultural contractor Nick White was awoken around midnight by a loud noise which he described as sounding like thunder. The extent of the damage to his property became evident the following morning when he went outside.

The wind had ripped out two side windows of the farm shed and bent the frame and steel trusses. A large skylight had been sucked from the roof leaving no debris inside. Nick White stated: “*The roof of the shed is bellied out about six inches and the main door of the shed was also warped inwards with the force of the suction from above. The purlins in the frame were bent upwards.*”

Wooden fertiliser pallets weighing an estimated 40-50kg each stacked against the far side of the shed were sucked up by the wind and thrown around. One was lifted over the agricultural building “*30ft high and 100ft long*” and over cars and jeeps parked in the yard, and broke slates when it landed on the roof of the dwelling house. Another was found 150m away in the show grounds across the adjoining public road.

The path of the wind was indicated by “*uprooted hawthorn trees and broken branches and bushes where it went through a side ditch in the show field into the next field.*” No damage was reported from anywhere else in the area (*Wexford People*, issue dated 14 September 2022, page 14 featuring two photographs).

Wind event 2. A wind event, described in the press as a mini tornado and a tornado, occurred shortly after midday on Wednesday 2 November 2022. It’s path was Little Cullenstown - Garryrichard - Longraigue - Clongeen - Ballycullane - Baliniry, Ramsgrange. Some 150 trees were felled, and several house roofs and chimneys suffered minor damage. Electricity and mobile phone services were disrupted. Cars and vans were lifted off the ground and dropped, sometimes some metres away. More

significant damage was caused to a smaller number of properties with sheds flattened, house windows sucked out or blown in, and roofs blown off. Helena Berney suffered a 22cm cut to crown of her head when she was struck by falling timber when the roof of Helena's Bakery in Longraigue was ripped off at 12.20pm. (*New Ross Standard*, issue dated 9 November 2022, pages 1, 8, 9, and 10; *Wexford People*, issue dated 9 November 2022, pages 1, 10, 11, and 12; and *New Ross Standard*, issue dated 16 November 2022, pages 10 and 69).

5.10 Coastal hydrography

5.10.1 Characteristics of the inshore waters

References to earlier reports. Hurley, 1997 page 27. Hurley, 2000 page 36. Hurley, 2001 pages 24-25. Hurley, 2004 page 32. Hurley, 2005 page 32. Hurley 2009, page 20. Hurley, 2010 page 17. Hurley, 2011 page 20. Hurley, 2012 pages 20-22. Hurley, 2014 page 19. Hurley, 2016 page 19. Hurley, 2017 page 18. Hurley, 2018 page 17. Hurley, 2019 page 19. Hurley, 2020 page 21. Hurley, 2021 pages 22-23. Hurley, 2022 page 24.

5.10.2 Marine climatology

References to earlier reports. Hurley, 2001 pages 25-26. Hurley, 2004 page 32. Hurley, 2016 page 19. Hurley, 2017 page 18.

5.11 The barrier

5.11.1 Overview

References to earlier reports. Hurley, 1997 pages 27-28. Hurley, 1998 page 18. Hurley, 2000 page 37. Hurley, 2013 page 27.

5.11.2 Structure of the barrier

References to earlier reports. Hurley, 1997 pages 28-29. Hurley, 1999 page 30. Hurley, 2000. Hurley, 2013 page 27.

5.11.3 Origin of the barrier

Reference to earlier report. Hurley, 1997 pages 29.

5.11.4 Transgressive nature of the barrier

References to earlier reports. Hurley, 1997 pages 29-30. Hurley, 1999 page 30. Hurley, 2007 page 36. Hurley, 2013 pages 28-29. Hurley, 2022 page 25.

5.11.5 Impacts of the barrier

References to earlier reports. Hurley, 1997 page 30. Hurley, 1998 page 18.

5.11.6 Coastal erosion and protection

References to earlier reports. Hurley, 2001 page 26. Hurley, 2002 page 29. Hurley, 2005 page 38. Hurley, 2007 page 37. Hurley 2008, pages 29-32. Hurley, 2009 pages 21-23. Hurley, 2010 page 18. Hurley, 2012 page 23. Hurley, 2013 page 30. Hurley, 2014 page 20. Hurley, 2015 pages 18-19. Hurley, 2017 page 19. Hurley, 2018 page 18. Hurley, 2020 page 22. Hurley, 2021 page 24. Hurley, 2022 page 26.

5.12 Geomorphology

This section describes the lagoon (Section 5.12.1), gives its probable origin (Section 5.12.2) and placename (Section 5.12.3), and lists its islands (Section 5.12.4) and associated wetlands (Section 5.12.5).

5.12.1 Description of the lagoon

References to earlier reports. Hurley, 1997 pages 30-31 (Section 5.12). Hurley, 1999 page 31 (Section 5.12) and pages 34-35 (Section 5.12.6). Hurley, 2000 page 41 (Section 5.12) and page 42 (Section 5.12.6). Hurley, 2001 pages 26-27. Hurley, 2003 page 35. Hurley, 2004 pages 34-35. Hurley, 2008 pages 32-34. Hurley, 2013 page 31.

5.12.2 Origin of the lagoon

References to earlier reports. Hurley, 1997 page 31. Hurley, 1999 pages 32-33.

5.12.3 Origin of the placename

References to earlier reports. Hurley, 1997 pages 31-32. Hurley, 1998 page 19. Hurley, 1999 page 34. Hurley, 2000 pages 41-42. Hurley, 2001 page 27. Hurley, 2005 page 34-35. Hurley, 2008 page 34.

5.12.4 Islands in the lagoon

References to earlier report. Hurley, 1997 pages 32-33 and page 34.

5.12.5 Associated wetlands

Reference to earlier report. Hurley, 1997 page 33.

5.13 Salinity

References to earlier reports. Hurley, 1997 pages 36-37. Hurley, 1998 page 19. Hurley, 1999 pages 36-37. Hurley, 2000 pages 42-43. Hurley, 2001 page 30. Hurley, 2005 pages 35-36. Hurley, 2013 pages 32.

5.14 Soils

References to earlier reports. Hurley, 1997 page 38. Hurley, 1999 page 38. Hurley, 2000 page 43. Hurley, 2001 pages 27-28. Hurley, 2002 page 30. Hurley, 2003 page 36. Hurley 2007, page 39. Hurley, 2011 page 22. Hurley, 2015 page 20.

5.15 Kingdom Algae

5.15.1 Introduction to the group

References to earlier reports. Hurley, 1999 page 118 (Section 11.16). Hurley, 2000 page 126. Hurley, 2003 page 36. Hurley, 2005 page 37. Hurley, 2011 page 22. Hurley, 2017 page 20. Hurley, 2020 page 23.

5.15.2 Algal blooms in the lagoon

References to earlier reports. Hurley, 1997 page 38. Hurley, 1999 pages 118-119. Hurley, 2003 page 37.

5.15.3 Algal blooms in the sea

References to earlier reports. Hurley, 1997 page 38. Hurley, 1999 page 40. Hurley, 2000 pages 44-45. Hurley, 2001 page 28. Hurley, 2002 page 31. Hurley, 2003 page 37. Hurley, 2005 page 38. Hurley, 2006 page 41. Hurley, 2007 page 40. Hurley, 2022 page 27.

5.15.4 Seaweeds

References to earlier reports. Hurley, 1997 page 39. Hurley, 2000 pages 45-46. Hurley, 2002 page 32. Hurley, 2003 page 37. Hurley, 2004 pages 37-38. Hurley, 2006 page 41. Hurley, 2007 page 41. Hurley, 2009 page 24. Hurley, 2015 page 21. Hurley, 2017 pages 21-22. Hurley, 2019 page 20.

Update. Wakame, say: wuh-ka-may, (*Undaria pinnatifida*), an invasive kelp native to the north-western basin of the Pacific Ocean, was recorded at Kilmore Quay in 2016 (Chan *et al.*, 2021).

5.16 Kingdom Fungi

References to earlier reports. Hurley, 1999 pages 40-41. Hurley, 2002 page 32. Hurley, 2003 page 37. Hurley, 2005 page 39. Hurley, 2006 page 41. Hurley, 2011 page 23. Hurley, 2021 page 25.

5.17 Lichens

References to earlier reports. Hurley, 1997 page 39. Hurley, 1999 page 40. Hurley 2000 page 46. Hurley, 2003 page 38. Hurley, 2005 page 40. Hurley, 2006 page 41. Hurley, 2009 page 25. Hurley, 2011 page 23.

5.18 Mosses and Liverworts Phylum Bryophyta

References to earlier reports. Hurley, 2000 page 46. Hurley, 2001 page 29. Hurley, 2002 page 33. Hurley, 2003 page 38. Hurley, 2005 page 40. Hurley, 2006 page 42. Hurley, 2007 page 42. Hurley, 2008 page 36. Hurley, 2011 page 23. Hurley, 2016 page 21. Hurley, 2019 page 20.

5.19 Ferns and their allies Phylum Pteridophyta

References to earlier reports. Hurley, 2003 page 38. Hurley, 2006 page 42.

5.20 Seed plants Phylum Spermatophyta

References to earlier reports. Hurley, 2003 pages 38-39. Hurley 2005, page 41. Hurley, 2006 page 43. Hurley, 2014 page 22. Hurley, 2015 page 21. Hurley, 2016 page 22. Hurley, 2017 page 23.

Sections follow regarding 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 5.20.3), rare plants (Section 5.20.4) and drift seeds (Section 5.20.5) are also addressed.

5.20.1 Surveys, censusing, etc.

References to earlier reports. Hurley, 1997 pages 39-40. Hurley, 2000 pages 46-49. Hurley, 2003 pages 39-40. Hurley, 2005 page 41. Hurley, 2006 page 43. Hurley, 2007 pages 43-44. Hurley, 2009 page 25. Hurley, 2010 page 20. Hurley, 2011 page 24. Hurley, 2012 page 25. Hurley, 2017 page 23. Hurley, 2018 pages 20-21. Hurley, 2019 page 21. Hurley, 2020 page 24. Hurley, 2022 page 28.

5.20.2 Vegetation types

References to earlier reports. Hurley, 2004 page 39. Hurley, 2007 page 44.

Vegetation in the study area at Lady's Island Lake may be classified into seven broad types (5.20.2.1 to 5.20.2.7).

5.20.2.1 Aquatic vegetation

References to earlier reports. Hurley, 1997 pages 40-41. Hurley, 1999 page 41. Hurley, 2000 page 49. Hurley, 2001 page 30.

5.20.2.2 Dune vegetation

Reference to earlier report. Hurley, 1997 pages 41-42.

5.20.2.3 Stony lake shore vegetation

References to earlier reports. Hurley, 1997 page 42. Hurley, 1999 page 42.

5.20.2.4 Muddy shore vegetation

Reference to earlier report. Hurley, 1997 page 42.

5.20.2.5 Marsh vegetation

Reference to earlier report. Hurley, 1997 pages 42-43.

5.20.2.6 Stream vegetation

Reference to earlier report. Hurley, 1997 page 43.

5.20.2.7 Farmland vegetation

Reference to earlier report. Hurley, 1997 page 43.

5.20.3 Impacts of water level on vegetation

References to earlier reports. Hurley, 1997 pages 43-44. Hurley, 1999 page 42.

5.20.4 Rare plants

References to earlier reports. Hurley, 1997 pages 44-49. Hurley, 1998 page 19. Hurley, 1999 page 43. Hurley, 2000 pages 50-52. Hurley, 2001 page 31. Hurley, 2002, page 35. Hurley, 2003 page 41. Hurley, 2004 page 41. Hurley, 2005 page 43. Hurley, 2006 page 45. Hurley, 2007 page 46. Hurley, 2008 page 38. Hurley, 2009 pages 26-27. Hurley, 2010 page 21. Hurley, 2012 page 26. Hurley, 2014 pages 23-24. Hurley, 2015 page 23.

5.20.5 Drift seeds

References to earlier reports. Hurley, 1997 page 49. Hurley, 1998 page 19. Hurley, 1999 pages 43-44. Hurley 2000 pages 53-54. Hurley, 2001 page 31.

5.21 Invertebrates in the lagoon

References to earlier reports. Hurley, 1997 page 50 (1st paragraph). Hurley, 1998 page 19. Hurley, 1999 page 44. Hurley, 2001 page 31. Hurley, 2005 page 44. Hurley, 2011 pages 25-26. Hurley, 2013 page 35. Hurley, 2014 page 25. Hurley, 2021 page 27.

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 taxonomic groups.

5.22 Invertebrates in the sea

References to earlier reports. Hurley, 1997 page 50 (2nd paragraph). Hurley, 2000 page 62. Hurley, 2001 page 31. Hurley, 2003 pages 42-43. Hurley, 2005 page 44. Hurley, 2006 page 46. Hurley, 2015 page 24. Hurley, 2018 page 22. Hurley, 2020 page 25.

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 taxonomic groups.

5.23 Jellyfishes Phylum Cnidaria

References to earlier reports. Hurley, 2000 pages 62-64. Hurley, 2002 page 36. Hurley, 2003 page 44. Hurley, 2004 pages 43-44. Hurley, 2005 pages 46-49. Hurley, 2006 page 47. Hurley, 2007 pages 48-49. Hurley, 2008 page 40. Hurley, 2010 page 22. Hurley, 2012 page 27. Hurley, 2014 page 25. Hurley, 2015 page 24. Hurley, 2016 page 23. Hurley, 2017 page 25. Hurley, 2018 page 23. Hurley, 2019 page 22. Hurley, 2020 page 26. Hurley, 2021 page 28.

5.24 Molluscs Phylum Mollusca

References to earlier reports. Hurley, 2000 pages 64-67. Hurley, 2001 page. Hurley, 2002 pages 36-37. Hurley, 2003 page 44. Hurley, 2004 pages 45-47. Hurley, 2005 page 49. Hurley, 2006 pages 47-48. Hurley, 2007 page 49. Hurley, 2008 page 40. Hurley, 2009 page 28. Hurley, 2010 page 22. Hurley, 2011 page 27. Hurley, 2012 page 28. Hurley, 2013 page 35. Hurley, 2014 page 26. Hurley, 2017 page 25. Hurley, 2022 page 29.

5.25 Arthropods Phylum Arthropoda

References to earlier reports. Hurley, 1999 page 44. Hurley, 2003 page 45.

The Irish fauna his phylum is representative of the following five major subphyla (DAHGI, 1999 pages 113-114): Water bears Tardigrada (41 species), Chelicerata (Section 5.26), Crustaceans Crustacea (see Sections 5.27-5.30), Myriapoda (38 species of Diplopods + 21 species of Chilopods) (Section 5.25.1) and Uniramia (Sections 5.31-5.34).

5.25.1 Millipedes and centipedes Subphylum myriapods

References to earlier reports. Hurley, 2012 pages 29-30. Hurley, 2013 page 36.

5.26 Spiders and their allies Class Arachnida

References to earlier reports. Hurley, 2000 page 67. Hurley, 2001 page 33. Hurley, 2002 page 38. Hurley, 2003 page 45. Hurley, 2005 page 50. Hurley, 2009 pages 29-31. Hurley, 2010 page 23. Hurley, 2020 page 26.

Updates

Spiders. The spider *Micaria micans* was confirmed a new Irish record. The species was identified in the 1980 Gibson collection from Carnsore Point and was confirmed to be still present at that site in 2020 (Nolan, 2021).

Harvestmen. A checklist for Ireland than can be searched by vice-county was published (Cawley, 2021).

5.27 Crustaceans Class Crustacea

References to earlier reports. Hurley, 1998 page 20. Hurley, 2001 page 33. Hurley, 2002 page 38. Hurley 2003, page 46. Hurley, 2005 page 51. Hurley, 2008 pages 41-42. Hurley, 2009 page 31. Hurley, 2012 page 31. Hurley, 2013 page 36. Hurley, 2014 page 26.

5.28 Barnacles Subclass Cirripedia

References to earlier reports. Hurley, 2000 page 62. Hurley, 2002 page 38. Hurley, 2003 page 46. Hurley, 2004, page 48. Hurley, 2007 page 51. Hurley, 2013 page 37. Hurley, 2015 page 24. Hurley, 2016 page 24. Hurley, 2017 page 26.

5.29 Isopods Order Isopoda

References to earlier reports. Hurley, 2000 page. Hurley, 2019 page 21.

5.30 Decapods Order Decapods

Reference to earlier report. Hurley, 2003 page 47.

The order is divided into swimming decapods Natantia (shrimps and prawns, Section 5.30.1) and walking decapods Reptantia (lobsters, Section 5.30.2, and crabs, Section 5.30.3).

5.30.1 Shrimps and prawns Natantia

Reference to earlier report. Hurley, 2003 page 47.

5.30.2 Lobsters Reptantia

References to earlier reports. Hurley, 1999 page 58. Hurley, 2000 page 61. Hurley, 2002 page 39. Hurley, 2003 pages 47-48. Hurley, 2004 page 49. Hurley, 2006 page. Hurley, 2008 page 43. Hurley, 2009 page 31. Hurley, 2011 page 28. Hurley, 2017 page 26.

5.30.3 Crabs Reptantia

References to earlier reports. Hurley, 2000 page 62. Hurley, 2005 page 52. Hurley, 2009 page 31. Hurley, 2010 page 23. Hurley, 2018 page 24. Hurley, 2019 page 21. Hurley, 2019 page 24.

5.31 Insects Class Insecta

References to earlier reports. Hurley, 2003 page 49. Hurley, 2011 pages 28-29. Hurley, 2012 page 32. Hurley, 2013 page 38. Hurley, 2014 page 27. Hurley, 2015 page 25. Hurley, 2016 page 25. Hurley, 2017 page 27. Hurley, 2018 page 25. Hurley, 2019 page 24. Hurley, 2020 page 27. Hurley, 2021 page 29.

This section contains notes regarding assorted Orders of insects in random order. Separate sections are devoted to three other orders: dragonflies and damselflies (Section 5.32), beetles (Section 5.33) and butterflies and moths (Section 5.34).

Update. An atlas of Irish caddisflies (Trichoptera) was published (O'Connor, 2021) together with new distributional data (O'Connor and O'Connor, 2021).

5.31.1 Mayflies Order Ephemeroptera

References to earlier reports. Hurley, 2001 page 34. Hurley, 2003 page 49. Hurley, 2013 page 38.

5.31.2 Grasshoppers and Crickets Order Orthoptera

References to earlier report. Hurley, 2004 page 49. Hurley, 2006 page. Hurley, 2008 page 44. Hurley, 2016 page 25.

5.31.3 Booklice Order Psocoptera

References to earlier reports. Hurley, 2001 page 34. Hurley, 2003 page 49.

5.31.4 True Flies Order Diptera

References to earlier reports. Hurley, 2001 page 34. Hurley, 2003 pages 49-50. Hurley, 2006 page 51. Hurley, 2007 page 53. Hurley, 2008 pages 44-45. Hurley, 2009 page 32. Hurley, 2013 page 39. Hurley, 2015 page 26. Hurley, 2016 page 26. Hurley, 2018 page 25. Hurley, 2019 page 25. Hurley, 2021 page 29. Hurley, 2022 page 31.

5.31.5 Bees, Ants and Wasps Order Hymenoptera

References to earlier reports. Hurley, 2001 page 34. Hurley, 2002 page 40. Hurley, 2003 page 50. Hurley, 2004 page 50. Hurley, 2005 pages 53-54. Hurley, 2006 page 51. Hurley, 2007 pages 53-54. Hurley, 2008 pages 45-46. Hurley, 2009 page 32. Hurley, 2010 page 24. Hurley, 2011 page 30. Hurley, 2012 page 33. Hurley, 2013 page 39. Hurley, 2015 page 26. Hurley, 2016 page 26-27. Hurley, 2018 pages 26-27. Hurley, 2019 page 25. Hurley, 2020 page 28.

Updates

Rare bees. The following note, received on 7 April 2022 via email, refers to insects recorded at Lady's Island Lake. *"Last year I discovered a couple of species on the banks of the lake which are not commonly recorded in Ireland. One is a Hylaeus solitary bee which was discussed on the link below, others include the Maritime Mason Wasp and Maritime Mason Bee*

https://twitter.com/JimTheBib/status/1406309476794351632?t=8x4_6Q2fxfBZAbB4sJb8g&s=19" (personal communication, Jimmy Goodwin).

Bee conservation. To protect the native Irish population of the European Dark Bee (*Apis mellifera mellifera*), a subspecies of the Western Honey Bee (*Apis mellifera*), Johnstown Castle was declared a bee conservation area during the second annual Wexford Honey Festival, held during September 2022. Irish Dark Bees are regarded the last surviving genetically pure population of the subspecies in northern Europe. The bees at Johnstown Castle are being managed in partnership with Teagasc and the Native Irish Honey Bee Society (*Wexford People*, issue dated 21 September 2022, page 33, and *New Ross Standard*, issue dated 21 September 2022, page 21. Nomenclature follows Wikipedia).

5.31.6 Springtails Order Collembola

Reference to earlier report. Hurley, 2006 page 52.

5.32 Dragonflies and damselflies Order Odonata

References to earlier reports. Hurley, 1999 pages 44-46 and Figure 13 on page 72. Hurley, 2000 pages 54-56. Hurley, 2001 pages 35-50. Hurley, 2002 pages 40-55. Hurley, 2003 pages 50-53. Hurley, 2004 pages 51-64. Hurley, 2005 pages 54-57. Hurley, 2006 pages 53-55. Hurley, 2007 pages 55-58. Hurley, 2008 page 46. Hurley, 2013 page 40. Hurley, 2014 page 28. Hurley, 2016 page 27. Hurley, 2020 page 29. Hurley, 2021 pages 30-31.

5.33 Beetles Order Coleoptera

References to earlier reports. Hurley, 1997 page 50 (4th paragraph). Hurley, 1999 pages 46-52. Hurley, 2001 page 51. Hurley, 2002 page 56. Hurley, 2003 page 54. Hurley, 2008 page 46. Hurley, 2009 page 33. Hurley 2010 pages 25-26. Hurley, 2011 page 31. Hurley, 2015 page 27. Hurley, 2016 page 28. Hurley, 2019 page 25. Hurley, 2020 page 29.

5.34 Butterflies and Moths Order Lepidoptera

References to earlier reports. Hurley, 2001 pages 51-53. Hurley, 2002 pages 56-59. Hurley, 2003 page 54. Hurley, 2004 page 65. Hurley, 2005 page 58. Hurley, 2006 page 56. Hurley, 2007 pages 59-61. Hurley, 2008 pages 46-48. Hurley, 2009 page 33. Hurley, 2010 pages 26-27. Hurley, 2011 page 31. Hurley, 2012 page 34. Hurley, 2013 pages 40-42. Hurley, 2014 page 29. Hurley, 2015 page 27. Hurley, 2017 page 28. Hurley, 2020 page 29. Hurley, 2021 page 32. Hurley, 2022 pages 32-33.

5.35 Fish Class Pisces

References to earlier reports. Hurley, 2005 page 59. Hurley, 2011 page 32. Hurley, 2012 page 34. Hurley, 2013 page 42. Hurley, 2014 page 29.

5.35.1 Surveys

References to earlier reports. Hurley, 1997 pages 51-52. Hurley, 2000 page 68. Hurley, 2003 page 55. Hurley, 2004 page 66. Hurley, 2005 page 59. Hurley, 2006 page 57. Hurley, 2007 pages 61-68. Hurley, 2009 page 33. Hurley, 2010 page 28. Hurley, 2011 page 32. Hurley, 2014 pages 29-30. Hurley, 2017 page 28. Hurley, 2018 page 28. Hurley, 2019 page 26. Hurley, 2022 page 34.

5.35.2 Angling

References to earlier reports. Hurley, 1997 page 50. Hurley, 1999 page 59. Hurley, 2000 pages 68-69. Hurley, 2001 page 54. Hurley, 2002 page 60. Hurley, 2003 pages 55-56. Hurley, 2004 pages 66-68. Hurley, 2005 page 60. Hurley, 2006 page 57. Hurley 2007, page 68. Hurley 2008, page 49. Hurley, 2009 page 34. Hurley, 2010 page 28. Hurley, 2011 page 33. Hurley, 2012 page 34. Hurley, 2013 page 43. Hurley, 2014 page 30. Hurley, 2016 page 28. Hurley, 2017 pages 29-30. Hurley, 2018 page 28. Hurley, 2019 page 27. Hurley, 2020 page 30.

Update. Returning after an enforced COVID-19 absence, the Rosslare Small Boats Festival celebrated its 35th anniversary in Kilmore Quay during early September 2022 with 90 Irish and UK anglers competing in 31 boats. Over 40 species of fish were recorded. Fish identified by Inland Fisheries Ireland including a Pacific Saury (*Cololabis saira*) (image below) and a Butterfly Blenny (*Blennius ocellaris*) (image right). The catches were returned to the sea unharmed (*Wexford People*, issue dated 21 September 2022, page 30 and *New Ross Standard*, issue dated 21 September 2022, page 24; Images from Wikipedia).



5.35.3 Basking Shark

References to earlier reports. Hurley, 1997 page 53. Hurley, 1998 page 20. Hurley, 1999 page 59. Hurley, 2000 page 70. Hurley, 2001 page 54. Hurley, 2002 pages 60-61. Hurley, 2003 page 57. Hurley, 2009 page 34. Hurley, 2012 page 35. Hurley, 2017 page 30. Hurley, 2021 page 33. Hurley, 2022 page 34.

Updates

Opportunistic records

- On Thursday 24 March 2022, a member of the public, Charlie O'Malley from Achill Island, observed a congregation of Basking Sharks six-to-eight miles southwest of Hook Head. He estimated that 100-150 sharks were present with many over 20ft in length (Source: <https://www.afloat.ie/marine-environment/marine-wildlife/item/54024-more-than-100-basking-sharks-spotted-off-hook-head-as-2022-season-starts-with-a-bang>).
- On Wednesday 30 March 2022, a commercial fisher, photographed four Basking Sharks at 52.1125, -6.9300 feeding at the surface off Hook Head (Source: IWDG Sightings Record #39978)

Protected status. With legal effect from Monday 3 October 2022 the Basking Shark was given the status of a 'protected wild animal' via the *Wildlife Act 1976 (Protection of Wild Animals) Regulations 2022* made under Section 23(2)(a) of the Wildlife Act 1976. Irish waters constitute one of the most internationally important coastal regions for the species (<https://www.gov.ie/ga/preasraitis/51bf2-ministers-noonan-and-mcconalogue-announce-that-the-basking-shark-has-been-given-the-status-of-protected-wild-animal-under-the-wildlife-act/>).

5.35.4 Unusual species

References to earlier reports. Hurley, 1997 page 53. Hurley, 2000 page 69. Hurley, 2001 pages 54-55. Hurley, 2002 page 61. Hurley, 2004 pages 68-69. Hurley, 2006 page 58. Hurley, 2008 page 50. Hurley, 2009 page 34. Hurley, 2011 page 33. Hurley, 2012 page 35. Hurley, 2017 page 30. Hurley, 2021 page 33.



Update

On 25 November 2022 a dead shark was noted at S962031 on the tideline at the bottom of the steps leading to Forlorn Point, Kilmore Quay. The fresh remains were reported to be “*about four foot long*” (personal communication of information and image, Conor Crosbie).

5.35.5 Commercial fishing

References to earlier reports. Hurley, 2000 page 70. Hurley, 2001 pages 55-56. Hurley, 2002 pages 61-62. Hurley, 2003 page 57. Hurley, 2004 page 69. Hurley, 2005 page 61. Hurley, 2006 page 59. Hurley, 2007 page 70. Hurley, 2008 page 50. Hurley, 2009 page 35. Hurley, 2010 page 29. Hurley, 2011 page 33. Hurley, 2012 page 35. Hurley, 2014 page 31. Hurley, 2015 page 28. Hurley, 2018 page 29. Hurley, 2019 page 28. Hurley, 2020 page 31. Hurley, 2021 page 34. Hurley, 2022 page 35.

5.36 Amphibians Class Amphibia

References to earlier reports. Hurley, 2000 pages 70-71. Hurley, 2003 page 58. Hurley, 2004 page 70. Hurley, 2006 page 59. Hurley, 2007 page 70. Hurley, 2009 page 36. Hurley, 2010 page 29. Hurley, 2012 pages 35-36. Hurley, 2013 pages 43-46. Hurley, 2014 page 32. Hurley, 2015 page 28. Hurley, 2017 page 30. Hurley, 2022 page 36.

Update. Opportunistic record

- **Update.** On 8 January 2022, Jim Hurley noted a dead female Common Frog very swollen with spawn at S958045 on the hind-dune grass path at Ballyteige Burrow.



5.37 Reptiles Class Reptilia

References to earlier reports. Hurley, 2000 pages 71-75. Hurley, 2001 page 57. Hurley 2002, pages 62-63. Hurley, 2003 page 58. Hurley, 2004 page 71. Hurley, 2005 page 62. Hurley, 2006 page 59. Hurley, 2007 page 71. Hurley, 2008 page 50. Hurley, 2009 page 36. Hurley, 2010 page 29. Hurley, 2011 page 33. Hurley, 2012 page 36. Hurley, 2013 page 46. Hurley, 2014 page 33. Hurley, 2015 pages 28-29. Hurley, 2016 page 29. Hurley, 2017 page 31. Hurley, 2020 page 31.

5.38 Birds Class Aves

References to earlier reports. Hurley, 2003 page 59. Hurley, 2005 page 63. Hurley, 2010 page 30. Hurley, 2015 page 30. Hurley, 2019 page 29. Hurley, 2022 pages 36-37.

Update. The 2022 report regarding the ‘State of the World’s Birds’ published by BirdLife International advised that 63% of Ireland’s species are in decline. The assessment is conducted every four years (*The Irish Times*, issue dated 29 September 2022, page 4).

5.39 Wetland birds

References to earlier reports. Hurley, 2011 page 34. Hurley, 2013 page 47.

5.39.1 Definition

References to earlier reports. Hurley, 1997 page 53. Hurley, 2005 page 63.

5.39.2 Movements

References to earlier reports. Hurley, 1997 page 54. Hurley, 2000 page 75. Hurley, 2005 pages 63-64. Hurley, 2022 page 38.

Update.

The base station installed at the Cull Bank for recording signals of movements of tagged Curlews at Inish and Ballyteige Slob as part of the ECHOES project is featured (Figure 4).



Figure 4. Cull Bank base station for recording Curlew movements.

(Photo: Jim Hurley)

5.39.3 Protection

References to earlier reports. Hurley, 1997 page 54. Hurley, 2000 pages 57-58.

5.39.4 Feeding

References to earlier reports. Hurley, 1997 pages 54-56. Hurley, 2006 page 60. Hurley, 2012 page 36. Hurley, 2013 page 47.

5.39.5 Breeding

References to earlier reports. Hurley, 1997 pages 56-58. Hurley, 2000 page 78. Hurley, 2002 page 67. Hurley, 2005 page 65.

5.39.6 Disturbance

References to earlier reports. Hurley, 1997 page 58. Hurley, 2017 page 33.

5.39.7 Conservation

References to earlier reports. Hurley, 1997 page 58. Hurley, 2004 pages 76-77. Hurley, 2007 page 73. Hurley, 2008 pages 52-56. Hurley, 2018 page 30. Hurley, 2019 page 30.

5.39.8 I-WeBS results

References to earlier reports. Hurley, 2006 pages 61-62. Hurley, 2008 page 57. Hurley, 2009 page 37. Hurley, 2011 page 35. Hurley, 2013 page 48. Hurley, 2018 page 31. Hurley, 2020 page 33.

Update. On 3 April 2022, BirdWatch Ireland (BWI) published its report to the National Parks and Wildlife Service (NPWS) titled '*I-WeBS Trends Report 1994/95-2019/20*' (Kennedy *et al.*, 2022). The report detailed the trends of species nationally and at various sites based on the data gathered in the seasons 1994/95 through 2019/20. Sites and species were only included in the reports if sufficient high-quality count data had been gathered. All four I-WeBS sites on the South Wexford Coast were included: Bannow Bay (Site code 00405), The Cull & Killag (Ballyteige) (00406), Tacumshin Lake (00010), and Lady's Island Lake (00402).

5.40 Seabirds

References to earlier reports. Hurley, 2003 pages 64-65. Hurley, 2004 page 78. Hurley, 2005 pages 66-70. Hurley, 2006 pages 63-64. Hurley, 2009 pages 37-38. Hurley, 2011 pages 36-37. Hurley, 2013 page 48. Hurley, 2015 page 31.

Hurley, 2016 page 31. Hurley, 2017 page 34. Hurley, 2018 page 31. Hurley, 2019 page 30. Hurley, 2020 page 34. Hurley, 2021 page 35. Hurley, 2022 page 39.

Updates

Puffins. *The Irish Times*, issue dated 20 June 2022, featured the following picture on its front page of a Puffin on Saltee Island Great, allegedly “grooming” a Rabbit.



Manx Shearwater. A news item in the issue of the *Irish Examiner* dated Friday 12 August 2022 reported that researchers at University College Cork found that climate change could negatively impact seabird populations by making the sea murkier making prey more difficult to detect. The finding was reported in a paper published in July (Darby *et al*, 2022). Jamie Darby and his team fitted trackers to 36 Manx Shearwaters on Saltee Island Little to measure their dives. He subsequently logged 5,472 dives, made by the birds during 79 foraging trips, and correlated the results with "*factors affecting underwater visibility, including water turbidity, cloud cover and solar angle*". It was found that high solar angles, clear waters and low cloud-cover all lead to greater maximum dive depths. Consequently, murky waters appear to impair a diving bird's ability to hunt (<https://www.irishexaminer.com/lifestyle/outdoors/arid-40935572.html>).

Bird flu. In early September 2022, a large number, allegedly "*hundreds*", of dead and dying Gannets were reported from beaches and private properties both nationally (RTÉ News) and in Co Wexford (*Wexford People*, issue dated 14 September 2022, page 20 and *New Ross Standard*, issue dated 14 September 2022, page 20). Jim Hurley got reports of a daily peak of nine dead or dying birds, all Gannets, between Kilmore Quay and the White Hole on Thursday 8 September.

5.40.1 Terns Sub-family Sterninae

5.40.1.1 Breeding

References to earlier reports. Note: The tables and charts that follow are updated each year. Therefore, since each updated version of the tables and charts supersedes all previous versions, only the versions given in the current report are relevant. The following references contain updates other than those relevant to the tables and charts: Hurley, 1997 pages 59-66. Hurley, 1998 pages 22-24. Hurley, 1999 page 62. Hurley, 2003 page 65. Hurley, 2004 page 78. Hurley, 2005 page 71. Hurley, 2006 page 66-69. Hurley, 2008 pages 58-62. Hurley, 2009 pages 38-42. Hurley, 2010 pages 31-36. Hurley, 2011 pages 38-44. Hurley, 2012 pages 37-43. Hurley, 2013 pages 49-55. Hurley, 2014 pages 34-40. Hurley, 2015 pages 32-37. Hurley, 2016 pages 32-37. Hurley, 2017 pages 36-41. Hurley, 2018 pages 32-37. Hurley, 2019 pages 31-36. Hurley, 2020 pages 35-42. Hurley, 2021 pages 36-43. Hurley, 2022 pages 41-47.

Update. Two new tern wardens, Edward Stubbings and Birgitta Büche, took up duty at Lady's Island Lake on 1 April and manned the site to 16 August 2022. A report on the season's work (Stubbings *et al.*, 2022) was produced in mid-December 2022. The Lady's Island Lake Tern Conservation Project is managed by the National Parks and Wildlife Service (NPWS) and, from 2022, was delivered by BirdWatch Ireland (BWI). 2022 was reported as "*generally a good breeding season for gulls and terns at Lady's Island Lake with no severe weather or predation events and, importantly, no Highly Pathogenic Avian Influenza (HPAI) recorded at the site*" (*ibid*, page 3). Numbers are tabulated and charted below.

2022 data. Tables and charts are updated below.

Year	All four	ST	C/AT	CT only	AT only	RT
1978	734	354	160	NC	NC	220
1979	710	204	220	NC	NC	286
1980	524	106	274	NC	NC	144
1981	917	350	291	NC	NC	276
1982	235	120	105	NC	NC	10
1983	8	4	3	NC	NC	1
1984	256	191	30	NC	NC	35
1985	294	291	3	NC	NC	0
1986	555	524	31	NC	NC	0
1987	932	708	216	NC	NC	8
1988	615	412	195	NC	NC	8
1989	1843	1317	450	NC	NC	76
1990	1869	1395	414	NC	NC	60
1991	1889	1469	360	NC	NC	60
1992	1734	1129	529	NC	NC	76
1993	1706	1254	376	NC	NC	76
1994	2142	1447	555	NC	NC	140
1995	1593	1130	401	NC	NC	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	NC	NC	>78
2001	1552	1068	484	298 (62%)	186 (38%)	46
2002	1474	825	649	400 (62%)	249 (38%)	95
2003	>1329	1252	NC	NC	NC	77
2004	1900	1161	673	311 (46%)	362 (54%)	66
2005	1899	1122	703	NC	NC	74
2006	2134	1309	732	NC	NC	93
2007	2722	1800	833	NC	NC	89
2008	2994	1945	940	NC	NC	109
2009	3243	1958	1160	NC	NC	125
2010	3068	1838	1112	NC	NC	118
2011	3443	1931	1357	NC	NC	155
2012	3416	1692	1506	968 (64%)	530 (35%)	126
2013	3129	1669	1310	705 (54%)	605 (46%)	150
2014	3450	1617	1659	881 (53%)	778 (47%)	174
2015	3813	1799	1799	950 (53%)	849 (47%)	215
2016	3747	1682	1856	1012 (53%)	844 (53%)	209
2017	3583	1674	1690	1010 (60%)	680 (40%)	219
2018	3616	1780	1609	916 (57%)	693 (43%)	227
2019	3540	1739	1606	1088 (68%)	518 (32%)	195
2020	4890	1659	1479	1044 (71%)	435 (29%)	273
2021	3476	1629	1557	832 (53%)	725 (47%)	290
2022	3876	1736	1827	1112 (61%)	715 (39%)	313
Year	All four	ST	C/AT	CT only	AT only	RT

Table 1. Number of pairs of nesting terns by species by year since 1978.

(Sources: Data sources tabulated below; Table 2)

Note: ST = Sandwich Tern; CT = Common Tern; AT = Arctic Tern; RT = Roseate Tern; NC = no count.

For the 2022 breeding season, the totals given are for Apparently Occupied Nests (AONs) rather than the numbers of pairs of breeding birds.

Data sources by season:

Season	Data sources
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.
2007	Daly <i>et al.</i> , 2008
2008	Daly <i>et al.</i> , 2009
2009	Daly <i>et al.</i> , 2010
2010	Daly <i>et al.</i> , 2011
2011	Daly <i>et al.</i> , 2011b
2012	Daly <i>et al.</i> , 2012
2013	Daly <i>et al.</i> , 2013
2014	Daly <i>et al.</i> , 2014
2015	Daly <i>et al.</i> , 2015
2016	Daly <i>et al.</i> , 2016
2017	Daly <i>et al.</i> , 2017
2018	Daly <i>et al.</i> , 2018
2019	Daly <i>et al.</i> , 2019
2020	Daly <i>et al.</i> , 2020
2021	Daly <i>et al.</i> , 2021
2022	Stubbings <i>et al.</i> , 2022

Table 2. Data sources by season.

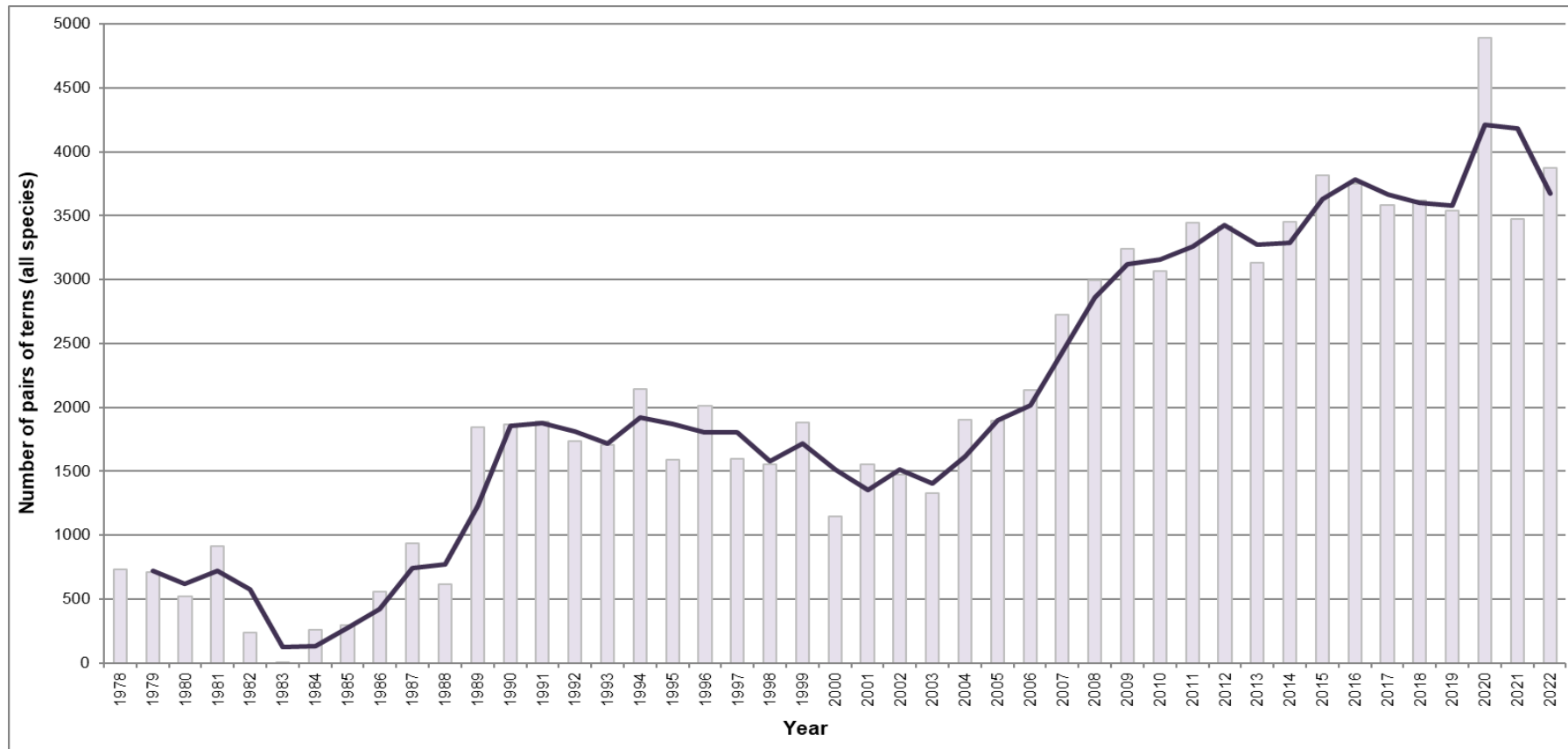


Figure 5: Trend for numbers of pairs of all nesting terns since 1978.

(Source: Table 1 above)

Note: Numbers are for Lady's Island Lake, that is, combined totals for the islands of Inish and Sgarbheen. The continuous line is a trendline, a plot of the 3-year moving average. The purpose of the trendline is to smooth out annual fluctuations and thus indicate the general direction in which usage of the site by pairs of nesting terns changed 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 maintained throughout the 1990s at or about that level. Numbers declined briefly in the early 2000s but started to rise again by mid-decade, rose steeply and peaked at 4890 in 2020.

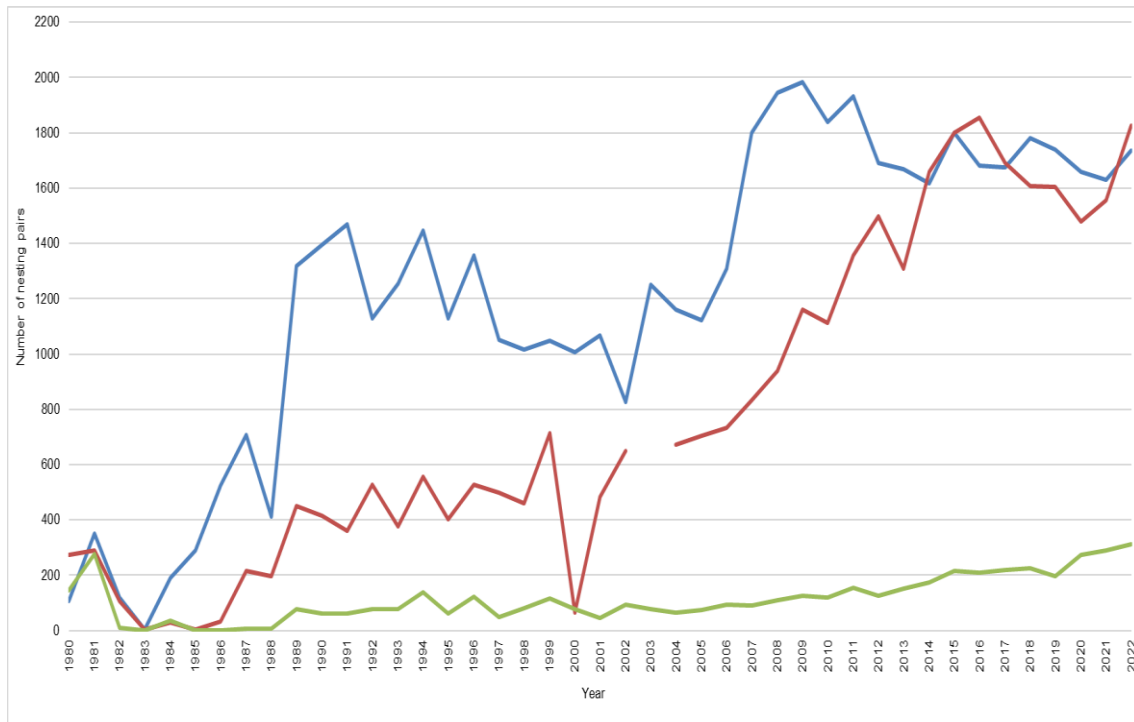


Figure 6: Number of pairs of nesting terns by species by year.

(Source: Table 1 above)

Note. The upper blue line represents Sandwich Terns. The central red line represents Common/Arctic Terns, and the lower green line represents Roseate Terns.

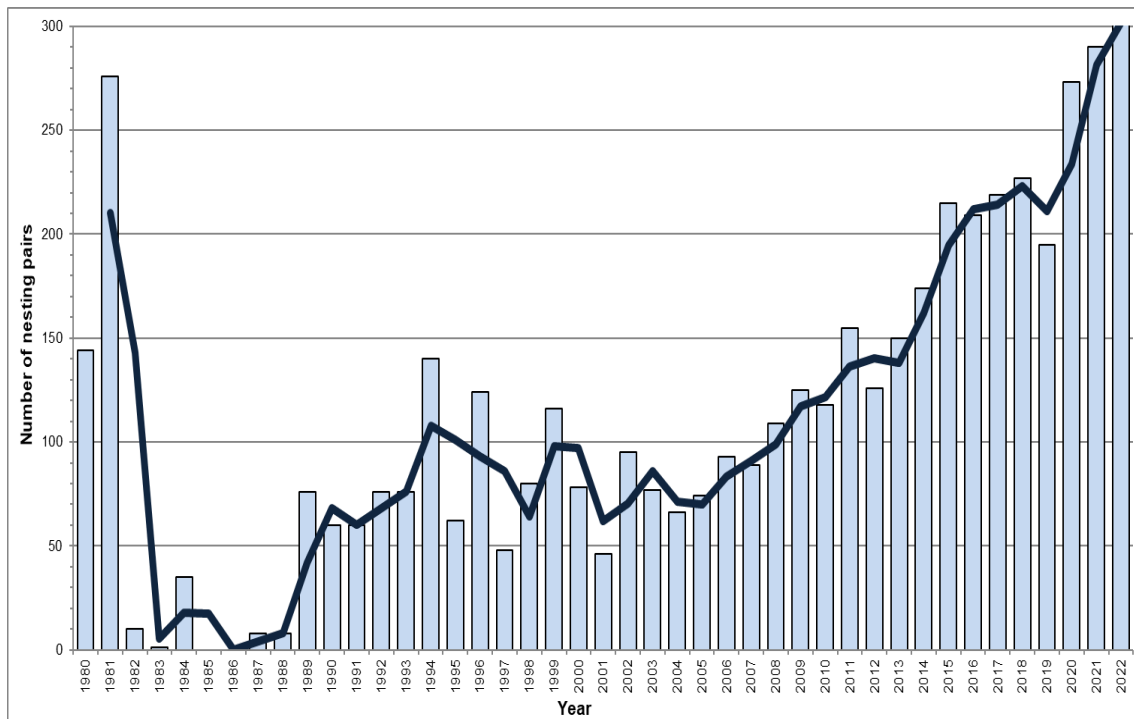


Figure 7: Number of pairs of nesting Roseate Terns by year.

(Source: Table 1 above)

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
2007	14 May				
2008	19 May				
2009	14 May				
2010	13 May				
2011	9 May				
2012	13 May		13 May – 19 June		
2013	27 May		27 May – 29 June		
2014	20 May		20 May – 24 June		
2015	14 May		14 May – 16 June		
2016	14 May		14 May – 16 June		
2017	8 May		8 May – 10 June		
2018	19 May		19 May – 21 June		
2019	13 May		13 May – 15 June		
2020	11 May		11 May – 13 June		
2021	7 May		7 May – 9 June		
2022					

Table 3. Egg-laying parameters of Roseate Terns nests.

(Sources: Table 2 above)

Year	ST	CT/AT	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
2007	1.35	2.32			1.72
2008	No data	1.91			1.34
2009	No data	2.30			1.68
2010	No data	No data			1.65
2011	1.63	2.32			1.70
2012	1.31	Not applicable	2.37	1.81	1.55
2013	1.26	Not applicable	2.46	1.80	1.53
2014	1.36	Not applicable	2.53	1.94	1.68
2015	1.27	Not applicable	2.38	1.78	1.47
2016	1.36	Not applicable	2.36	1.79	1.43
2017	1.58	Not applicable	2.54	1.90	1.37
2018	1.38	Not applicable	2.33	1.95	1.46
2019	1.43	Not applicable	2.49	1.89	1.67
2020	1.34	Not applicable	2.71	1.97	1.78
2021	1.48	Not applicable	2.32	2.00	1.61
2022	1.52		2.67	2.11	1.73
Year	ST	CT/AT	CT	AT	RT

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

Table 4. Mean clutch size for breeding terns since 1993.

(Sources: Table 2 above)

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. "66 nests, 118 eggs, 17 cold eggs, 101 chicks, 19 dead chicks, clutch size 1.79, success rate 69.5%" (Daly <i>et al.</i> , 2008 page 37)
2005	1.48	Daly and Carroll, 2005. "74 nests, 131 eggs, 6 cold eggs, 125 chicks, 19 dead chicks, clutch size 1.77, success rate 80.9%" (Daly <i>et al.</i> , 2008 page 37)
2006	1.52	"... hatching success rate of 88.7% per egg laying pair" (Daly and Carroll, 2006). "93 nests, 142 eggs, 13 cold eggs, 129 chicks, 3 dead chicks, clutch size 1.52, success rate 88.7%" (Daly <i>et al.</i> , 2008 page 37)
2007	1.72	"89 nests, 153 eggs, 13 cold eggs, 140 chicks, 33 dead chicks, clutch size 1.72, success rate 76.42%" (Daly <i>et al.</i> , 2008 page 37)
2008		"... hatching success was 81.5%. Twenty-three chicks died prior to fledging (19.3%) and the overall productivity was 0.88 chicks per egg-laying pair." (Daly <i>et al.</i> , 2009 page 31).
2009	0.73	"... hatching success was 72%. An unprecedented 62 chicks died prior to fledging (40.5% mainly due to depredation by rats) ... 18 eggs also disappeared 16 from boxes, one from a tyre and one from open vegetation." (Daly <i>et al.</i> , 2010).
2010	1.54	"A total of 195 eggs were laid in 118 nests, giving a mean clutch size of 1.65. Of these 191 were laid in boxes, 4 in open vegetation. There were 9 cold eggs and 1 missing. 11 chicks were found dead with a further 4 (un-ringed) missing without trace. Of the 182 eggs to hatch, 111 were 'A' chicks (first to hatch) and 71 were 'B' chicks (second to hatch). Overall productivity was 1.54 chicks per egg-laying pair with a fledging success rate of 1.45." (Daly <i>et al.</i> , 2011 page 41).
2011	1.30	"A total of 155 breeding pairs of Roseate Terns were recorded on the southern end of Inish in 2011, an increase of 37 pairs (31%). The first eggs were recorded on the 9th May (4 days earlier than 2010 and the first chick hatched on the 3rd June. Mean clutch size was 1.7 and hatching success was 86.5%. 25 chicks died prior to fledging and overall productivity was 1.3 chicks per egg-laying pair." (Daly <i>et al.</i> , 2011b page 43).
2012	1.55	Daly <i>et al.</i> , 2012 pages 28-30.
2013	1.53	"... hatching success of 83%." (Daly <i>et al.</i> , 2013 page 20).
2014	1.46	Hatching success "87/88%" (Daly <i>et al.</i> , 2014 page 19). Note: the productivity of 1.46 = 87% of the clutch size of 1.67 eggs.
2015	1.47	"The mean clutch size was 1.47 per egg laying pair, with a hatching success of 91%." (Daly <i>et al.</i> , 2015 page 19).
2016	1.43	"The mean clutch size was 1.43 per egg laying pair, with a hatching success of 85%." (Daly <i>et al.</i> , 2016 page 20).
2017	1.57	"The mean clutch size was 1.57 per egg laying pair, with a hatching success of 90%." (Daly <i>et al.</i> , 2017 page 26).
2018	0.98	"hatching success 77.34%" (Daly <i>et al.</i> , 2018 pages 8 and 27).
2019	1.20	"hatching success of 90%" (Daly <i>et al.</i> , 2019 pages 5 and 23).
2020	1.78	"hatching success of 88.5%" (Daly <i>et al.</i> , 2020 pages 5, 23 and 24).
2021	1.61	"hatching success of 90%" (Daly <i>et al.</i> , 2021 pages 5 and 27).
2022	1.36	Details are given on pages 27-29 (Stubbings <i>et al.</i> , 2022)

Table 5. 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. Hurley, 1998 page 22. Hurley 1999 page 62.

5.40.1.3 Conservation

References to earlier reports. Hurley, 1997 pages 63-64. Hurley, 1998 page 22. Hurley, 1999 page 62. Hurley, 2000 pages 79-80. Hurley, 2001 pages 67-71. Hurley, 2002 pages 73-74. Hurley, 2003 page 70. Hurley, 2004 pages 83-84. Hurley, 2005 pages 76-77. Hurley, 2008 page 63. Hurley, 2009 page 43. Hurley, 2010 page 36. Hurley, 2011 page 44. Hurley, 2012 page 44. Hurley, 2016 page 38. Hurley, 2018 page 37. Hurley, 2019 page 37. Hurley, 2021 page 44.

5.40.1.4 Movements

References to earlier reports. Hurley 1998 page 23 e). Hurley 1999 page 62. Hurley 2000 page 79. Hurley, 2001 page 70. Hurley, 2002 page 74. Hurley, 2012 page 45. Hurley, 2019 page 38. Hurley, 2020 page 43. Hurley, 2021 page 44.

5.41 Other birds

References to earlier reports. Hurley, 2004 pages 85-86. Hurley, 2008 page 63. Hurley, 2015 page 38. Hurley, 2022 page 48.

Update. “An adult Elegant Tern was located in the Sandwich Tern colony at Lady's Island Lake, Co Wexford, from 3rd [of July 2022]. The species enjoys a long history in the country, with six previous records dating back some 40 years. It isn't even the first for Lady's Island Lake – it is preceded by an adult in July 1999.”

(<https://www.birdguides.com/articles/review-of-the-week-4-10-july-2022/>)

5.41.1 Records

References to earlier reports. Hurley, 1997 page 53. Hurley, 2000 page 82. Hurley, 2002 page 75. Hurley, 2003 page 71. Hurley, 2004 page 87. Hurley, 2005 page 78. Hurley, 2006 page 71. Hurley, 2009 page 43. Hurley, 2010 page 37. Hurley, 2011 page 45. Hurley, 2012 page 45.

5.41.2 Case Studies

References to earlier reports. Hurley, 1999 pages 68-69. Hurley, 2003 page 71. Hurley, 2008 page 64. Hurley, 2010, pages 37-38.

5.41.3 Ring recoveries

References to earlier reports. Hurley, 2001 page 71. Hurley, 2012 page 45. Hurley, 2013 page 45. Hurley, 2016 page 38. Hurley, 2017 page 42. Hurley, 2021 pages 45-47.

5.42 Mammals Class Mammalia

References to earlier reports. Hurley, 2001 page 71. Hurley, 2012 page 46. Hurley, 2017 page 42. Hurley, 2018 page 38. Hurley, 2019 page 39.

5.42.1 Insectivores Order Insectivora

References to earlier reports. Hurley, 2000 page 87. Hurley, 2001 page 72. Hurley, 2002 page 76. Hurley, 2003 page 72. Hurley, 2005 page 79-80. Hurley, 2006 page 72. Hurley, 2007 page 81. Hurley, 2008 page 65. Hurley, 2009 page 44. Hurley, 2010 page 38. Hurley, 2013 page 57. Hurley, 2014 page 41. Hurley, 2015 page 38. Hurley, 2016 page 39. Hurley, 2017 page 42. Hurley, 2019 page 39. Hurley, 2020 page 43. Hurley, 2021 page 48. Hurley, 2022 page 49.

Update. Opportunistic records.

Hedgehog

- One squashed, roadkill individual noted by Jim Hurley at S989065 (Sarshill, Kilmore) on 5 April 2022.
- Another squashed, roadkill individual noted by Jim Hurley at S981059 (Grange, Kilmore) on 12 May 2022.
- Another squashed, roadkill individual noted by Jim Hurley at S731109 (Ramsgrange) on 3 June 2022.
- Another squashed, roadkill individual noted by Jim Hurley at S978047 (Libgate, Kilmore Quay) on 8 August 2022.

Pygmy Shrew

5.42.2 Bats Order Chiroptera

References to earlier reports. Hurley, 1999 pages 71-77. Hurley, 2000 pages 84-85. Hurley, 2001 page 72. Hurley, 2003 page 72. Hurley, 2004 pages 88-90. Hurley, 2005 page 80. Hurley, 2006 page 73. Hurley, 2007 page 81. Hurley, 2008 page 65. Hurley, 2009 page 44. Hurley, 2010 pages 38-39. Hurley, 2011 page 46. Hurley, 2012 pages 46-52. Hurley, 2013 pages 57-58. Hurley, 2014 pages 42-44. Hurley, 2015 pages 39-48. Hurley, 2016 page 39. Hurley, 2017 page 43. Hurley, 2019 page 39. Hurley, 2021 page 48.

5.42.3 Hares and Rabbits Order Lagomorpha

References to earlier reports. Hurley, 2000 page 88. Hurley, 2001 page 72. Hurley, 2002 page 76. Hurley, 2003 page 73. Hurley, 2004 page 90. Hurley, 2005 page 80. Hurley, 2006 page 74. Hurley, 2007 page 82. Hurley, 2008 pages 65-66. Hurley, 2009 page 45. Hurley, 2010 page 39. Hurley, 2011 page 46. Hurley, 2012 page 52. Hurley, 2013 page 58.

Hurley, 2014 page 45. Hurley, 2015 page 48. Hurley, 2017 page 43. Hurley, 2020 page 44. Hurley, 2021 page 49. Hurley, 2022 page 49.

Updates

Opportunistic records

Irish Hare

- On 9 May 2022, Jim Hurley saw an adult Irish Hare running on the road at S978060, Grange, Kilmore.

Rabbit

- On 7 May 2022, Jim Hurley saw an adult Rabbit in a field at S990114, Moor, Mulrankin.

Illegal hunting. In autumn 2022, Gardaí, the National Parks and Wildlife Service and Wexford County Council, announced a joint crackdown on illegal hare hunting. The operation targeted groups of men with lurchers. With a team of 13 people, the operation was launched at Kilmore Quay and involved *“a series of intelligence led patrols at a number of locations around the south Wexford coast”* (Wexford People, issue dated 2 November 2022, page 6).

5.42.4 Rodents Order Rodentia

References to earlier reports. Hurley, 2000 pages 85-86. Hurley, 2004 page 90. Hurley, 2005 page 81. Hurley, 2006 page 74. Hurley, 2007 page 82. Hurley, 2008 page 66. Hurley, 2009 pages 45-46. Hurley, 2010 pages 40-41. Hurley, 2012 page 52. Hurley, 2013 page 59. Hurley, 2014 page 45. Hurley, 2015 page 49. Hurley, 2017 page 43. Hurley, 2020 page 44. Hurley, 2021 page 49. Hurley, 2022 page 49.

5.42.5 Cetaceans Order Cetacea

References to earlier reports. Hurley, 1997 page 67. Hurley, 1998 page 27. Hurley, 1999 page 70. Hurley, 2001 pages 72-79. Hurley, 2002 pages 76-78. Hurley, 2003 pages 73-79. Hurley, 2004 pages 91-98. Hurley, 2005 pages 81-86. Hurley, 2006 pages 75-77. Hurley, 2007 page 83. Hurley, 2008 pages 66-69. Hurley, 2009 pages 46-48. Hurley, 2010 pages 41-42. Hurley, 2011 pages 47-48. Hurley, 2012 pages 53-54. Hurley, 2013 pages 59-61. Hurley, 2014 page 46. Hurley, 2015 page 50. Hurley, 2016 pages 40-42. Hurley, 2017 pages 44-45. Hurley, 2018 pages 40-42. Hurley, 2019 pages 41-44. Hurley, 2020 pages 45-47. Hurley, 2021 pages 50-55. Hurley, 2022 pages 50-54.

Updates

IWDG records. Records from the Irish Whale and Dolphin Group (IWDG) for 2019 and 2020 were published (O'Connell *et al.*, 2021a and 2021b respectively).

Strandings during 2022

The IWDG online browser at <https://iwdg.ie/browsers/strandings.php> was checked each week and the following recorded strandings were noted.

Stranding No 1.

Record ID: #6713
Observer: Monica Hayes
Event Date: 17/03/2022
Location: Blackhall; 52.214, -6.754
Species: Common Dolphin or Striped Dolphin
Photo: Monica Hayes
IWDG Ref.: <https://iwdg.ie/browsers/showdetails.php?t=st&id=6713>.



Stranding No 2.

Record ID: #6756
Observers: Monica Hayes, Vanessa Tebbitt, Brian O'Connor and Jim Hurley
Event Date: 10 March 2022
Location: Cullenstown Strand
Reported location: 52.215, -6.720 S874079
Species: Common Dolphin
Photos: **Above:** Jim Hurley; 15 May, 2022; remains 1.36m long, species confirmed by grooves in the roof of the upper mandible; lower mandible hanging off; possibly male but gender indeterminate due to damage to the genital area.
Below: Monica Hayes; 10 May 2022; note the indentation on the lower jaw suggesting possible net damage from bycatch.



IWDG ref:

<https://iwdg.ie/browsers/showdetails.php?t=st&id=6756><https://iwdg.ie/browsers/showdetails.php?t=st&id=6126>.

Sightings during 2022

The IWDG online browser at <https://iwdg.ie/browsers/sightings.php> was checked each week and the following recorded strandings were noted.

Date	Sp	No	Location	Record	Recorder	Notes
12/01	HP	1	Carnsore Point	#39695	Brian Glanville	80 min effort watch
12/01	HP	2	Carnsore Point	#39696	Brian Glanville	
14/01	D?	1	Kilmore Quay	#39693	Sarah Martin	
16/01	CD	15	Off Hook Head	#39710	Deirdre Slevin	From vessel
23/01	CD	8	Carnsore Point	#39733	Ronan Berrow	From vessel; 360 minute duration
09/02	FW	1	Ballyteige Bay	#39796	Mark Bates	From vessel; well offshore: 52.083, -6.764
09/02	CD	30	Ballyteige Bay	#39796	Mark Bates	
30/03	CD	20	Off Hook Head	#39977	Mark Bates	East side of Hook Head; 15 adults + 5 juveniles + 1 calf
24/04	D	12	Off Hook Head	#40211	Patricia Kirk	10 adults + 2 calves
05/05	D	8	Carnivan Bay	#40406	Killian Kirwan	6 adults + 1 juvenile' possibly Bottlenose
29/07	MW	1	Carnivan Bay	#41227	Dara Totterdell	
12/09	HP	1	Rostonstown	#41800	Kate Moore	
12/09	HP	3	Slade	#41807	Tony Nolan	2 adults + 1 calf
26/12	Lw	4	Carnivan Bay	#42275	Tristan Kleyn	Possibly Fin Whales

Table 6. Cetacean sightings on the South Wexford Coast, 2022.

(Source: <https://iwdg.ie/browsers/sightings.php>)

CD	Common Dolphin.	FW	Fin Whale.	MW	Minke Whale
D	dolphin.	HP	Harbour Porpoise.		
D?	possible dolphin.	Lw	Large whale species.		

5.42.6 Carnivores Order Carnivora

5.42.6.1 Red Fox *Vulpes vulpes*

References to earlier reports. Hurley, 2000 page 89. Hurley, 2002 page 78. Hurley, 2003 page 79. Hurley, 2004 page 98. Hurley, 2005 page 87. Hurley, 2008 page 70. Hurley, 2011 page 48. Hurley, 2013 page 61. Hurley, 2014 page 46. Hurley, 2015 page 50. Hurley, 2017 page 45. Hurley, 2019 page 44. Hurley, 2020 page 47. Hurley, 2022 page 55.

Update. Opportunistic record

- On 3 June 2022, Jim Hurley saw a dead Fox, presumably a road kill, on the road at S944096, Rathangan, Duncormick.

5.42.6.2 Pine Marten *Martes martes*

References to earlier reports. Hurley, 2000 page 89. Hurley, 2009 page 49. Hurley, 2014 page 46. Hurley, 2017 page 46. Hurley, 2018 page 43. Hurley, 2019 page 44. Hurley, 2020 page 47.

Update. Opportunistic record.

- On 5 April 2022, a dark brown animal “with a bushy tail” was seen crossing the road at S987128 (Ballycappoge, Bridgetown) from the forestry plantation (personal communication, Michael Barry).

5.42.6.3 Irish Stoat *Mustela erminea*

References to earlier reports. Hurley, 2000 page 90. Hurley, 2003 page 79. Hurley, 2005 page 87. Hurley, 2006 page 78. Hurley, 2007 page 84. Hurley, 2008 page 70. Hurley, 2009 page 49. Hurley, 2010 page 43. Hurley, 2011 page 49. Hurley, 2012 page 55. Hurley, 2014 page 47. Hurley, 2017 page 46.

5.42.6.4 American Mink *Neovison vison*

References to earlier reports. Hurley, 1997 page 67. Hurley, 1999 page 71. Hurley, 2000 pages 83-84. Hurley 2007, page 84. Hurley, 2010 page 43. Hurley, 2012 page 55. Hurley, 2013 page 62. Hurley, 2014 page 47. Hurley, 2015 page 51. Hurley, 2017 page 46. Hurley, 2019 page 45.

Update. Opportunistic record.

- On 1 April 2022, a dead animal, possibly a juvenile and probably a roadkill, was seen on the road at S967059 (Inish and Ballyteige Slob) and its remains were examined (personal communication, Michael Barry).

5.42.6.5 Badger *Meles meles*

References to earlier reports. Hurley, 2000 page 91. Hurley, 2002 pages 78-79. Hurley, 2004 page 98. Hurley, 2005 page 88. Hurley, 2006 page 78. Hurley, 2007 page 85. Hurley, 2008 page 70. Hurley, 2010 page 44. Hurley, 2011 page 49. Hurley, 2012 page 55. Hurley, 2013 page 62. Hurley, 2014 page 47. Hurley, 2018 page 43. Hurley, 2019 page 45. Hurley, 2021 page 56. Hurley, 2022 page 55.

Update. Opportunistic record.

- On 5 May 2022, Jim Hurley noted a recent Badger road kill on the verge at S770109, Battlestown, Ramsgrange.
- On 10 October 2022, Jim Hurley noted a recent Badger road kill on the verge at T007080, Gallagher, Kilmore.

5.42.6.6 European Otter *Lutra lutra*

References to earlier reports. Hurley, 1997 pages 66-67. Hurley, 1999 page 69. Hurley, 2000 page 83. Hurley, 2001 page 79. Hurley, 2002 page 79. Hurley, 2004 page 98. Hurley, 2005 page 88. Hurley, 2007 page 85. Hurley, 2008 page 71. Hurley, 2009 page 49. Hurley, 2011 page 49. Hurley, 2012 page 56. Hurley, 2013 page 62. Hurley, 2014 page 47. Hurley, 2015 page 51. Hurley, 2016 page 43. Hurley, 2017 page 46. Hurley, 2018 page 43. Hurley, 2019 page 45. Hurley, 2020 page 48. Hurley, 2021 page 56. Hurley, 2022 page 55.

5.42.6.7 Other carnivores

References to earlier reports. Hurley, 2002 page 79. Hurley, 2018 page 44.

5.42.7 Seals Order Pinnipedia

References to earlier reports. Hurley, 1997 page 67. Hurley, 1998 page 27. Hurley, 1999 pages 69-70. Hurley, 2001 pages 79-80. Hurley, 2002 pages 79-83. Hurley, 2003 page 80. Hurley, 2004 page 99. Hurley, 2005 page 89. Hurley, 2006 page 97. Hurley, 2007 pages 86-89. Hurley, 2008 pages 71-73. Hurley, 2009 page 49. Hurley, 2010 page 44. Hurley, 2011 page 49. Hurley, 2012 page 56. Hurley, 2013 page 63. Hurley, 2014 page 48. Hurley, 2015 page 51. Hurley, 2017 page 47. Hurley, 2018 page 44. Hurley, 2019 page 46. Hurley, 2020 page 48. Hurley, 2021 page 57.

5.42.8 Deer and goats Order Artiodactyla

References to earlier reports. Hurley, 2009 pages 49-50. Hurley, 2012 page 56. Hurley, 2016 page 43. Hurley, 2022 page 56.

Update. Opportunistic record



Update. Screen snip from a video clip posted on social media showing two deer wading through the water at Lady's Island Lake near Rostonstown on 17 March 2022. A large stand of Sea-buckthorn is visible on Rostonstown Burrow in the background as a dark, linear smudge.

6 NATURE CONSERVATION

6.1 Introduction

References to earlier reports. Hurley, 1997 page 68. Hurley, 1999 page 78. Hurley, 2000 page 92. Hurley, 2003 page 81. Hurley, 2007 page 90. Hurley, 2008 page 74. Hurley, 2011 page 50. Hurley, 2013 page 63. Hurley, 2017 page 48. Hurley, 2018 pages 45-46. Hurley, 2019 pages 46-47. Hurley, 2020 page 49. Hurley, 2021 page 58. Hurley, 2022 pages 56-57.

Updates

NPWS review. On 28 January 2022, it was reported that the strategic action plan for overhaul of the National Parks and Wildlife Service (NPWS) was to go to Cabinet “*in coming weeks*” with the intention to implement the plan “*in the lifetime of this Government*”. A consultants’ report by Prof Jane Stout of Trinity College Dublin, and consultant Dr Micheál Ó Cinnéide, was highly critical of how the service operated. (*The Irish Times*, issue dated 28 January 2022, page 4).

In May 2022, Minister Darragh O'Brien and Minister of State Malcolm Noonan, announced a major overhaul of the NPWS. Following government approval, a Strategic Action Plan was published for completion by 2024, an additional €55 million was to be invested in renewing the NPWS across three budgetary cycles, currently vacant posts were to be filled, and 60 staff for critically important roles were to be recruited at an early date (source: <https://www.gov.ie/en/publication/fbb81-national-parks-and-wildlife-service-strategic-action-plan-and-review>).

Local biodiversity actions. On 22 September 2022, government funding for Local Authorities was announced to conduct biodiversity projects through the 2022 Local Biodiversity Action Fund. Wexford County Council qualified for the following five projects:

- a Barn Owl survey of the county (€10,727),
- IAS removal at St John’s graveyard (€4,245),
- a GIS compatible wetland database for the county (€17,251),
- dune restoration at Morriscastle, Ballinesker, Rosslare, and Booley Bay (€19,720 23), and
- dune works at Morriscastle Beach (€15,000).

(Source: government press release at <https://www.gov.ie/en/publication/396f9-local-biodiversity-action-fund-projects-funded-sept-2022/>)

6.2 Intergovernmental Conventions and Treaties

6.2.1 The Ramsar Convention, 1971

References to earlier reports. Hurley, 1997 pages 68-69. Hurley, 1998 page 27. Hurley, 1999 page 78. Hurley, 2000 pages 92-93. Hurley, 2001 page 81. Hurley, 2003 pages 81-82. Hurley, 2005 pages 90-91. Hurley, 2006 pages 80-81. Hurley, 2013 page 63. Hurley, 2016 pages 44-45. Hurley, 2017 pages 49-50. Hurley, 2018 page 46. Hurley, 2021 page 58.

6.2.2 The CITES Convention, 1973

References to earlier reports. Hurley, 2000 page 95. Hurley, 2001 page 81. Hurley, 2003 page 82. Hurley, 2007 page 91.

6.2.3 The Bonn Convention, 1979

References to earlier reports. Hurley, 1997 page 69. Hurley, 1998 pages 27-28. Hurley, 1999 page 78. Hurley, 2001 pages 81-82. Hurley, 2004 page 101.

6.2.4 The Bern Convention, 1979

References to earlier reports. Hurley, 1997 page 69. Hurley, 1998 page 27. Hurley, 2000 page 93. Hurley, 2001 page 82. Hurley, 2002 page 85. Hurley, 2003 pages 82-83. Hurley, 2005 page 92.

6.2.5 The Biodiversity Convention, 1992

References to earlier reports. Hurley, 1997 page 70. Hurley, 1998 pages 28-29. Hurley, 1999 pages 78-79. Hurley, 2000 pages 93-94 and page 102. Hurley, 2001 page 82. Hurley, 2002 pages 85-87. Hurley, 2003 pages 83-84. Hurley, 2004 page 102. Hurley, 2005 page 92. Hurley, 2006 page 82. Hurley, 2007 page 92. Hurley, 2008 page 75. Hurley, 2009 pages 51-53. Hurley, 2010, page 45. Hurley, 2011 page 51. Hurley, 2012 pages 58-60. Hurley, 2013 page 64. Hurley, 2014 page 49. Hurley, 2015 page 52. Hurley, 2016 page 46. Hurley, 2017 page 51. Hurley, 2018 page 47. Hurley, 2019 page 47. Hurley, 2020 pages 50-53. Hurley, 2021 page 59.

6.2.6 The Climate Change Convention, 1992

References to earlier reports. Hurley, 1998 page 29. Hurley, 1999 page 80. Hurley, 2000 page 94. Hurley, 2001 pages 81-82. Hurley, 2002 page 87. Hurley 2003 page 84. Hurley, 2012 page 60. Hurley, 2020 page 53.

6.2.7 The OSPAR Convention, 1992

References to earlier reports. Hurley, 1998 page 29. Hurley, 1999 page 80. Hurley, 2000 page 95. Hurley, 2001 page 83. Hurley, 2007 page 93. Hurley, 2011 page 52.

6.2.8 The Access to Information Convention, 1998

References to earlier reports. Hurley, 1999 page 80. Hurley, 2012 page 61. Hurley, 2013 page 65. Hurley, 2016 page 46.

6.2.9 The Regulation of Whaling Convention, 1946

Reference to earlier report. Hurley, 2001 page 83.

6.2.10 The Pan-European Strategy, 1995

References to earlier reports. Hurley, 2001 page 83. Hurley, 2003 page 85.

6.2.11 The European Landscape Convention, 2000

References to earlier reports. Hurley, 2002 page 88. Hurley, 2003 page 85.

6.2.12 The London Convention, 1972

Reference to earlier report. Hurley, 2004 page 103.

6.2.13 The MARPOL Convention, 1973 and 1978

Reference to earlier report. Hurley, 2004 pages 103-104.

6.2.14 The World Heritage Convention, 1972

Reference to earlier report. Hurley, 2012 page 61.

6.3 Identifying important areas and species

Reference to earlier report. Hurley, 2017 page 52.

6.3.1 Important Bird Areas (IBAs)

References to earlier reports. Hurley, 1997 pages 70-71. Hurley, 1998 page 29. Hurley, 1999 page 80. Hurley, 2000 pages 95-96. Hurley, 2001 pages 83-84. Hurley, 2007 pages 94-96. Hurley, 2010 page 46. Hurley 2011, page 52. Hurley, 2013 page 66. Hurley, 2016 page 47. Hurley, 2017 page 53. Hurley, 2018 page 48. Hurley, 2019 page 49.

6.3.2 Important habitat types

References to earlier reports. Hurley, 1997 page 71. Hurley, 2000 page 96. Hurley, 2001 page 84. Hurley, 2006 pages 84-86. Hurley, 2007 page 96. Hurley, 2008 pages 77-78. Hurley, 2009 page 53. Hurley, 2010 page 46. Hurley, 2011 page 53.

6.3.3 Important marine areas

References to earlier reports. Hurley, 1997 page 71. Hurley, 1998 page 29. Hurley, 1999 page 81. Hurley, 2000 page 97. Hurley, 2001 page 84. Hurley, 2002 pages 89-90. Hurley, 2006 page 86. Hurley, 2007 pages 96-99. Hurley, 2008 page 78. Hurley, 2009 page 54. Hurley, 2010 page 46. Hurley, 2013 page 67. Hurley, 2019 page 49.

6.3.4 Areas of Scientific Interest (ASIs)

Reference to earlier report. Hurley, 2010 pages 47-51.

6.3.5 Natural Heritage Areas (NHAs)

References to earlier reports. Hurley, 2010 pages 52-56. Hurley, 2013 pages 68-69. Hurley, 2014 pages 51-52. Hurley, 2016 page 48.

6.3.5.1 NPWS: Ecosystems, habitats, and species.

6.3.5.2 GSI: Geological and geomorphological

Reference to earlier report. Hurley, 2017 pages 54-58.

6.3.6 Areas of landscape importance

References to earlier reports. Hurley, 1997 page 73. Hurley, 1998 page 30. Hurley, 1999 page 86. Hurley, 2000 page 97. Hurley, 2001 pages 85-86. Hurley, 2002 page 91. Hurley, 2003 page 87. Hurley, 2007 page 101. Hurley, 2009 page 54. Hurley, 2012 page 62. Hurley, 2013 page 70. Hurley, 2016 page 49. Hurley, 2018 pages 55-60. Hurley, 2020 pages 55-60. Hurley, 2021 page 61.

6.3.7 Red lists

References to earlier reports. Hurley, 2001 page 87. Hurley, 2003 pages 87-88. Hurley, 2012 page 62. Hurley, 2013 page 70. Hurley, 2017 page 58. Hurley, 2018 page 49. Hurley, 2020 page 61. Hurley, 2021 page 61.

6.3.8 High Nature Value (HNV) areas

Reference to earlier report. Hurley, 2018 page 50.

6.4 Implementing EU Directives

6.4.1 Introduction

References to earlier reports. Hurley, 2000 pages 97-98. Hurley, 2001 page 88. Hurley, 2002 page 92. Hurley, 2003 pages 88-89. Hurley, 2006 page 88.

6.4.2 The Birds Directive, 1979

References to earlier reports. Hurley, 1997 page 74. Hurley, 1998 page 30. Hurley, 1999 pages 86-87. Hurley, 2000 pages 98 and 100. Hurley, 2001 pages 88-90. Hurley, 2002 page 93. Hurley, 2003 pages 89-92. Hurley, 2004 page 107. Hurley, 2005 page 98. Hurley, 2006 pages 89-95. Hurley, 2007 page 103. Hurley, 2008, page 80. Hurley, 2009 page 55. Hurley, 2010 pages 56-57. Hurley, 2011 pages 54-55. Hurley, 2013 page 71. Hurley, 2014 page 53. Hurley, 2015 page 54-56. Hurley, 2016 page 49. Hurley, 2018 page 50. Hurley, 2019 pages 46-47. Hurley, 2020 page 62. Hurley, 2021 page 62. Hurley, 2022 page 60.

Updates

Keeragh Islands 1. On 9 February 2022, it was reported that the replica of the Helen Blake lifeboat was “*due to be launched this autumn and will bring passengers out near the Keeragh Islands from May 2023*”. The news report also stated that “*A guide will be on board relaying the story of heroism, bravery and tragedy, while the 90 minute trip to the edge of the island – some 7k from the dock at Fethard – takes place.*” and “*We can’t land on the island so passengers will spend time going around the island where a cross has been erected in memory of the people on the Helen Blake.*” See www.thehelenblake.com for further information. (*New Ross Standard*, issue dated 9 February 2022, page 8).

Saltee Islands. On 12 May 2022, a cruise ship similar to the *National Geographic Orion* was anchored in Ballyteige Bay. Local sources claimed that the passengers on board were brought birdwatching at the Saltee Islands.



Keeragh Islands 2. In mid-July, during an exceptionally dry spell of weather, a fire broke out on the Big Keeragh. It was believed locally that it was probably started accidentally by visiting kayakers. The dense turf continued to smoulder to early August. On 5 August, Mick Berry was fishing in the area in a kayak. He landed on the island and reported that a sea breeze was causing blazes to flare up in places, that the ground was hot to walk on, that grass was badly damaged, that the Mallows appeared to be relatively unaffected, and that most of the Cormorants were on the smaller island. On Tuesday 9 August he visited again and shot a 55-second video (MOV file IMG_3581, 115MB) that showed extensive burned areas and smouldering vegetation around the house ruin. On Thursday 11 August, Liam Ryan phoned to report two large plumes of smoke visible from Fethard rising from the Big Keeragh, a square bale fire in a field at Grange started by children, and a combine harvester that went on fire at Churchtown, Hook Head with the fire spreading to both the surrounding field and the bordering hedgerow. Mick Berry reported that the fires on the Big Keeragh were still burning on 14 August. All three events referred to by Liam Ryan were reported in the local press (*Wexford People*, issue dated 17 August 2022, page 10; and *New Ross Standard*, issue dated 17 August 2022, page 15).

Bannow Bay. Roches Campervan and Campsite, an unauthorised development adjoining Bannow Bay, continued to trade despite a warning letter from Wexford County Council regarding compliance with planning regularisations. On 3 November 2022, an application was lodged (PA Reg Ref: 20221465) for planning permission to regularise the situation and to operate a campsite.

6.4.3 The Habitats Directive, 1992

References to earlier reports. Hurley, 1997 pages 74-75. Hurley, 1998 page 30. Hurley, 1999 pages 87-89. Hurley, 2000 pages 98-101. Hurley, 2001 pages 91-92. Hurley, 2002 pages 94-98. Hurley 2003 pages 93- 96. Hurley, 2004 page 108. Hurley, 2005 pages 98-103. Hurley, 2006 pages 96-97. Hurley, 2007 pages 104-107. Hurley, 2008 pages 81-84. Hurley, 2009 pages 56-60. Hurley, 2010 pages 57-65. Hurley, 2011 pages 55-58. Hurley, 2012 pages 63-72. Hurley, 2013 page 72. Hurley, 2014 pages 53-59. Hurley, 2015 pages 57-58. Hurley, 2016 pages 50-52. Hurley, 2017 pages 59-81. Hurley, 2018 pages 50-56. Hurley, 2019 pages 46-47 and 51-57. Hurley, 2020 page 63-67. Hurley, 2021 pages 63-66. Hurley, 2022 pages 61-64.

Updates

Bannow Bay 1. The success of the Tintern Trails woodland walks was celebrated at the launching of a new 38-space car park at Tintern Abbey (*Wexford People*, issue dated 25 May 2022, page 17).

Seabed habitats. Broad benthic habitat types on the South Wexford Coast are mapped by the Marine Institute (Figure 8).

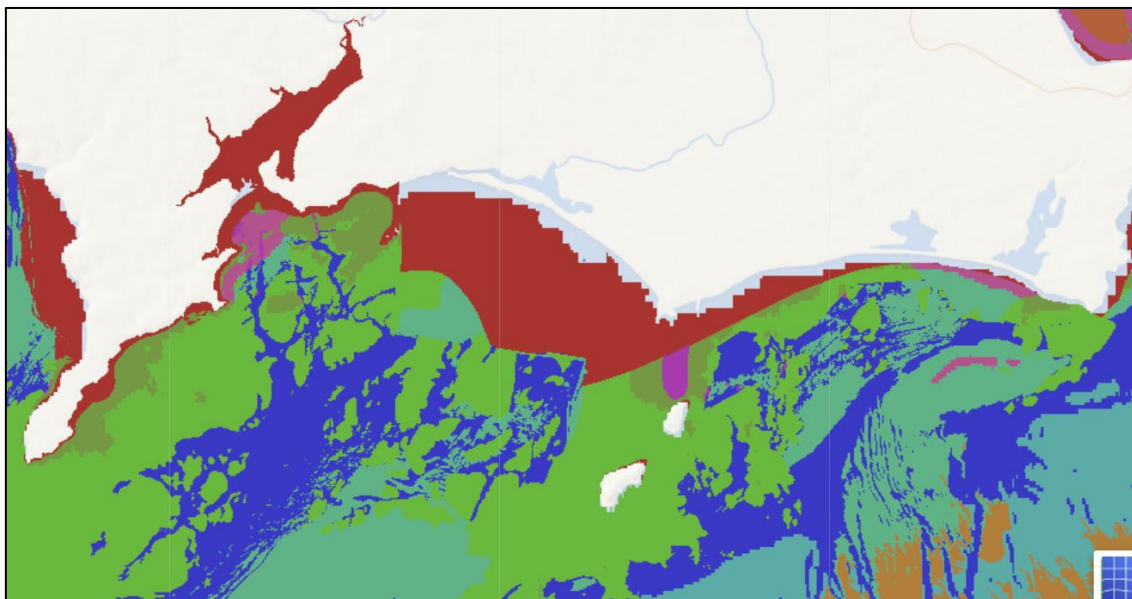


Figure 8. Broad benthic habitat types on the South Wexford Coast.

(Source and legend: <https://atlas.marine.ie/> / Themes / Biodiversity / Benthic Habitats / Broad Benthic Habitat Type)

Fethard Harbour. On 26 September 2022, An Bord Pleanála rejected an application by Jim Hurley regarding reducing the size of a proposed slipway in the Hook Head SAC (<https://www.pleanala.ie/en-ie/case/313521>) and decided not to direct Wexford County Council to prepare an EIAR.

Rural development. On a visit to Wexford on 6 October 2022, Minister Heather Humphreys launched rural development projects worth over €6 million including the following projects at Bannow Bay and Lady's Island Lake.

- Funding of €199,800 approved under the 2021 Outdoor Recreation Infrastructure Scheme Measure 2 for the 11 km blueway amenity in Bannow Bay / Corock River. When complete, The “*Little Sea – Bannow Bay Estuary Blueway Project*” seeks to “provide safe access and facilities for water sports while also connecting three locations: Little Sea / Bannow Estuary, Wellingtonbridge village and Foulksmills village”.
- “*Our Lady's Island to Carne Trail: The project involves the construction of a walking trail from Our Lady's Island over farm land and around the perimeter of the lake to connect with the Carne Road. The route then returns back to Our Lady's Island providing a roadside path and a looped trail of over 1.5km. The project includes a 300m roadside path to the sports ground.*”

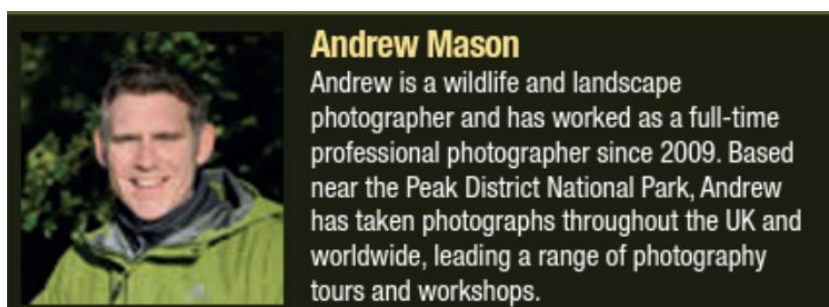
(Source: <https://www.gov.ie/en/press-release/4f82d-our-rural-future-minister-humphreys-officially-opens-rural-projects-worth-over-6-million-during-visit-to-wexford/>).

Hook Head. During the last week of October 2022, the Dutch company Baggerbedrijf De Boer BV / Dutch Dredging began work on maintenance dredging in the Port of Waterford. The trailing hopper dredger *Amazon* (pictured left) removed accumulations of sediment from both Duncannon Bar and Cheekpoint Lower Bar, and berthing at Belview. With a 2771m³ hopper capacity, the dredger disposed of the sediment at an approved site south west of Hook Head. The campaign, which lasted approximately 28 days, was followed by bed levelling works by the vessel Fastnet Sound, a 21m Multicat operated by a local firm Fastnet Shipping (<https://www.dredgingtoday.com/2022/10/18/waterford-dredging-campaign-set-for-late-october/> and <https://www.afloat.ie/marine-environment/coastal-notes/dredging/item/56634-dredging-campaign-at-port-of-waterford-set-for-late-october>).



Ballyteige Burrow 1. At low water on 25 October 2022, while conducting a Coastwatch survey, Mick Berry discovered a Honeycomb Reef on the rocks at S961034, at the seaward end of the outfall from the Sofrimar lobster tanks in the Ballyteige Burrow SAC (personal communication, Mick Berry).

Great Saltee Island. In late October 2022, the specialist UK-based travel company *Wildlife Worldwide* released their brochure for 2023. In it they offered a new, small group tour: a seven-day seabird photography tour and workshop with Andrew Mason on Saltee Island Great starting on 21 May 2023. Prices started from £2,195 (land only) based on two people sharing (<https://www.wildlifeworldwide.com/brochure#online>).



Bannow Bay 2. The 100 Million Trees Project was officially launched on 23 November 2022 with the planting of 2,000 native Irish trees and shrubs on lands at Tintern Abbey provided by Wexford County Council. Initiated by brothers Richard and David Mulcahy and supported by Californian philanthropist Des Walsh, the project aims to plant 100 million native trees in Ireland over the next decade (*New Ross Standard*, issue dated 30 November 2022, page 7).

Ballyteige Burrow 2. In November, Government funding of €700,000 was allocated for the development of walking trails at Kilmore Quay (€500,000) and Lady's Island (€200,000). The Kilmore Quay trail was a looped walk and cycle path along The Cutting including a footbridge and car park. The Lady's Island trail was a 600m-long extension of the roadside footpath to the local sports ground (*Wexford People*, issue dated 30 November 2022, page 89 and *New Ross Standard*, issue dated 30 November 2022, page 86).

6.4.4 The EIA Directive, 1997

References to earlier reports. Hurley, 1997 page 75. Hurley, 1999 page 89. Hurley, 2000 page 102. Hurley, 2001 page 92. Hurley, 2002 page 98. Hurley, 2003 page 97. Hurley, 2004 page 109. Hurley, 2011 pages 58-59. Hurley, 2012 pages 73-74. Hurley, 2013 page 73. Hurley, 2015 page 58. Hurley, 2018 page 56. Hurley, 2019 page 56. Hurley, 2020 page 68.

6.4.5 The Urban Waste Water Directive, 1991

References to earlier reports. Hurley, 1997 page 75. Hurley, 2001 page 92. Hurley, 2002 page 98.

6.4.6 The Freedom of Information Directive, 2003

References to earlier reports. Hurley, 1999 pages 90 and 145. Hurley, 2004 page 109. Hurley, 2008, page 84.

6.4.7 The Nitrates Directive, 1991

References to earlier reports. Hurley, 1998 page 37. Hurley, 1999 page 105. Hurley, 2001 pages 92-93. Hurley, 2002 page 99. Hurley, 2003 pages 97-98. Hurley, 2004 pages 110-111. Hurley, 2005 pages 104-105. Hurley, 2006 page 98. Hurley, 2007 page 108. Hurley, 2008, page 85. Hurley, 2009 page 60. Hurley, 2010 page 65. Hurley, 2011 page 59. Hurley, 2012 page 74. Hurley, 2015 page 59. Hurley, 2018 page 57. Hurley, 2019 page 58.

6.4.8 The Water Framework Directive, 2000

References to earlier reports. Hurley, 2001 page 93. Hurley, 2003 page 98. Hurley, 2004 page 111-112. Hurley, 2005 page 105. Hurley, 2006 page 99. Hurley, 2007 page 109. Hurley, 2008, pages 85-87. Hurley, 2009 page 61. Hurley, 2011 pages 60-61. Hurley, 2015 page 59. Hurley, 2017 pages 82-83. Hurley, 2018 pages 57-64. Hurley, 2019 page 58. Hurley, 2022 page 65.

6.4.9 The Integrated Pollution Control Directive, 1991

References to earlier reports. Hurley, 2001 pages 93-94. Hurley, 2004 page 112. Hurley, 2005 page 106.

6.4.10 The Shellfish Directive, 2006

References to earlier reports. Hurley, 2001 pages 93-94. Hurley, 2004 pages 112-113.

6.4.11 The Strategic Environmental Assessment, 2001

References to earlier reports. Hurley, 2005 page 106. Hurley, 2008, page 88. Hurley, 2013 page 74. Hurley, 2014 page 60. Hurley, 2015 page 59. Hurley, 2020 page 69.

6.4.12 The Marine Strategy Framework Directive, 2008

References to earlier reports. Hurley, 2010 page 66. Hurley, 2012 page 75. Hurley, 2013 page 74. Hurley, 2014 page 61. Hurley, 2015 pages 60-61. Hurley, 2016 pages 53-55. Hurley, 2017 page 84. (Hurley, 2018 page 64 moved to 6.4.16). Hurley, 2019 page 59. Hurley, 2020 page 71. Hurley, 2021 page 55. Hurley, 2022 pages 65-67.

NB: See Section 6.4.16 in previous reports for overlap.

Updates

Review and analysis. On Thursday 31 March 2022, the Department of Housing, Local Government and Heritage published an independent review and analysis of submissions made to it regarding its public consultation on Marine Protected Areas (MPAs). Titled 'Independent Analysis and Report on Marine Protected Area (MPA) Public Consultation Submissions', the 69-page report was compiled by the RPS Group Ltd, an international consultancy firm based in Britain. The RPS report mentioned the 'South Wexford Coast' as an example of a location "*that might be given consideration as part of the expanded MPA network*" (Table 3 on page 46). "*Suggested Locations for Consideration as MPAs*" were also listed in Appendix B.4 on page 64. However, while Appendix B.4 listed 65 sites, Table 3 listed only 18 sites, nine of which were included in Appendix B.4 and nine of which were not (including the South Wexford Coast). Informed by the extensive evidence accrued from the public consultation and the MPA process undertaken so far, "*the Department has begun developing stand-alone legislation to enable the identification, designation and management of MPAs in accordance with Ireland's national and international commitments.*" (Government press release, Thursday 31 March 2022).

Fair Seas report. On Wednesday 8 June 2022, Fair Seas published a 198-page report presenting and detailing sixteen 'Areas of Interest' for possible designation as marine protected areas (MPAs) comprising 36% of Ireland's maritime area (Classen *et al.*, 2022). One of the 16 areas of interest was the 'Southeast Coast' (Figure 9) an area of 7,124km² (1.46% of Ireland's maritime area) extending approximately from Cahore in Co Wexford to almost Ardmore in Co Waterford, seaward to the boundary of Ireland's maritime area, and including the South Wexford Coast at its core (*ibid.*, pages 50-53).

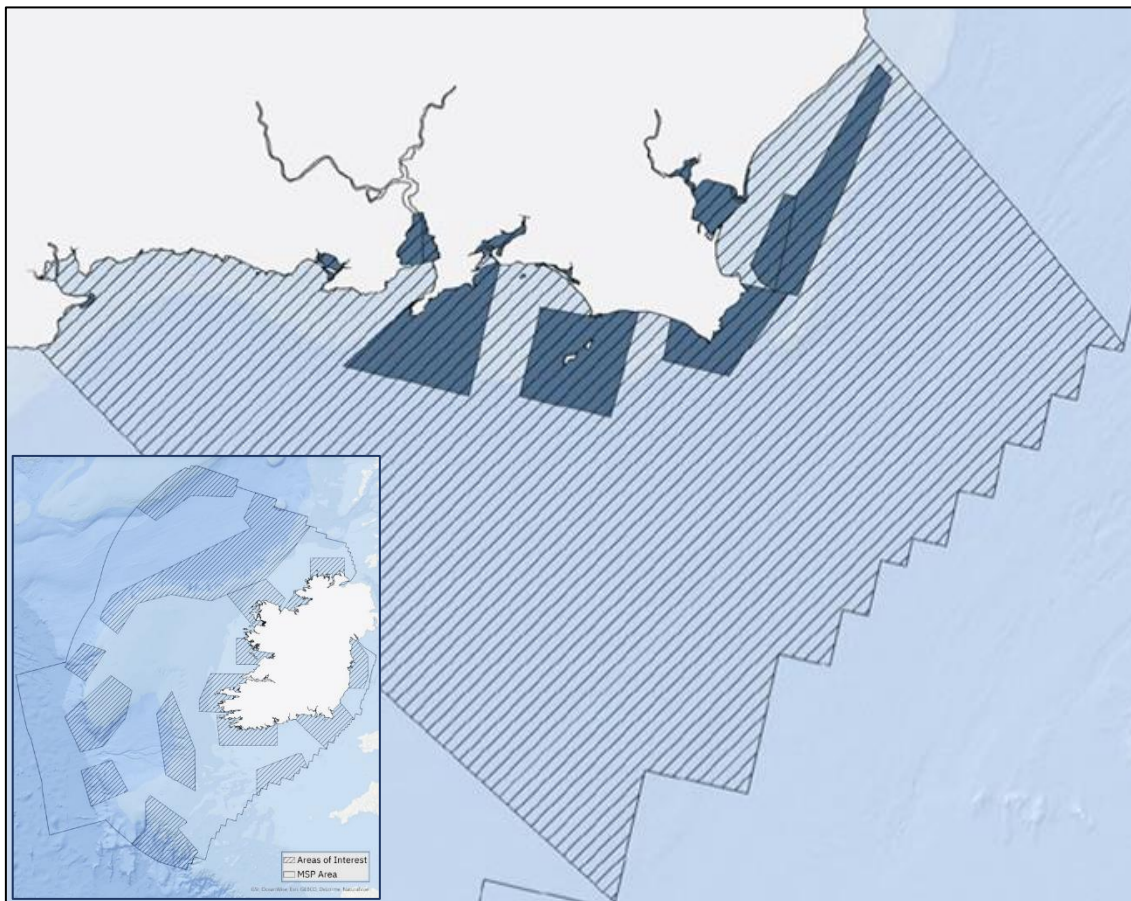


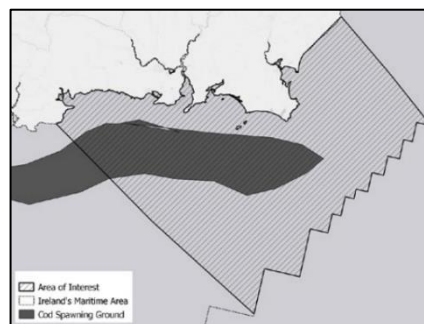
Figure 9. The Southeast Coast area of interest.

(Source: Classen *et al.*, 2022, pages 50 and 21)

Note. Figure 9 shows the Southeast Coast area of interest (*ibid.*, Figure 2.9.1, page 50) with, inset, the full network of 16 'Areas of Interest' within Ireland's Maritime Area / Marine Spatial Planning (MSP) Assessment Area (*ibid.*, Figure 2.2.1, page 21).

The qualifying interests of the 'Southeast Coast' are reproduced below (*ibid.*, page 50) together with the primary reasons for site importance (*ibid.*, page 52).

“Primary Reasons for Site Importance. There is a 130km long and 20km wide cod spawning ground running parallel to the south coast, [extract of Figure 2.9.2 (e), page 53 right] which is one of only two cod spawning grounds in Irish waters. Between 2005-2021 16% of fin whale sightings within Ireland's EEZ occurred within this site, accounting for 14% of the overall total number of individuals (n=6,123). Fourteen percent of Risso's dolphin sightings occurred within this site, accounting for 10% of the overall total number of individuals (n=3,904). Four percent of harbour



porpoise sightings occurred within this site, accounting for 3% of the overall total number of individuals (n=20,263). Seabirds with colonies on the east coast of Ireland, as well as the coast of Wales and Cornwall in England depend on this area for vital foraging during chick-rearing. The majority of the newly arrived Mediterranean gull breeding occurs here at Lady's Island Lake, which is also a hotspot for terns and black-headed gulls.

Qualifying Interests

- **Seabed features of conservation importance** *Laminaria* spp.
- **Cetaceans** Fin whale, Risso's dolphin, harbour porpoise
- **Elasmobranchs** Spurdog (*Squalus acanthias*), thornback ray (*Raja clavata*), tope (*Galeorhinus galeus*)
- **Commercially Exploited Species** Herring, cod, haddock, whiting
- **Birds: Breeding** Fulmar, puffin, guillemot, razorbill, black guillemot, kittiwake, black-headed gull, herring gull, lesser black-backed gull, great black-backed gull, little gull, Mediterranean gull, Leach's storm-petrel, European storm-petrel, Manx shearwater, great skua, Arctic tern, common tern, roseate tern, Sandwich tern, little tern, cormorant, shag, gannet
- **Birds: Frequent non-breeding** Arctic skua
- **Birds: Infrequent non-breeding** Balearic shearwater, Cory's shearwater, great shearwater, sooty shearwater, Sabine's gull, Wilson's storm-petrel, pomarine skua, long-tailed skua, black tern

Description of Features

Commercially exploited species. Several commercially exploited species use this area as spawning and/or nursing grounds, including herring, cod, haddock and whiting (see Annex E). While there is currently no evidence of spawning site fidelity for sprat, high catches of juveniles are observed in groundfish surveys in this area (Marine Institute, 2021). A large proportion of sprat landings are from in and around the Waterford Estuary (Marine Institute, 2021). Protection of sprat is important, as it is a primary food source for many seabirds and cetaceans.

Elasmobranchs. Areas south of Hook Head and towards the UK border showed high elasmobranch species richness with nine species recorded in several areas. Spurdog, thornback ray and tope occur in high densities in this area. An average 11 individuals of tope were caught in groundfish survey hauls off the coast of Wexford, which is one of the highest densities in the country (see Annex F).

Habitats. The seabed in this Area of Interest is very diverse, consisting of roughly equal parts of sand and coarse sediment, with muddy patches and rocky substrate also present. Circalittoral rock is present from the coastline out to 4.5 nm. Large parts of these rocky areas occur in existing SACs, especially Hook Head SAC and the Saltee Islands SAC. In the shallow parts of these areas large kelp forests are known to exist, while deeper areas are characterised by sponge and sea squirt communities (NPWS, 2014; NPWS, 2013).

Seabirds. This Area of Interest is a true hotspot of seabird activity, with 34 of the 38 total number of species identified within the explored data occurring in this region. The highest level of species richness occurs in this area, with 28 different species recorded at least one point in time off Carnsore Point in Wexford, which is a major migration bottleneck. The Seatrack migration survey (Keogh et al., 2014) recorded approximately 43,000 birds over a four-year period (2010-2103) with consistently high diversity each year (21-23 species present). Several key colonies exist within this Area of Interest. Internationally important colonies of roseate terns and Sandwich terns are located at Lady's Island Lake. The Salties Islands host large colonies of gannets, guillemots, razorbills, puffins, kittiwakes, and cormorants. A large gannet colony lies just across the border in Wales (Grassholm).

Cetaceans. High cetacean species diversity was recorded in this area generally at lower densities for most species compared to other sites. High densities (1.51/100km²) of fin whales were recorded close to the coast, observed during every month except March and April. High densities of Risso's dolphins (1.04/100km²) were recorded off Carnsore Point, particularly in the summer months.

Moderate to high densities (1.08/100km²) of harbour porpoise are distributed adjacent to the coast. Presence recorded year-round with greater sightings during January, July and November. Moderate densities (0.95/100km²) of minke whale were recorded in this site compared to other sites, with high concentrations recorded off Helvick Head. Presence was observed year round with the exception of February. Lower densities (1.24/100km²) of bottlenose dolphins compared to other sites, with occasional sightings throughout the year. Sightings were made from February to November with higher sightings during summer months.

Lower densities (0.28/100km²) of humpback whales compared to sites further west, with concentrations recorded outside Waterford Harbour, and sightings records peaking in January (see Annex C).

Killer whales were sighted on a small number of occasions (n=4). Common dolphins were abundant throughout the site. Six percent of common dolphin sightings within Ireland's EEZ occurred within this site, accounting for 3% of the overall total number of individuals (n=296,489) recorded from 2005-2021."

MARA board. On 12 September 2002, further to the *Maritime Area Planning (MAP) Act 2021*, (<https://www.irishstatutebook.ie/eli/2021/act/50/enacted/en/html>), the Government launched a campaign to appoint a Chair and board members to the Maritime Area Regulatory Authority (MARA). The closing date for submission of expressions of interest was 3 October 2022. The intention was to have MARA established in early 2023 to regulate development and activity in Ireland's maritime area. It was anticipated that the new Wexford-based regulatory authority would operate under the aegis of the Department of Housing, Local Government and Heritage but would be independent of that Department in the performance of its functions (Government press release, 16 September 2022).

6.4.13 The Floods Directive, 2007

References to earlier reports. Hurley, 2011 page 62. Hurley, 2012 pages 18 and 76. Hurley, 2013 page 75. Hurley, 2016 page 56. Hurley, 2017 page 85. Hurley, 2018 page 65. Hurley, 2019 page 60.

6.4.14 The INSPIRE Directive, 2007

Reference to earlier report. Hurley, 2012 page 77.

6.4.15 Waste Framework Directive, 2008

References to earlier reports. Hurley, 2012 page 77. Hurley, 2013 page 76.

6.4.16 Maritime Spatial Planning Directive, 2014

References to earlier reports. Hurley, 2017 page 85. Hurley, 2018 page 64 (transferred from 6.4.12). Hurley, 2019 pages 60-61. Hurley, 2020 page 71. Hurley, 2021 pages 68-73. Hurley, 2022 page 67.

Update. On 24 May 2022, the government published its National Marine Planning Framework (NMPF) Consultation Report (DHLGH, 2022). The Department received 225 formal submissions to the draft NMPF public consultation, which were subsequently collated and assessed, being further broken down into over 3,500 individual comments specific to each relevant section of the NMPF. Submissions were taken into consideration and the draft NMPF was amended accordingly (Source: DHLGH Press Office).

6.4.17 Other EU Directives

References to earlier reports. Hurley, 2001 pages 93-94. Hurley, 2006 page 100. Hurley, 2012 page 77.

6.5 Enacting other domestic legislation

6.5.1 Introduction

References to earlier reports. Hurley, 2001 page 94. Hurley, 2002 page 99. Hurley, 2017 page 86.

6.5.2 The Wildlife Acts, 1976-2000

References to earlier reports. Hurley, 1997 page 75-77. Hurley, 1998 page 31. Hurley, 1999 pages 90-91. Hurley, 2000 pages 102-103. Hurley, 2001 page 94. Hurley, 2002 page 100. Hurley, 2003 page. Hurley, 2004 page 113. Hurley, 2005 pages 107-110. Hurley, 2006 page 101. Hurley, 2007 pages 110-111. Hurley 2009, page 61. Hurley, 2010 page 66. Hurley, 2011 page 63. Hurley, 2013 page 76. Hurley, 2015 page 61. Hurley, 2016 page 58. Hurley, 2019 page 61.

6.5.3 The Planning Acts, 1963-2000

References to earlier reports. Hurley, 1997 page 77. Hurley, 1998 page 31. Hurley, 1999 pages 91-92. Hurley, 2000 pages 103-104. Hurley, 2001 pages 94-95. Hurley, 2002 pages 100-103. Hurley, 2003 pages 99-100. Hurley, 2004 page 114. Hurley, 2005 pages 110-111. Hurley, 2006 page 102. Hurley, 2007 pages 112-114. Hurley, 2008 pages 89-90. Hurley, 2009 page 61. Hurley, 2010 page 67. Hurley, 2011 page 63. Hurley, 2012 page 78. Hurley, 2013 pages 77-78. Hurley, 2015 page 62. Hurley, 2018 page 65. Hurley, 2021 page 74. Hurley, 2022 page 68.

Updates

Amended Plan. On 6 April 2022, Wexford County Council published a full-page advertisement giving notice of amendments to its Draft Development Plan 2022-2028 (*Wexford People*, issue dated 6 April 2022, page 95). The proposed material alterations (PMAs) were open to public consultation from 7 April to 6 May 2022. PMAs impacting on biodiversity conservation on the South Wexford Coast were extensive and significant and included the following.

- Updating of the County Wexford Biodiversity Action Plan.
- A new section on Marine Protected Areas.
- To support any targeted programmes or projects which will be required to improve and restore the status of the large sedimentary lagoons of Wexford.
- To provide support for communities in the application of EU funded programmes such as the Roseate Tern Recovery Project.

Adopted Plan. At the special meeting of Wexford County Council held on Monday 13 June 2022, members adopted the *Wexford County Development Plan 2022-2028*. The 13-volume plan came into effect on Monday 25 July 2022 and was made available online at www.wexfordcoco.ie and <https://consult.wexfordcoco.ie> (Source: <https://www.wexfordcoco.ie/news/2022/07/15/notice-of-the-making-of-the-county-development-plan-2022-2028>).

6.5.4 The Foreshore Acts, 1933-1998

References to earlier reports. Hurley, 1997 page 77. Hurley, 2011 page 63.

6.5.5 The Water Pollution Acts, 1977-1990

References to earlier reports. Hurley, 1997 page 77. Hurley, 1999 page 92. Hurley, 2003 pages 100-101. Hurley, 2004 page 115.

6.5.6 Other relevant domestic legislation

References to earlier reports. Hurley, 2001 pages 95-96. Hurley, 2002 pages 103-104.

6.6 Interpretation and Eco-tourism

6.6.1 Introduction

References to earlier reports. Hurley, 1998 pages 31-32. Hurley, 2001 page 96. Hurley, 2002 page 104. Hurley, 2003 pages 101-102. Hurley, 2004 page 116. Hurley, 2005 page 113. Hurley, 2006 pages 103-104. Hurley, 2007 page 116. Hurley, 2008 pages 91-92. Hurley, 2009 page 62. Hurley, 2010 page 67. Hurley, 2011 page 64. Hurley, 2013 page 78.

Hurley, 2014 page 63. Hurley, 2015 page 63. Hurley, 2016 page 59. Hurley, 2017 page 87. Hurley, 2018 pages 66-69. . Hurley, 2019 page 62. Hurley, 2020 page 72. Hurley, 2021 page 75. Hurley, 2022 page 69.

6.6.2 Designations by site

References to earlier reports. Hurley, 2000 pages 104-106. Hurley, 2001 page 96. Hurley, 2002 page 105.

6.6.3 The Coastal Path

References to earlier reports. Hurley, 2001 pages 96-97. Hurley, 2002 page 105. Hurley, 2005 page 105. Hurley, 2006 page 104. Hurley, 2007 pages 117-121. Hurley, 2008 page 92. Hurley, 2009 page 63. Hurley, 2010 page 68. Hurley, 2011 page 64. Hurley, 2012 page 79. Hurley, 2020 page 72.

Walking trails. On Friday 23 September 2022, Wexford Walking Festival 2022 was launched in the Community Centre at Lady's Island following a walk around the new Holy Well Loop (Figure 10) (*Wexford People*, issue dated 21 September 2022, page 112, *New Ross Standard*, issue dated 21 September 2022, page 104, and <https://wexfordwalkingtrail.ie/walking-festival-2022/>). During the walk, Jim Hurley outlined the importance of Lady's Island Lake as a natural heritage site. The new Holy Well Loop brings to four the number of 'Wexford Walking Trails' on the South Wexford Coast; the other three being the Tintern Trails, Fethard Castle Trail and Kilmore Quay Walking Trail.

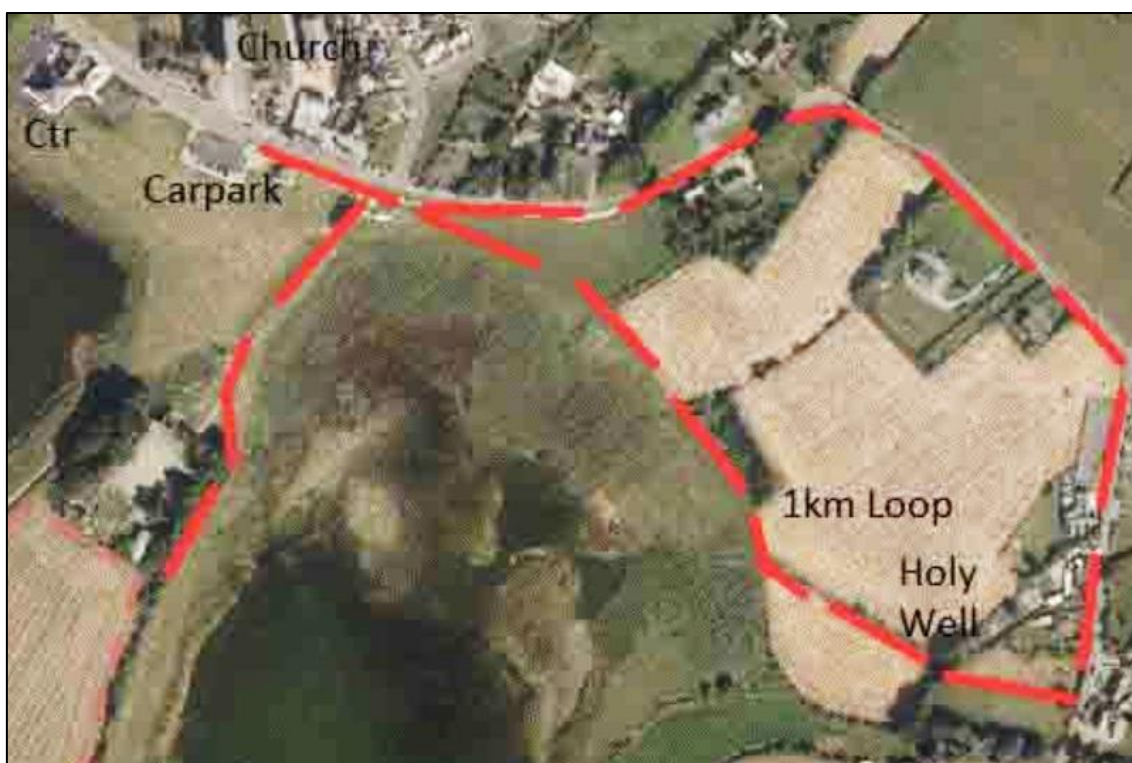


Figure 10. Holy Well Looped Walk at Lady's Island.

(Source: <https://wexfordwalkingtrail.ie/walking-festival-2022/>)

Longest in Ireland. Commenting on what Wexford had to offer in adventure tourism, Minister Heather Humphreys stated during a visit to the county: “*Spanning the full length of the Wexford coast, Slí Charman is Ireland’s longest coastal path ...*” (*Wexford People*, issue dated 12 October 2022, page 14).

7 THE STAFF GAUGE

References to earlier reports. Hurley, 1997 pages 78-80. Hurley, 1999 page 92. Hurley, 2000 page 107. Hurley, 2002 page 105. Hurley, 2003 page 102. Hurley, 2005 page 114. Hurley, 2009 page 63. Hurley, 2012 page 80.

8 WATER LEVEL INSIDE THE BARRIER

8.1 Water inputs

References to earlier reports. Hurley, 1997 pages 81-87. Hurley, 1998 pages 32-33. Hurley, 1999 page 93. Hurley, 2002 page 106. Hurley, 2013 page 79.

8.2 Water outputs

References to earlier reports. Hurley, 1997 pages 87-90. Hurley, 2013 page 79.

9 WATER LEVEL OUTSIDE THE BARRIER

9.1 Introduction

Reference to earlier report. Hurley, 1997 page 91.

9.2 Measuring sea level

References to earlier reports. Hurley, 1997 pages 91-93. Hurley, 1998 page 33. Hurley, 2002 page 106. Hurley, 2003 page 103. Hurley, 2005 page 115. Hurley, 2008 page 93. Hurley, 2013 page 80. Hurley, 2022 page 69.

9.3 Tides

References to earlier reports. Hurley, 1997 pages 93-94. Hurley, 2000 page 109. Hurley, 2001 page 98. Hurley, 2004 page 118. Hurley, 2005 page 116. Hurley, 2008 page 94. Hurley, 2012 page 80. Hurley, 2015 pages 64-65. Hurley, 2018 page 70. Hurley, 2021 page 76. Hurley, 2022 page 70.

9.4 Sea waves, surges, swells, etc.

References to earlier reports. Hurley, 1997 pages 94-97. Hurley, 1999 pages 94-96. Hurley, 2000 page 109. Hurley, 2002 page 107. Hurley, 2003 page 104. Hurley, 2008 page 94. Hurley, 2013 pages 80-81. Hurley, 2015 page 66.

Update. A seiche (to rhyme with H) is a wave caused by resonances in a body of water that has been disturbed (<https://en.wikipedia.org/wiki/Seiche>). The most dramatic example is a tsunami triggered by an earthquake. On the afternoon of Saturday 18 June 2022, a seiche occurred on the south coast of Ireland. It was also recorded in Wales, Cornwall, and France. The sea suddenly retreated and returned. In Ireland, the event was most pronounced at Union Hall and Courtmacsherry, Co Cork. Social media comment said it was noted in the harbours at Kilmore Quay and Rosslare Harbour. Expert opinion was that the event was probably a 'meteotsunami' triggered by "a dramatic and sudden change in atmospheric pressure somewhere out over the Atlantic off the coast of west Cork". While such events are regular but generally imperceptible, the effect can be noticeably amplified by local conditions. The harbour at Union Hall is a well-known hotspot for regular meteotsunamis especially during winter (*The Irish Times*, issue dated 21 June 2022, page 3; copy below).

Freak tides not caused by marine earthquake, say experts

DAVID FORSYTHE

The unusual tidal conditions that left some West Cork locals fearful on Saturday when they saw water levels drop dramatically has been blamed on large waves caused by fast-moving weather fronts, rather than an earthquake at sea, experts say. Witnessed by scores of people in Union Hall and Courtmacsherry harbours on Saturday afternoon, rapidly dropping water levels that left boats stranded caused concern among local people that a tsunami could be heading towards them. However, weather and ma-

rine experts now believe that the event, which was felt as far away as France, Cornwall and Wales, was caused by a meteor-sunami, a phenomenon during which high waves are provoked by fast-moving weather, rather than by an earthquake at sea.

Professor Frédéric Dias, a principal investigator with MARL, the SFI Research Centre for Energy, Climate and Marine research and innovation co-ordinated by the Environmental Research Institute (ERI) at University College Cork said investigations are currently under way.

"What is interesting is that it

is not a local phenomenon, it is more global. It was in fact felt in France as well. It looks like it was due to an atmospheric disturbance, with effects that can be amplified locally," Prof Dias said.

Dr Gerard McCarthy, oceanographer with Irish Climate Research and Analysis Unit in the Department of Geography at Maynooth University said that he believed the most likely cause of the phenomenon was probably a meteor-sunami rather than an earthquake or landslide.

"There was a small earthquake recorded near the

Azores," he said, "but it was likely too small and too far away to have an impact on the Irish coast to anything like the extent we saw in Union Hall and Courtmacsherry," he said.

Dr McCarthy said that both Union Hall and Courtmacsherry harbours are regularly affected by seiching, a regular oscillation of tidal currents caused by atmospheric pressure. "Seiching is basically water moving backwards and forwards and this happens in both of these bays normally. My best guess is that this regular seiching coincided with a dramatic and sudden change in atmos-

pheric pressure somewhere out over the Atlantic off the coast of west Cork.

"If you imagine someone dropping a large volume of water straight down on the sea, that's the kind of affect we are talking about."

Such events occur regularly around the Irish coast, but are more common during the winter, he said. "It's something that can happen anywhere but if you get the right combination of factors all together you can see something quite dramatic occurring like what happened along the west Cork coast at the weekend."

One Courtmacsherry witness, charter boat operator David Edwards said: "The water was rushing out like a river. I'd never seen anything like it before. The first thing you think is 'tsunami'."

In Union Hall Adrian Nowotynski was mooring his boat when the phenomenon struck.

"It was going out so fast that my boat was keeled on the bottom and so were a number of yachts and fishing trawlers and I've never seen that before. My first instinct was it must be an earthquake somewhere, nobody had ever seen the like of it Union Hall before," he said.

9.5 Bedform

References to earlier reports. Hurley, 1997 pages 27 and 98-99. Hurley, 1998 page 18. Hurley, 1999 page 30. Hurley, 2000 pages 110-111. Hurley, 2004 page 119.

9.6 Wave set-up and wave run-up

Reference to earlier report. Hurley, 1997 page 99.

9.7 Synthesis: the combined effect

References to earlier reports. Hurley, 1997 pages 100-102. Hurley, 1998 pages 33-35. Hurley, 1999 pages 98-101. Hurley, 2000 pages 112-113. Hurley, 2001 pages 98-102. Hurley, 2002 page 108. Hurley, 2003 pages 104-105. Hurley, 2013 page 82. Hurley, 2019 page 63.

10 THE NEED TO REGULATE WATER LEVEL

References to earlier reports. Hurley, 1997 page 103. Hurley, 2013 page 83.

10.1 Farming concerns

References to earlier reports. Hurley, 1997 pages 103-104. Hurley, 2005 page 118.

10.2 The Marian pilgrimage

References to earlier reports. Hurley, 1997 pages 104-106. Hurley, 1998 page 36. Hurley, 1999 page 102-103. Hurley, 2000 pages 119-120. Hurley, 2001 page 103. Hurley, 2002 page 109. Hurley, 2003 pages 105-106. Hurley, 2005 page 118. Hurley, 2007 page 125. Hurley, 2009 pages 65-68. Hurley, 2011 page 66. Hurley, 2012 page 81. Hurley, 2014 page 65.

10.3 Wildfowling

References to earlier reports. Hurley, 1997 pages 106-107. Hurley, 1999 page 102.

10.4 Water sports

References to earlier reports. Hurley, 1997 pages 107-108. Hurley, 1998 page 36.

10.5 Sewerage scheme

Reference to earlier report. Hurley, 2001 pages 103-104.

11 WATER QUALITY

11.1 Overview of non-marine waters

References to earlier reports. Hurley, 1997 page 109. Hurley, 1999 page 120. Hurley, 2000 page 104. Hurley, 2004 pages 122-123. Hurley, 2005 page 119. Hurley, 2007 pages 126-127. Hurley, 2008 page 96. Hurley, 2009 page 68. Hurley, 2010 pages 70-72. Hurley, 2011 page 66. Hurley, 2012 page 82. Hurley, 2017 page 89. Hurley, 2019 page 64. Hurley, 2020 page 74. Hurley, 2021 page 77.

This section deals with international, national, regional, county and South Wexford Coast issues.

Update. On 14 October 2022, the EPA released its Water Quality 2016-2021 report (Trodd *et al*, 2022). The report indicated that nearly half of rivers and lakes and two thirds of estuaries were not as healthy or resilient as they should be. The main drivers of the decline were agricultural activity, inadequate wastewater treatment, forestry processes, and activities such as land drainage and river alterations. Water quality was rated 'Poor' in the lagoons at both the Ballyteige Channels and Lady's Island Lake (page 54). Bannow Bay was one of only two sites where the ecological status, measured as seaweed diversity, was rated '*moderate*' "*due to excessive growth of green algae*" (page 56) and one of five water bodies that failed the environmental quality standard for dissolved oxygen (page 57).

11.2 Lady's Island Lake

Results are presented separately 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. Hurley, 1998 page 36. Hurley, 1999 pages 106-110. Hurley, 2000 page 122. Hurley, 2001 pages 104-105. Hurley, 2002 page 110. Hurley, 2003 page 107. Hurley, 2004 pages 123-137. Hurley, 2005 pages 123-137. Hurley, 2006 pages 110-112. Hurley, 2007 pages 128-134. Hurley, 2008 pages 96-97. Hurley, 2009 page 69. Hurley, 2010 page 73. Hurley, 2011 page 67. Hurley, 2012 pages 83-84. Hurley, 2016 pages 62-63. Hurley, 2017 page 89. Hurley, 2020 page 75. Hurley, 2021 pages 77-78. Hurley, 2022 page 71.





Update

Project CLEAR. A two-day workshop (23-24 March 2022) was held at Lady's Island to review progress to date (programme attached).

CLEAR Coastal Lagoons: Ecology and Restoration





Workshop 23rd-24th March
Lady's Island Community Hall, Co Wexford



Day 1 – 23rd March

Time		Presenter
9.30	Hall open	
10.00	Meeting open.	Chair Brendan O'Connor AQUAFAC
	Introduction	Jim Hurley
10.30	Overview of Workshop	Geoff Oliver
11.00	Results of Nutrient Analysis	Cilian Roden
11.30	Coffee break	
12.00	Hydrodynamic processes and mathematical modelling studies	Tony Cawley, Hydro-environmental Ltd
12.30	Experiences in the South of France	Rutger De Wit
13.00	Managing coastal lagoons: lessons for Mar Menor, Spain	Angel Perez Ruzafa, Murcia University, Spain
13.30	Light Lunch	
14.00	Integrated Constructed Wetlands	Rory Harrington
14.30	Farming Systems	Paul Moore
15.00	Tea break	
15.30	Buffer zones	Feidhlim Harty, FH Wetland Systems Ltd. Buffer zones
16.00	Open discussion	
16.30	Close	

Day 2 – 24th March

Time	
9.30	Hall open
10.00	Groups to discuss most suitable methods to bring about a recovery of Lady's Island Lake
11.30	Coffee break
12.00	Group Leaders to present results of their discussions
13.00	Excursion to Lady's Island Lake

Discussion Groups

Group 1: Lead - Geoff Oliver





Billy Bates, Trevor Harrison, Rory Harrington, Yvonne Leahy, Ciara O'Mahony

Group 2: Lead- Cilian Roden

Rutger De Wit, Robert Wilkes, Lisa Johnson, Feidhlim Hearty, Joao Neto, Aine O'Connor

Group 3: Lead - Brendan O'Connor

Angel Perez Ruzafa, Brendan Cooney, Michael Nugent, Jim Hurley, Cliona O'Brien

CLEAR Team members

Dr. Cilian Roden

Dr. Geoff Oliver

Dr. Philip Perrin, BEC

Mr. Tony Cawley, Hydro-Environmental Ltd

Dr. Rutger De Wit, CRNS

Mr. Kevin McCaffrey, AQUAFAC

Dr. Brendan O'Connor, AQUAFAC

EPA Steering Group Members

Dr. Robert Wilkes, EPA

Dr. Yvonne Leahy, Department of Housing, Local Government and Heritage





Dr. Joao Neto, Science Faculty, University of Coimbra, Portugal.

Mr. Brendan Cooney, Wexford County Council

Dr. Trevor Harrison, Department of Agriculture Environment and Rural Affairs, Northern Ireland.

Mr. Michael Nugent, Local Authorities Water Programme (LAWPRO)

Lisa Johnson EPA

On the excursion to the lake, Cilian Roden collected a sample of green sludge and later informed Jim Hurley via email that he felt it was "*Nodularia spumigena* which is typical of brackish water and in quantity could be poisonous. It is a nitrogen fixer which is noteworthy as so much N pours into the lagoon".

Water quality. On 8 October 2022, Jim Hurley sampled four feeder streams at Lady's Island Lake for the Earthwatch Irish Water Blitz 2022. Two streams returned 'Moderate' results and two 'Poor' results (<https://www.freshwaterwatch.org/>).

Letter to the Editor. *The Irish Times*, issue dated 19 December 2022, page 11.

Protecting Our Lady's Island lagoon

Sir, – Paddy Woodworth gives us a graphic picture of the present state of the Mar Menor in southeast Spain (“‘It is our jewel’: Can Europe’s biggest lagoon ecosystem be saved?”, *Science*, November 24th).

Unfortunately, there is no need to travel to Murcia to see a formerly magnificent lagoon all but destroyed by human foolishness.

We have recently submitted our final report to the Environmental Protection Agency on the present state of Our Lady's Island lagoon in Co Wexford, one of Ireland's biggest brackish water lagoons.

Our report echoes many of the findings mentioned by Paddy Woodworth, such as a gross excess of nitrogen-rich run-off polluting the lagoon, oxygen-deficient bottom sediments too toxic for marine life and the extinction of formerly abundant species. Matching Paddy Woodworth's description of the Mar Menor prior to its degradation are the wonderful descriptions of aquatic life in Lady's Island lagoon by the late Dr Brenda Healy and Mr D Bates written in the 1970s.

Human activity has now all but destroyed the rare and fascinating ecosystem in Lady's Island, just as it appears to be do-

ing in the Mar Menor – only rapid and determined change in human activity can restore these invaluable lagoonal ecosystems. Both lagoons are supposedly protected by the EU birds directive, habitats directive and the water framework directive, but to date this protection has proved more notional than real. Our research indicates that it may no longer be possible to restore Lady's Island Lagoon to its condition in the 1970s but we were extremely impressed by the decision of the Spanish government to invest €500 million in an attempt to save the Mar Menor. A proportional investment, area for area, in the future of Lady's Island would come to a mere €9 million. We must hope that governments, no more than individuals, can learn from good example. – Yours, etc,

Dr CILIAN RODEN,
Kinvara,
Galway;
Dr BRENDAN O'CONNOR,
Aquafact,
Galway;
Dr Geoff Oliver,
Cape Clear Island,
Cork,
(Participants in the
EPA-funded Clear project – a
study of the current ecology
of Lady's Island Lagoon).

11.2.2 Waste water treatment plant

References to earlier reports. Hurley, 1997 page 114, Table 16, together with text on pages 112-113. Hurley, 1998 page 39. Hurley, 1999 pages 111-114. Hurley, 2000 pages 122-123. Hurley, 2001 page 105. Hurley, 2002 page 111. Hurley, 2003 page 108. Hurley, 2004 pages 137-142. Hurley, 2005 page 121. Hurley, 2006 page 113. Hurley, 2007 pages 134-135. Hurley, 2008 page 98. Hurley, 2009 page 69. Hurley, 2010 page 74. Hurley, 2011 pages 68-70.

11.3 Other areas

References to earlier reports. Hurley, 2006 page 113. Hurley, 2007 page 136. Hurley, 2010 page 74. Hurley, 2011 page 70. Hurley, 2012 page 85. Hurley, 2013 page 84. Hurley, 2014 page 67. Hurley, 2015 page 68. Hurley, 2018 page 71. Hurley, 2020 pages 75-76.

11.4 Pollution control by Wexford County Council

References to earlier reports. Hurley, 1997 page 115. Hurley, 1998 page 37. Hurley, 1999 pages 119-120. Hurley, 2000 page 123. Hurley, 2001 pages 105-106. Hurley, 2002 pages 111-114. Hurley, 2003 page 108. Hurley, 2004 page 143. Hurley, 2005 pages 122-123. Hurley, 2006 pages 114-116. Hurley, 2008 page 98-99. Hurley, 2010 page 75. Hurley, 2011 page 70. Hurley, 2012 page 85. Hurley, 2013 page 85. Hurley, 2014 page 68. Hurley, 2015 pages 69-70. Hurley, 2019 page 64.

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 (Section 11.5.1), the Department of Agriculture (Section 11.5.2), the Environmental Protection Agency (EPA) (Section 11.5.3), 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 Department of the Environment

References to earlier reports. Hurley, 1998 pages 36-37. Hurley, 1999 page 104. Hurley, 2000 page 121. Hurley, 2001 pages 106-107. Hurley, 2002 pages 115-116. Hurley, 2003 page 109. Hurley, 2006 page 117. Hurley, 2011 page 71. Hurley, 2012 page 85.

11.5.2 Department of Agriculture

References to earlier reports. Hurley, 1998 page 37. Hurley, 1999 pages 105-106 refers. Hurley, 2000 page 122. Hurley, 2002 page 117. Hurley, 2003 page 109.

11.5.3 The EPA

References to earlier reports. Hurley, 1999 page 117. Hurley, 2000 page 125. Hurley, 2001 page 107. Hurley, 2002 page 118. Hurley, 2004 pages 144-145. Hurley, 2006 page 118. Hurley, 2008 pages 99-100. Hurley, 2015 pages 71-72. Hurley, 2017 pages 90-92. Hurley, 2018 page 72.

11.5.4 Teagasc

References to earlier reports. Hurley, 1998 pages 37 and 38-39. Hurley, 1999, page 106. Hurley, 2000 page 122. Hurley, 2002 page 118. Hurley, 2003 page 110.

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).

References to earlier reports. Hurley, 1998 page 38. Hurley, 2003 page 110. Hurley, 2010 page 76.

11.5.6 The IFA

Reference to earlier report. Hurley, 1998 pages 37-38.

11.5.7 VOICE

References to earlier reports. Hurley, 1998 page 38. Hurley, 2000 page 107.

11.6 Overview of marine waters

References to earlier reports. Hurley, 2001 page 108. Hurley, 2004 page 147. Hurley, 2008 pages 100-101. Hurley, 2011 page 72. Hurley, 2013 page 85. Hurley, 2014 page 70. Hurley, 2015 page 73. Hurley, 2016 page 65. Hurley, 2017 page 92. Hurley, 2018 page 73. Hurley, 2019 page 66. Hurley, 2020 page 78. Hurley, 2021 pages 80-83. Hurley, 2022 page 73.

Updates

Kilmore Quay. In February 2022, it was reported that Irish Water had signed a contract with John Fisk and Sons Limited for sewage treatment works at Kilmore Quay with work “set to commence within the next two months” (*Wexford People*, issue dated 2 February 2022, page 30). The commencement of works in May was welcomed (*Wexford People*, issue dated 25 May 2022, page 24).

11.7 Monitoring of marine pollutants

References to earlier reports. Hurley, 2000 page 126 and pages 130-131. Hurley, 2001 pages 108-109. Hurley, 2002 pages 119-120. Hurley, 2003 page 111. Hurley, 2004 pages 147-148. Hurley, 2005 pages 125-126. Hurley, 2007 page 139. Hurley, 2008 pages 101-102. Hurley, 2009 pages 71-72. Hurley, 2010 pages 77-80. Hurley, 2011 page 72. Hurley, 2012 page 86. Hurley, 2013 pages 86-87. Hurley, 2014 page 70. Hurley, 2015 page 74. Hurley, 2016 page 65. Hurley, 2017 page 92. Hurley, 2018 page 73.

11.8 Ionising radiation

References to earlier reports. Hurley, 1997 pages 21-22. Hurley, 1998 page 18. Hurley, 1999 pages 18-20. Hurley, 2000 pages 127-129. Hurley, 2001 page 109. Hurley, 2002 pages 120-123. Hurley, 2003 pages 111-113. Hurley, 2004 pages 148-150. Hurley, 2007 page 140. Hurley, 2008 pages 102-103. Hurley, 2009 page 72. Hurley, 2010 page 80. Hurley, 2011 page 73. Hurley, 2013 page 87. Hurley, 2015 page 74. Hurley, 2016 page 65. Hurley, 2020 page 79.

11.9 Coastwatch Ireland surveys

References to earlier reports. Hurley, 2000 pages 131-138. Hurley 2001 pages 109-110. Hurley, 2017 page 93.

11.10 Dumping at sea

References to earlier reports. Hurley, 2000 pages 126-127. Hurley, 2001 page 110. Hurley, 2002 pages 123-124. Hurley, 2004 page 151. Hurley, 2005 page 127. Hurley, 2006 page 122. Hurley, 2007 pages 141-149. Hurley, 2009 page 72. Hurley, 2011 page 73. Hurley, 2013 page 87. Hurley, 2014 page 71. Hurley, 2016 page 66. Hurley, 2017 page 93. Hurley, 2018 page 74. Hurley, 2019 page 66. Hurley, 2020 pages 80-81. Hurley, 2021 pages 83-84.

12 WATER LEVEL MANAGERS

12.1 Lady's Island Lake

References to earlier reports. Hurley, 1997 pages 117-122. Hurley, 1998 pages 41-46. Hurley, 1999 pages 121-127. Hurley, 2000 pages 139-145. Hurley, 2001 pages 111-112. Hurley, 2002 pages 125-127. Hurley, 2003 pages 114-123. Hurley, 2004 pages 152-157. Hurley, 2005 pages 128-142. Hurley, 2006 pages 123-126. Hurley, 2007 pages 151-153. Hurley, 2008 pages 105-112. Hurley 2009, pages 73-79. Hurley, 2010 pages 81-91. Hurley, 2011 pages 74-84. Hurley, 2012 pages 87-90. Hurley, 2013 pages 88-99. Hurley, 2014 pages 71-79. Hurley, 2015 pages 75-79. Hurley, 2016 page 66-72. Hurley, 2017 pages 94-112. Hurley, 2018 pages 75-82. Hurley, 2019 pages 67-77. Hurley, 2020 pages 82-85. Hurley, 2021 pages 85-90. Hurley, 2022 pages 74-77.

Updates

Meetings. The 61st and 62nd meetings of the Lady's Island Lake Drainage Committee (LILDC) were held on Monday 14 February 2022 and Wednesday 16 March 2022 respectively.

Hurley, 1997 page 121, Table 19 is updated as follows.

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	6 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
39	12 February 2007	Michele Brown
40	4 March 2008	Michele Brown
41	18 March 2008	Michele Brown
42	10 February 2009	Michele Brown
43	14 September 2009	Michele Brown
44	2 December 2009	Michele Brown
45	1 March 2010	Michele Brown
46	1 April 2010	Michele Brown
47	1 March 2011	Michele Brown
48	21 March 2012	Michele Brown
49	11 October 2012	Michele Brown
50	23 January 2013	Caroline O'Mara
51	4 February 2014	Anita Ryan
52	26 February 2015	Anita Ryan
53	1 February 2016	Anita Ryan
54	14 March 2016	Anita Ryan
55	4 July 2016	Anita Ryan
56	1 March 2017	Eimear Kennedy
57	29 January 2018	Anita Ryan
58	13 March 2019	Philip Knight
59	13 January 2020	Philip Knight
60	10 March 2020	Philip Knight
61	14 February 2022	Melissa Goff
62	16 March 2022	?

Table 7. Lady's Island Lake Drainage Committee meeting dates.

Updates

Foreshore licence. On 4 January 2022, the Department of Housing, Local Government and Heritage gave public notice of an application (Ref No FS007038) received on 29 October 2021 from Wexford County Council applying for a foreshore licence for "the installation of 2 no. pipes and a flow control structure at boundary between Lady's Island Lake and the sea." The application form and supporting materials were made available online (<https://www.gov.ie/en/foreshore-notice/cd4d9-ladys-island-pipeline/#applicant-name>).

February meeting. On Wednesday 2 February 2022, Melissa Goff, Senior Staff Officer, Environment Section, Wexford County Council, circulated via email an

invitation from Gerry Forde, Senior Engineer, to attend a meeting of the Lady's Island Lake Drainage Committee to be held at 10am on Monday 14 February 2022 with the following agenda: (1) Election of the Chair, (2) Minutes of Meeting held on 10th March 2020; (3) Matters Arising, (4) Cutting of the Lake; (5) Progress on Long Term Solution; (6) Any Other Business. Minutes of the meeting held on 10 March 2020 were attached. The meeting replaced the cancelled meeting scheduled for 5 February 2021.

Foreshore consent. On 9 February 2022, Wexford County Council gave public notice that it had applied for foreshore consent to install two pipelines under the barrier at Lady's Island Lake to facilitate proposed drainage works (*Wexford People*, issue dated 9 February 2022, page 90, *New Ross Standard*, issue dated 9 February 2022, page 84, and *The Irish Times*, issue dated 9 February 2022, page 3).

March meeting. On Monday 14 March 2022, Melissa Goff, Senior Staff Officer, Environment Section, Wexford County Council, circulated via email an invitation from Gerry Forde, Senior Engineer, to attend a meeting of the Lady's Island Lake Drainage Committee to be held at 2pm on Wednesday 16 March 2022 in the Community Centre at Lady's Island with the following two-item agenda: (1) Election of the Chair, and (2) Cutting of the Lake. Wexford County Council was represented by Diarmuid Leahy, Agricultural Scientist, who tendered apologies for Gerry Forde and Brendan Cooney. A new Secretary attended but she was not introduced. Minutes of the meeting held on 2 February 2022 were not available. Nobody attended for the NPWS. Five Committee members attended. Agenda item (1). Diarmuid Leahy advised that he had no problem with Michael Vaughan being Chairman. (2) In the absence of the NPWS no date was fixed for breaching the barrier.

12.2 Tacumshin Lake

References to earlier reports. Hurley, 2002 page 127. Hurley, 2003 pages 123-4. Hurley, 2004 page 158. Hurley, 2014 page 79. Hurley, 2017 page 113.

13 BREACHING THE BARRIER

References to earlier reports. Hurley, 1997 page 123. Hurley, 2001 page 113.

13.1 The normal sequence

References to earlier reports. Hurley, 1997 pages 123-124. Hurley, 1999 page 128.

13.2 The location of the breach

Reference to earlier report. Hurley, 1997 pages 125-127.

13.3 Timing of the breach

References to earlier reports. Hurley, 1997 page 128. Hurley, 1998 page 46. Hurley, 1999 page 128. Hurley, 2000 page 151. Hurley, 2001 pages 112-113. Hurley, 2005 pages 144-145. Hurley, 2007 pages 154-155.

13.4 Frequency of breaching

Reference to earlier report. Hurley, 1997 page 129.

13.5 Opening the breach

References to earlier reports. Hurley, 1997 pages 129-130. Hurley, 1998 page 46.

13.6 How the water flows

Reference to earlier report. Hurley, 1997 pages 130-137.

13.7 Closing the breach

Reference to earlier report. Hurley, 1997 pages 137-141.

13.8 Breaching since 1997

References to earlier reports. Hurley, 1998 pages 46-48. Hurley, 1999 pages 128-137. Hurley, 2000 pages 151-153. Hurley, 2001 pages 115-117. Hurley, 2002 pages 129-133. Hurley, 2003 pages 125-134. Hurley, 2004 pages 159-163. Hurley, 2005 pages 147-153. Hurley, 2006 pages 129-131. Hurley, 2007 pages 157-159. Hurley, 2008 pages 112-116. Hurley, 2009 pages 81-82. Hurley, 2010 pages 92-94. Hurley, 2011 pages 86-88. Hurley, 2012 pages 91-92. Hurley, 2013 pages 100-102. Hurley, 2014 pages 80-81. Hurley, 2015 pages 81-84. Hurley, 2016 pages 74-82. Hurley, 2017 pages 115-124. Hurley, 2018 pages 83-93. Hurley, 2019 pages 79-91. Hurley, 2020 pages 87-107. Hurley, 2021 pages 91-102. Hurley, 2022 pages 78-86.

Updates

Start of year position. At the start of 2022, water level in the lagoon stood at 4.77m ODP and stayed below 5.0m until mid-February (Figure 11).



Figure 11. Water level, early 2022.

(Source: <https://waterlevel.ie/0000013070/0001/>)

Storm events. Storm Corrie, the third storm event of 2021/2022, passed to the north of Ireland on Sunday 30 January 2022 without having any impact of the South Wexford Coast. [Storms Arwen and Barra occurred at the end of November 2021 and on Tuesday 7 December 2021 respectively]. Three storms followed in less than one week. Storm Dudley, the fourth storm, tracked to the north of Ireland on the afternoon and evening of Wednesday 16 February 2022, and brought strong blustery winds and scattered showers to south Wexford. Storm Eunice, the fifth storm, was more severe but was short-lived. A status Orange warning was in place for Wexford for gale and storm force winds. The storm tracked along the south coast from the south-west on Friday 18 February 2022 and brought strong and blustery north-westerly winds and short, heavy showers. Storm Franklin, the fifth storm, tracked south-east from the north of Ireland on Sunday 20 February 2022. A status Yellow warning was in place for Wexford for gale-force westerly winds with severe and damaging gusts.

When the roll period was changed from 1 (Figure 12 left) to 24 (Figure 12 right) to smooth the data, water level rose marginally [c 4cm (4.95-4.91)] as a result of storm Dudley, c 6cm (5.01-4.95) as a result of storm Eunice, and c 4cm (5.05-5.01)] as a result of storm Franklin, a total of c 14cm (5.05-4.91) as a result of all three storms (Figure 12).

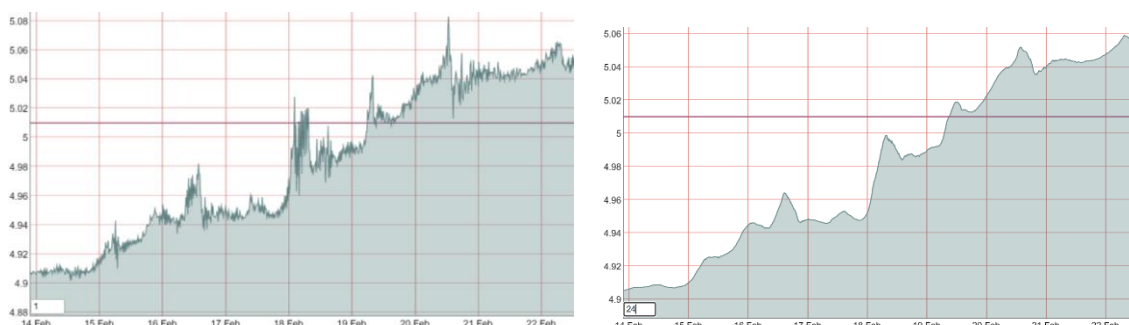


Figure 12. Storms, 14-22 February.

(Source: <https://waterlevel.ie/0000013070/0001/>)

Decision to breach. The barrier was breached on Monday 28 March 2022 without notice being circulated to Drainage Committee members.

Water level in the lagoon before breaching: Water level stood at 5.204m ODP at 12:00h on Monday 28 March 2022 (<http://waterlevel.ie/0000013070/>).

March							April						
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
	1	2	3	4	5	6					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28	29	30	

Tidal cycle and phase of the Moon: Tides were rising with the New Moon predicted on Friday 1 April 2022. The weather was calm and dry with high pressure building.

Date on which the excavation work started: Monday 28 March 2022.

Location of the breach: The line of the breach was at the traditional location. All the spoil was heaped on the eastern (Carnsore Point) side of the breach.

Opening the breach. Online data showed that water level in the lagoon fell as follows (Table 8 and Figure 13) over the first four days.

Day and date	Time 00:00h	Time 23:45h	Fall (mm)
Monday 28th	5.207	5.198	9
Tuesday 29th	5.197	5.176	21
Wednesday 30th	5.177	5.892	285
Thursday 31st	4.891	3.694	1197

Table 8. Fall in water level, March 2022.

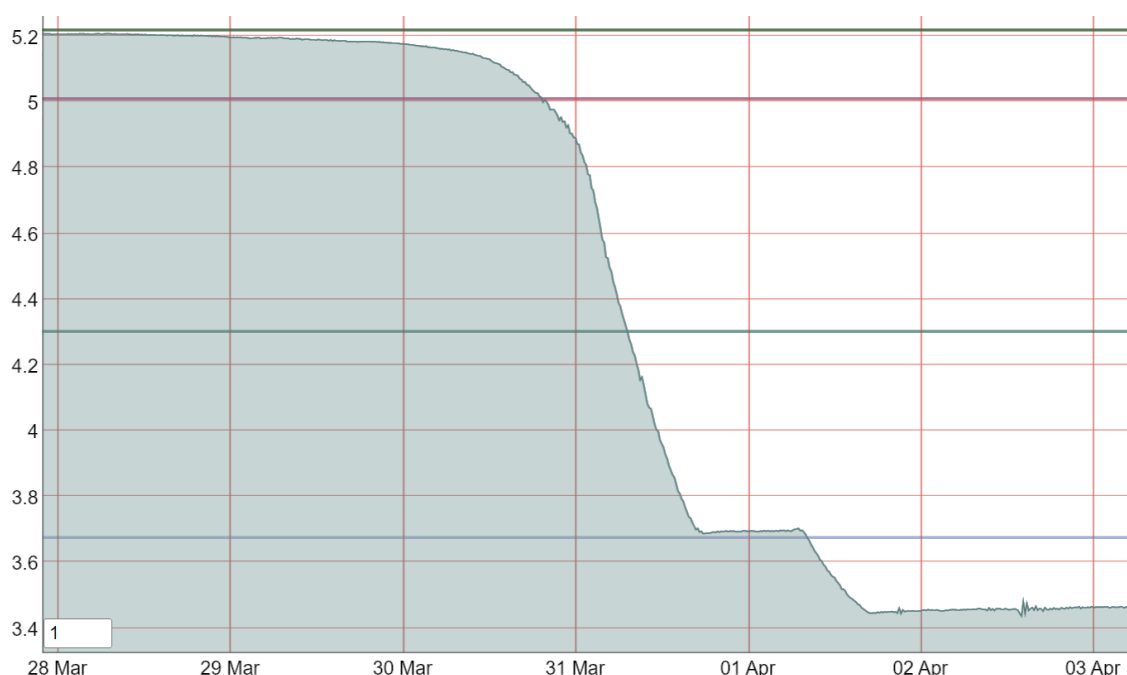


Figure 13. Barrier breach, March 2022.

(Source: <http://waterlevel.ie/0000013070/0001/>)

With water level standing at 4.0m at 11am on Thursday 31 March 2022, Tony Murray phoned members of the Drainage Committee to get opinions regarding closing the cut to facilitate nesting terns. The cut was closed on Thursday afternoon with water level standing at 3.7m. On Friday morning (1st), around 8am, shortly after high water of the spring tide, the cut reopened, flowed for several hours, and was closed manually at low water that afternoon with water level in the lagoon standing at 3.45m.

Overall fall in water level: 1.75m (5.20-3.45).

The number of breached per year is updated below (Table 9 and Figure 14)

Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	No
1975-2020	4	10	23	11	3	2	0	0	1	0	0	1	55
2021		2											2
2022			1										1
Total per month	4	12	24	11	3	2	0	0	1	0	0	1	58
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	

Table 9. Number of breaches per year by month, 1975-2022.

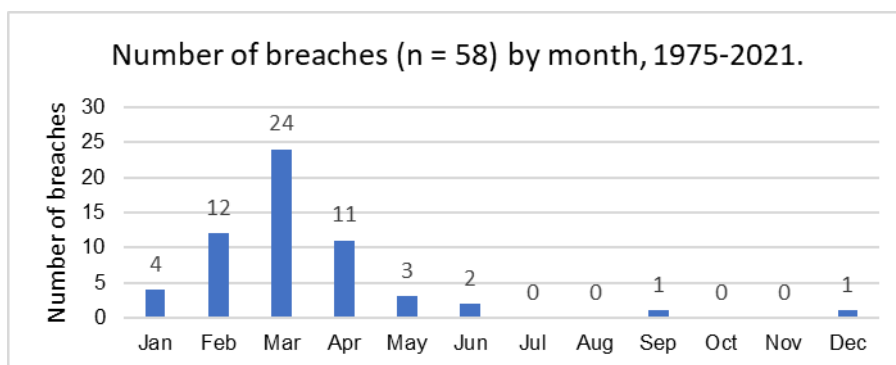


Figure 14. Breaches by month, 1975-2022.

(Source: Table 9 above)

Subsequent events. Water was finding its way seaward under the closing bund and eroding it from below (personal communication, Brian Hassett). Consequently, the breach reopened on 4 April. It tided for five days, closed naturally on 10 April, and overwashed for a few days before stabilising at 3.55m approximately on 13 April. The weather for the second half of April was windy at times but exceptionally dry with no rain until 1 May (Figure 15).

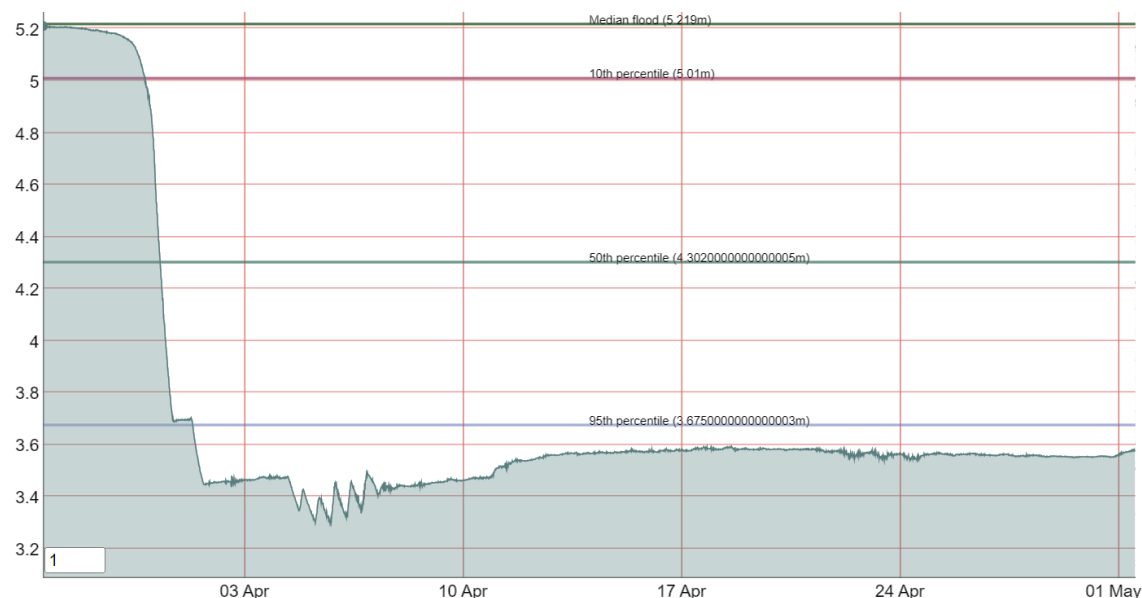


Figure 15. Barrier breach, April 2022.

(Source: <http://waterlevel.ie/0000013070/0001/>)

Water level remained constant at approximately 3.5m for the first half of May. On 18 May 2022, the level rose by 20cm to 3.75m (Figure 16). The rise coincided with a period of wet and windy weather and the peak of the spring tide associated with the full moon on the 16th.

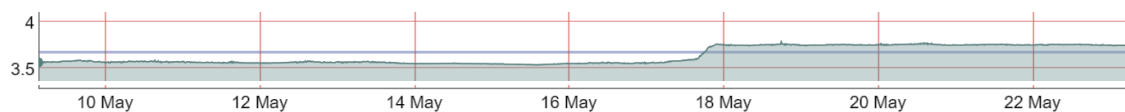


Figure 16. Water level rise on 18 May 2022.

(Source: <http://waterlevel.ie/0000013070/0001/>)

Water level remained stable throughout the summer. August was a particularly dry month; water level fell from a peak of 3.60m ODP at the beginning of the month to almost 3.46m ODP at the end of the month (Figure 17).

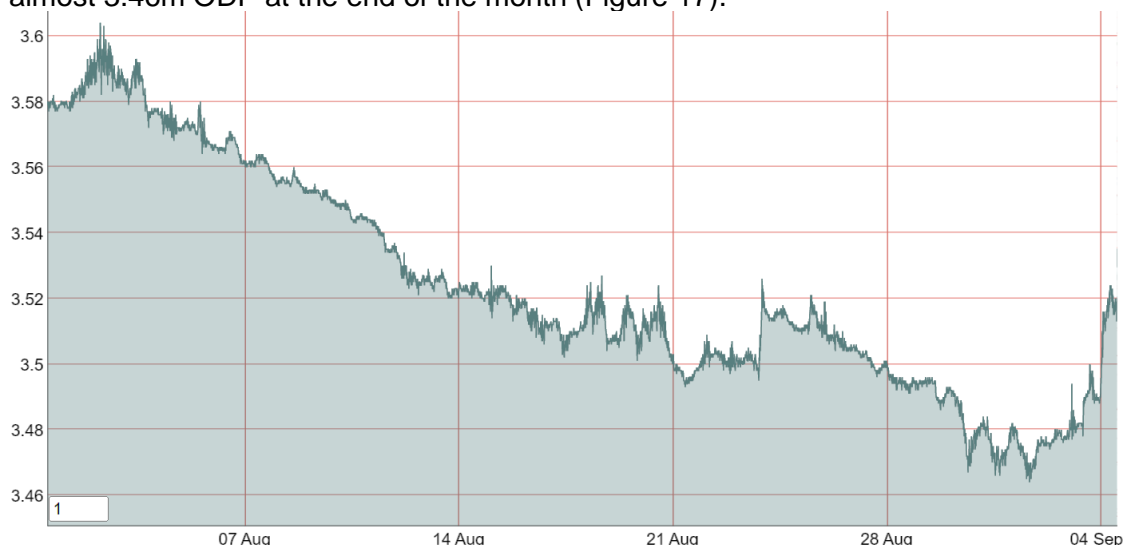


Figure 17. Water level during August 2022.

(Source: <http://waterlevel.ie/0000013070/0001/>)

Storm names. On 1 September 2022, Met Éireann published the following list of storm names for 2022/23: Antoni, Betty, Cillian, Daisy, Elliot, Fleur, Glen, Hendrika, Íde, Johanna, Khalid, Loes, Mark, Nelly, Owain, Priya, Ruadhán, Sam, Tobias, Val and Wouter.

Overwashing. At high water on 21 October 2022, the barrier was being overwashed on each breaking wave. The weather was breezy but not exceptionally windy. Water level in the lagoon stood at 3.66m ODP.



During the months of October and November water level rose by almost 1m due to overwashing and rainfall.

The second half of December 2022 was wet and windy and water level rose by 0.4m approximately.

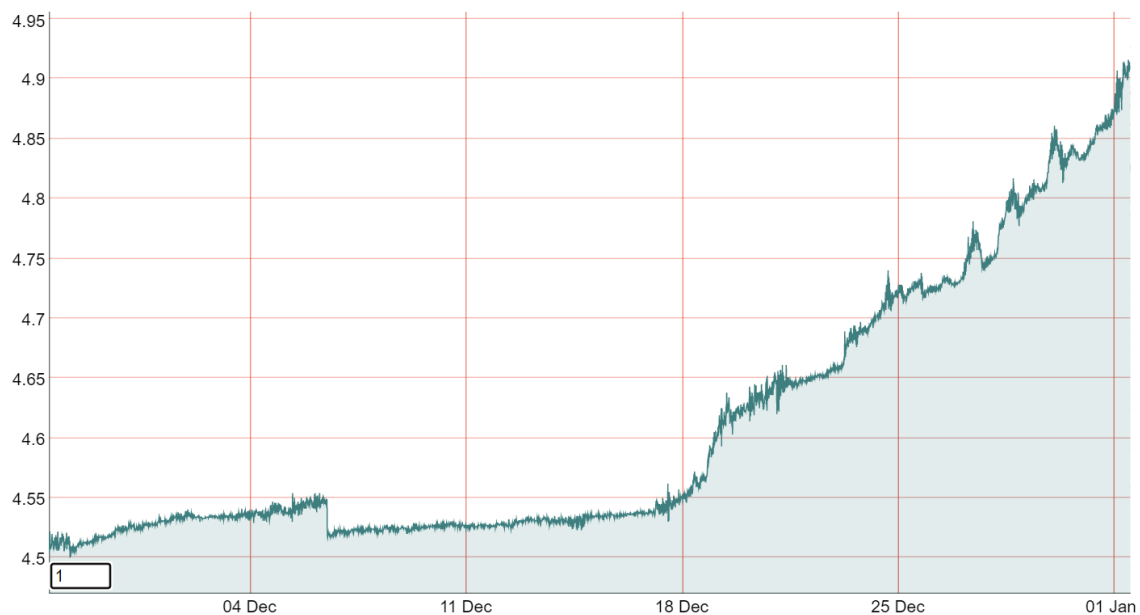


Figure 18. Water level rises, December 2022.

End of year position. At 23:45h on 31 December water level in the lagoon stood at 4.874m ODP (Figure 18).

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. 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. Hurley, 1999 page 138. Hurley, 2000 pages 154-158. Hurley, 2001 page 118. Hurley, 2002 pages 134-135. Hurley, 2003 pages 135-137. Hurley, 2004 pages 164-166. Hurley, 2005 pages 154-156. Hurley, 2006 pages 132-134. Hurley, 2007 pages 160-162. Hurley, 2008 pages 117-119. Hurley, 2009 pages 83-84. Hurley, 2010 pages 94-96. Hurley, 2011 pages 88-90. Hurley, 2012 pages 92-95. Hurley, 2013 pages 102-104. Hurley, 2014 pages 83-84. Hurley, 2015 pages 85-87. Hurley, 2016 pages 83-84. Hurley, 2017 pages 126-127. Hurley, 2018 pages 94-96. Hurley, 2019 pages 93-94. Hurley, 2020 pages 109-110. Hurley, 2021 pages 104-105. Hurley, 2022 pages 87-88.

Water level: Jim Hurley took some opportunistic readings of water level at Lady's Island Lake and the data obtained during 2022 are tabulated below (Table 10).

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1												
2												
3												
4												
5												
6												
7		4.85										
8												
9												
10			5.16									
11												
12	4.93		5.20							3.60		
13						3.71			3.56			
14		4.90										
15			5.24									
16												4.56
17												
18				3.50								
19											4.25	
20							3.59					
21										3.66		
22												
23			5.22									
24								3.49				
25												
26					3.78							
27												
28												
29												
30												
31												

Mean, estimated or trend water level for month.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.93	4.88	5.21	3.50	3.78	3.71	3.59	3.49	3.56	3.63	4.25	4.56

Table 10: Water level during 2022.

Notes on the table. 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 on which the barrier was breached during the year (28 March 2022).

Gross trend: The gross water level trend during the year is summarised in the overview below (Figure 19) generated from the monthly averages of all water level readings recorded (Table 10 above).

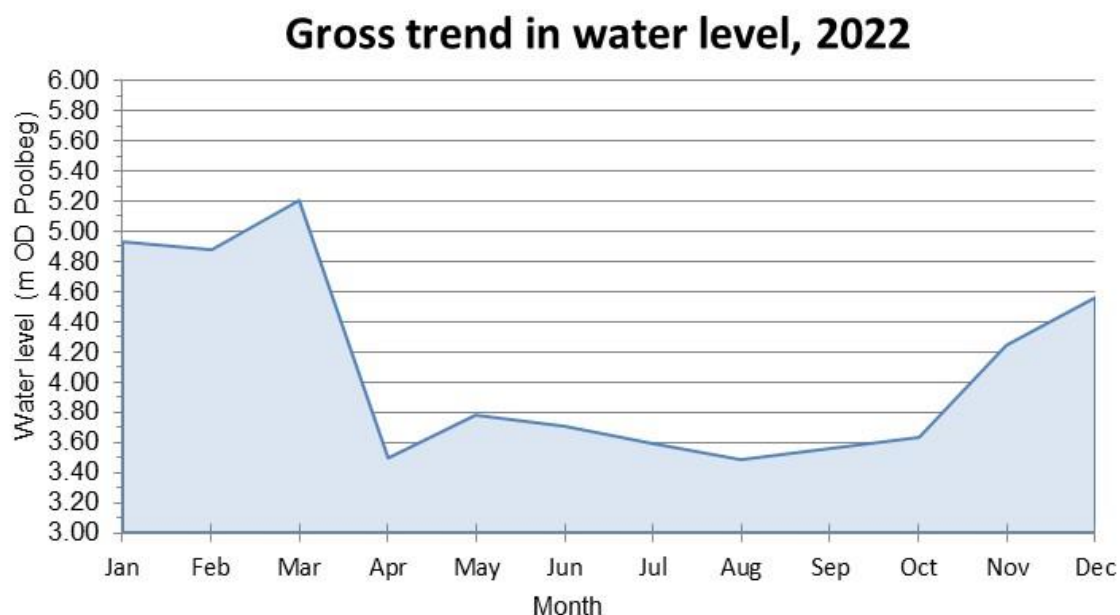


Figure 19. Gross trend in water level by month, 2022.

(Source: Table 10 above)

14.1.2 Automatic recorder data

References to earlier reports. Hurley, 1999 page 154. Hurley, 2000 page 158. Hurley, 2001 page 120. Hurley, 2002 page 137. Hurley, 2011 page 90. Hurley, 2012 page 95. Hurley, 2015 pages 87-89. Hurley, 2016 pages 85-87. Hurley, 2017 pages 127-129. Hurley, 2018 pages 96-98. Hurley, 2019 pages 94-95. Hurley, 2020 pages 111-114. Hurley, 2021 pages 105-106. Hurley, 2022 pages 88-89.

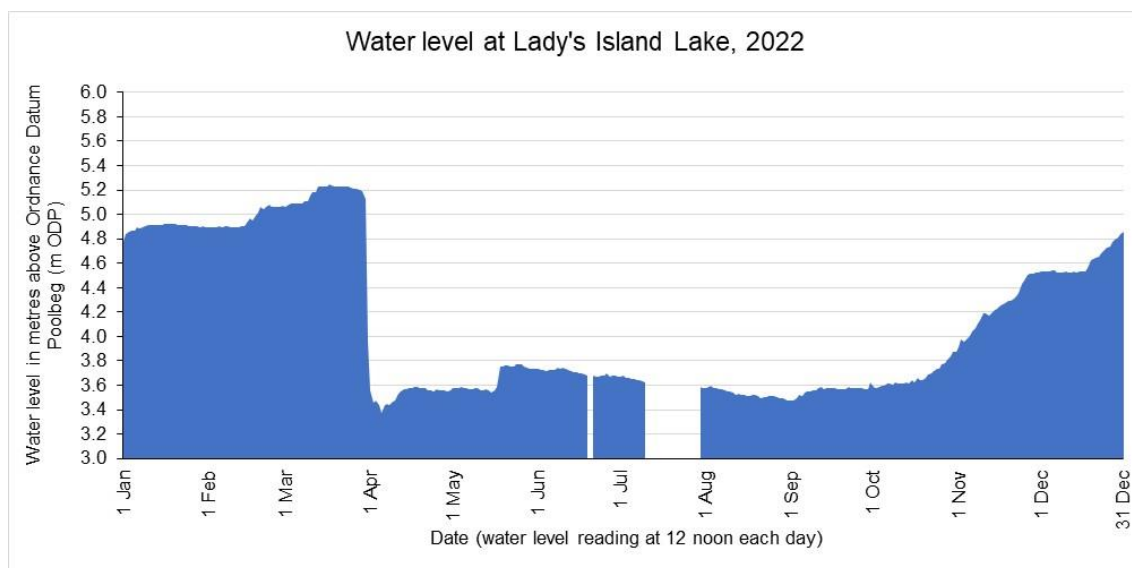


Figure 20. Water level at Lady's Island Lake, 2022.

(Source: Table 11)

During 2022, the barrier was breached once (28 March). Values for water level in the lagoon at 12 noon each day during 2022 are tabulated below (Table 11). Levels are measured in metres above Ordnance Datum Poolbeg (m ODP) and are extracted from

the Office of Public Works (OPW) webpages for Station 13070 Lady's Island at <http://waterlevel.ie/0000013070/>. Online results were not available from on 20 June and for the period 11-29 July. Third parties using these data should be aware of the notes, warnings and conditions-of-use set out in the OPW disclaimer at the link given.

Date	Value	15/03/2022	5.231	28/05/2022	3.746	10/08/2022	3.545	23/10/2022	3.712
01/01/2022	4.783	16/03/2022	5.233	29/05/2022	3.738	11/08/2022	3.539	24/10/2022	3.736
02/01/2022	4.842	17/03/2022	5.244	30/05/2022	3.739	12/08/2022	3.525	25/10/2022	3.734
03/01/2022	4.860	18/03/2022	5.236	31/05/2022	3.734	13/08/2022	3.526	26/10/2022	3.770
04/01/2022	4.863	19/03/2022	5.231	01/06/2022	3.730	14/08/2022	3.525	27/10/2022	3.777
05/01/2022	4.871	20/03/2022	5.230	02/06/2022	3.728	15/08/2022	3.523	28/10/2022	3.807
06/01/2022	4.892	21/03/2022	5.231	03/06/2022	3.721	16/08/2022	3.516	29/10/2022	3.835
07/01/2022	4.888	22/03/2022	5.227	04/06/2022	3.713	17/08/2022	3.507	30/10/2022	3.869
08/01/2022	4.897	23/03/2022	5.227	05/06/2022	3.721	18/08/2022	3.519	31/10/2022	3.873
09/01/2022	4.905	24/03/2022	5.225	06/06/2022	3.724	19/08/2022	3.521	01/11/2022	3.911
10/01/2022	4.913	25/03/2022	5.220	07/06/2022	3.721	20/08/2022	3.516	02/11/2022	3.974
11/01/2022	4.914	26/03/2022	5.214	08/06/2022	3.741	21/08/2022	3.495	03/11/2022	3.954
12/01/2022	4.915	27/03/2022	5.210	09/06/2022	3.735	22/08/2022	3.504	04/11/2022	3.979
13/01/2022	4.916	28/03/2022	5.204	10/06/2022	3.745	23/08/2022	3.502	05/11/2022	3.999
14/01/2022	4.915	29/03/2022	5.188	11/06/2022	3.731	24/08/2022	3.515	06/11/2022	4.045
15/01/2022	4.917	30/03/2022	5.131	12/06/2022	3.723	25/08/2022	3.516	07/11/2022	4.073
16/01/2022	4.919	31/03/2022	3.960	13/06/2022	3.712	26/08/2022	3.508	08/11/2022	4.108
17/01/2022	4.919	01/04/2022	3.554	14/06/2022	3.705	27/08/2022	3.499	09/11/2022	4.134
18/01/2022	4.922	02/04/2022	3.457	15/06/2022	3.703	28/08/2022	3.492	10/11/2022	4.185
19/01/2022	4.918	03/04/2022	3.472	16/06/2022	3.699	29/08/2022	3.495	11/11/2022	4.186
20/01/2022	4.918	04/04/2022	3.436	17/06/2022	3.699	30/08/2022	3.482	12/11/2022	4.175
21/01/2022	4.916	05/04/2022	3.372	18/06/2022	3.688	31/08/2022	3.472	13/11/2022	4.189
22/01/2022	4.914	06/04/2022	3.435	19/06/2022	3.679	01/09/2022	3.472	14/11/2022	4.213
23/01/2022	4.915	07/04/2022	3.446	20/06/2022		02/09/2022	3.477	15/11/2022	4.230
24/01/2022	4.909	08/04/2022	3.442	21/06/2022	3.675	03/09/2022	3.489	16/11/2022	4.243
25/01/2022	4.907	09/04/2022	3.465	22/06/2022	3.666	04/09/2022	3.517	17/11/2022	4.260
26/01/2022	4.908	10/04/2022	3.470	23/06/2022	3.669	05/09/2022	3.512	18/11/2022	4.271
27/01/2022	4.904	11/04/2022	3.528	24/06/2022	3.677	06/09/2022	3.538	19/11/2022	4.287
28/01/2022	4.908	12/04/2022	3.549	25/06/2022	3.679	07/09/2022	3.548	20/11/2022	4.287
29/01/2022	4.898	13/04/2022	3.566	26/06/2022	3.696	08/09/2022	3.548	21/11/2022	4.308
30/01/2022	4.904	14/04/2022	3.570	27/06/2022	3.672	09/09/2022	3.559	22/11/2022	4.328
31/01/2022	4.897	15/04/2022	3.573	28/06/2022	3.677	10/09/2022	3.558	23/11/2022	4.360
01/02/2022	4.898	16/04/2022	3.579	29/06/2022	3.677	11/09/2022	3.574	24/11/2022	4.435
02/02/2022	4.895	17/04/2022	3.583	30/06/2022	3.665	12/09/2022	3.589	25/11/2022	4.458
03/02/2022	4.895	18/04/2022	3.589	01/07/2022	3.669	13/09/2022	3.567	26/11/2022	4.502
04/02/2022	4.897	19/04/2022	3.578	02/07/2022	3.677	14/09/2022	3.581	27/11/2022	4.511
05/02/2022	4.905	20/04/2022	3.581	03/07/2022	3.663	15/09/2022	3.575	28/11/2022	4.511
06/02/2022	4.898	21/04/2022	3.576	04/07/2022	3.662	16/09/2022	3.574	29/11/2022	4.519
07/02/2022	4.902	22/04/2022	3.562	05/07/2022	3.652	17/09/2022	3.573	30/11/2022	4.524
08/02/2022	4.900	23/04/2022	3.559	06/07/2022	3.649	18/09/2022	3.568	01/12/2022	4.534
09/02/2022	4.891	24/04/2022	3.545	07/07/2022	3.644	19/09/2022	3.570	02/12/2022	4.533
10/02/2022	4.891	25/04/2022	3.565	08/07/2022	3.641	20/09/2022	3.569	03/12/2022	4.534
11/02/2022	4.890	26/04/2022	3.562	09/07/2022	3.633	21/09/2022	3.571	04/12/2022	4.535
12/02/2022	4.899	27/04/2022	3.560	10/07/2022	3.627	22/09/2022	3.582	05/12/2022	4.544
13/02/2022	4.901	28/04/2022	3.556	11/07/2022		23/09/2022	3.577	06/12/2022	4.542
14/02/2022	4.907	29/04/2022	3.551	12/07/2022		24/09/2022	3.575	07/12/2022	4.525
15/02/2022	4.929	30/04/2022	3.555	13/07/2022		25/09/2022	3.578	08/12/2022	4.525
16/02/2022	4.968	01/05/2022	3.578	14/07/2022		26/09/2022	3.576	09/12/2022	4.527
17/02/2022	4.954	02/05/2022	3.576	15/07/2022		27/09/2022	3.577	10/12/2022	4.528
18/02/2022	4.977	03/05/2022	3.578	16/07/2022		28/09/2022	3.569	11/12/2022	4.526
19/02/2022	5.018	04/05/2022	3.583	17/07/2022		29/09/2022	3.568	12/12/2022	4.527
20/02/2022	5.063	05/05/2022	3.575	18/07/2022		30/09/2022	3.622	13/12/2022	4.533
21/02/2022	5.039	06/05/2022	3.578	19/07/2022		01/10/2022	3.583	14/12/2022	4.526
22/02/2022	5.057	07/05/2022	3.564	20/07/2022		02/10/2022	3.577	15/12/2022	4.535
23/02/2022	5.082	08/05/2022	3.566	21/07/2022		03/10/2022	3.588	16/12/2022	4.537
24/02/2022	5.059	09/05/2022	3.579	22/07/2022		04/10/2022	3.598	17/12/2022	4.537
25/02/2022	5.060	10/05/2022	3.572	23/07/2022		05/10/2022	3.596	18/12/2022	4.563
26/02/2022	5.065	11/05/2022	3.558	24/07/2022		06/10/2022	3.614	19/12/2022	4.629
27/02/2022	5.066	12/05/2022	3.562	25/07/2022		07/10/2022	3.615	20/12/2022	4.633
28/02/2022	5.071	13/05/2022	3.570	26/07/2022		08/10/2022	3.602	21/12/2022	4.645
01/03/2022	5.066	14/05/2022	3.555	27/07/2022		09/10/2022	3.626	22/12/2022	4.652
02/03/2022	5.082	15/05/2022	3.541	28/07/2022		10/10/2022	3.614	23/12/2022	4.681
03/03/2022	5.090	16/05/2022	3.557	29/07/2022		11/10/2022	3.615	24/12/2022	4.712
04/03/2022	5.092	17/05/2022	3.590	30/07/2022	3.589	12/10/2022	3.616	25/12/2022	4.727
05/03/2022	5.087	18/05/2022	3.754	31/07/2022	3.580	13/10/2022	3.619	26/12/2022	4.736
06/03/2022	5.090	19/05/2022	3.754	01/08/2022	3.581	14/10/2022	3.617	27/12/2022	4.770
07/03/2022	5.094	20/05/2022	3.764	02/08/2022	3.589	15/10/2022	3.644	28/12/2022	4.788
08/03/2022	5.107	21/05/2022	3.758	03/08/2022	3.592	16/10/2022	3.627	29/12/2022	4.809
09/03/2022	5.109	22/05/2022	3.757	04/08/2022	3.576	17/10/2022	3.658	30/12/2022	4.835
10/03/2022	5.158	23/05/2022	3.752	05/08/2022	3.579	18/10/2022	3.640	31/12/2022	4.857
11/03/2022	5.180	24/05/2022	3.771	06/08/2022	3.568	19/10/2022	3.644		
12/03/2022	5.186	25/05/2022	3.767	07/08/2022	3.563	20/10/2022	3.664		
13/03/2022	5.231	26/05/2022	3.767	08/08/2022	3.555	21/10/2022	3.684		
14/03/2022	5.230	27/05/2022	3.757	09/08/2022	3.551	22/10/2022	3.695		

Table 11. Values for water level in the lagoon at 12 noon each day during 2022.

(Source: <http://waterlevel.ie/0000013070/>)

14.2 Tacumshin Lake

References to earlier reports. Hurley, 2002 page 137. Hurley, 2006 page 135. Hurley, 2007 page 163. Hurley, 2013 page 104. Hurley, 2014 page 84. Hurley, 2015 page 90. Hurley, 2016 page 88. Hurley, 2017 pages 130-132. Hurley, 2018 pages 99-100. Hurley, 2019 page 96. Hurley, 2020 page 114. Hurley, 2021 page 107. Hurley, 2022 page 90.

14.3 Inish and Ballyteige Slob

15 TOWARDS A BETTER SOLUTION

References to earlier reports. Hurley, 1997 pages 159-160. Hurley, 1999 page 140. Hurley, 2001 page 120.

16 UNRESOLVED ISSUES

Reference to earlier report. Hurley, 1997 page 161.

16.1 Special Protection Area (SPA)

References to earlier reports. Hurley, 1997 pages 161-162. Hurley, 1998 page 52. Hurley, 1999 page 140. Hurley, 2000 page 159. Hurley, 2002 page 138.

16.2 Planning permission for works

Reference to earlier report. Hurley, 1997 pages 162-163.

16.3 Environmental Impact Assessment (EIA)

Reference to earlier report. Hurley, 1997 page 163.

16.4 Foreshore licence for breaching

References to earlier reports. Hurley, 1997 page 163. Hurley, 1998 page 52.

16.5 Removal of beach material

References to earlier reports. Hurley, 1997 pages 163-164. Hurley, 1999 page 140. Hurley, 2000 page 159.

16.6 Defining the lake foreshore

References to earlier reports. Hurley, 1997 pages 164-165. Hurley, 1998 page 52. Hurley, 1999 pages 140-141. Hurley, 2000 pages 160-162. Hurley, 2007 page 165. Hurley, 2008 page 120.

16.7 Special Area of Conservation (SAC)

References to earlier reports. Hurley, 1997 page 165. Hurley, 1998 pages 53-58. Hurley, 1999 pages 141-144. Hurley, 2000 page 163.

17 MANAGEMENT ISSUES

References to earlier reports. Hurley, 1997 pages 166-169. Hurley, 1998 page 58. Hurley, 2001 page 123.

17.1 Global issues

References to earlier reports. Hurley, 1998 page 58. Hurley, 1999 page 144.

17.2 EU issues

References to earlier reports. Hurley, 1998 pages 58-59. Hurley, 1999 page 145. Hurley, 2002 page 141. Hurley, 2003 page 140.

17.3 National plans

References to earlier reports. Hurley, 2000 page 165. Hurley, 2002 page 141. Hurley, 2003 page 140.

17.4 Management tools

Reference to earlier report. Hurley, 2003 page 141.

17.5 Integrated Coastal Zone Management (ICZM)

References to earlier reports. Hurley, 1998 pages 59-60. Hurley, 1999 page 145. Hurley, 2000 pages 165-166. Hurley, 2001 pages 123-125. Hurley, 2002 pages 142-143. Hurley, 2003 page 141. Hurley, 2004 page 170. Hurley, 2005 pages 160-161. Hurley, 2006 page 138. Hurley, 2007, pages 167-168. Hurley, 2008 page 121. Hurley, 2010 page 98. Hurley, 2014 page 86. Hurley, 2018 page 102.

17.6 Waste management

References to earlier reports. Hurley, 2000 page 166. Hurley, 2002 page 143. Hurley, 2003 page 142. Hurley, 2006 page 139. Hurley 2007, page 169. Hurley, 2009 page 87. Hurley, 2010 pages 98-99. Hurley, 2011 page 92. Hurley, 2012 page 97. Hurley, 2013 page 106. Hurley, 2014 page 87. Hurley, 2015 page 92. Hurley, 2016 page 90. Hurley, 2019 page 98. Hurley, 2021 page 108. Hurley, 2022 page 91.

17.7 Wildlife management

References to earlier reports. Hurley, 1999 page 145. Hurley, 2005 page 162. Hurley, 2012 page 97. Hurley, 2013 page 107. Hurley, 2014 page 87. Hurley, 2015 page 92. Hurley, 2016 page 90. Hurley, 2017 pages 134-135. Hurley, 2018 pages 102-103. Hurley, 2019 page 99. Hurley, 2020 pages 116-117. Hurley, 2021 page 109 Hurley, 2022 page 92..

Updates

Green Flag Awards. On 14 September 2022, An Taisce Environmental Education announced the 2022 Green Flag Awards, an international benchmarking standard for parks and green spaces. Two 'Community Awards' were made: Foulksmills Park (Foulksmills Tidy Towns), and Our Lady's Island Community Park (Our Lady's Island Community Development Company) (Source: An Taisce press release and *New Ross Standard*, issue dated 14 September 2022, page 2).

Tidy Towns. The SuperValu Tidy Towns competition was again held online during 2022 due to the COVID-19 pandemic. The results were published on 28 October 2022. Ballycullane re-entered the competition after an absence of seven years. Taghmon also re-entered. Marks awarded in the 'Nature and Biodiversity in your Locality' category for the seven entrants on the South Wexford Coast are tabulated in alphabetical order (Table 12). Marks were awarded out of 30 in the period 1996-2005 but since 2006 marks were awarded out of a maximum total of 50. (While the Handbook stated 50, the results reports stated 55.). The categories are A (small village with <200 population), B (bigger village, 201-1,000) and C (small town, 1,001-2,500) (Source: https://www.tidytowns.ie/reports/?report_year=2022&report_county=wexford&seed=1666983730).

Entrant by year of entry	Ballycullane	Bridgetown	Carrick	Duncormick	Fethard	Foulksmill	Kilmore Quay	Saltmills	Taghmon	Wellingtonbridge
Category	B	B	B	A		A			C	B
1996					15	17	15	12		18
1997					19	20	16	15		
1998					19	19	16	14		17
1999						19	18	15	16	
2000						19	19	15	16	
2001						19	20	21		
2002						19		21		
2003						19		25	17	
2004						20				
2005						21				
2006						21				
2007						22				
2008						22				
2009						22				
2010			18			22			16	
2011			18	20		21			17	
2012			19	21	20	20			18	
2013			19	21	20	20			18	
2014			20	24	22	22			19	
2015		15		25		23			18	
2016		18		26		24			21	21
2017		21		27		24			23	22
2018		22		30		25				23
2019		23		32		26				23
2020		-	-	-		-				-
2021		23	20	34		27				25
2022	24	23	21	36		28			23	26
	Ball	Brid	Car	Dun	Fet	Fou	KQ	Salt	Tag	Wel

Table 12. Tidy Towns marks awarded for Nature and Biodiversity.

17.8 Golf courses

References to earlier reports. Hurley, 1998 pages 61-62 and 99-107. Hurley, 1999 pages 145-149. Hurley, 2002 pages 143-147. Hurley, 2003 pages 142-149. Hurley, 2004 page 171. Hurley, 2005 page 162. Hurley, 2021 pages 110-112.

17.9 Land management

References to earlier reports. Hurley, 1998 page 62. Hurley, 2004 page 171. Hurley, 2008 page 122. Hurley, 2009 page 88. Hurley, 2010 page 99. Hurley, 2013 page 107. Hurley, 2015 page 93.

17.10 All-terrain vehicles (ATVs)

References to earlier reports. Hurley, 1998 page 62. Hurley, 1999 page 149. Hurley, 2000 page 166. Hurley, 2002 page 147. Hurley, 2003 page 150. Hurley, 2005 page 163. Hurley, 2007 page 170. Hurley, 2008 page 122. Hurley, 2009 page 88. Hurley, 2010 page 99. Hurley, 2011 page 93.

17.11 Temporary dwellings

References to earlier reports. Hurley, 1998 pages 62-64. Hurley, 1999 page 149-150. Hurley, 2000 pages 167-169. Hurley, 2001 page 125. Hurley, 2002 pages 147-148. Hurley, 2003 page 150. Hurley, 2008 page 122. Hurley, 2019 page 100.

17.12 Outdoor musical events

References to earlier reports. Hurley, 1998 page 65. Hurley, 2002 pages 148-149. Hurley 2004, page 172.

17.13 Swimming

References to earlier reports. Hurley, 1999 page 151. Hurley 2004, page 172. Hurley 2005, page 164. Hurley, 2012 page 98. Hurley, 2013 page 108. Hurley, 2014 page 88. Hurley, 2017 page 136. Hurley, 2018 page 104. Hurley, 2019 page 100. Hurley, 2020 page 118. Hurley, 2021 page 113. Hurley, 2022 page 93.

Updates

May. Blue Flag and Green Coast awards were announced by An Taisce during May 2022. There was no Blue Flag beach on the South Wexford Coast but there were four Green Coast awards for the beaches at Baginbun, Grange, Cullenstown and Ballyhealy (*Wexford People*, issue dated 25 May 2022, page 13).

June. While there is no 'Identified Bathing Water' on the South Wexford Coast ('Identified Bathing Waters' are beaches that are monitored, managed and assessed under the requirements of the 2008 Bathing Water Quality Regulations <https://www.epa.ie/our-services/monitoring--assessment/bathing-water/#:~:text=Designated%20beaches%20and%20lakes%20are,by%20the%20Bathing%20Water%20Regulations.>), the Small Beach at Kilmore Quay was flagged as one of five bathing beaches on the South Wexford Coast (<https://www.beaches.ie/>) (image right; above).

August. On 13 August 2022, Wexford County Council erected 'Do Not Swim' warning notices at Kilmore Quay (image right; below). The reason for the warning was given as '*High levels of bacteria*' and the '*Likely cause*' was returned as '*Unknown*'.

17.14 Shooting

References to earlier reports. Hurley, 1999 page 151. Hurley, 2006 page 140. Hurley, 2007 page 171. Hurley, 2008 page 123. Hurley, 2009 page 89. Hurley, 2010 page 100. Hurley, 2012 page 98. Hurley, 2014 page 88. Hurley, 2015 page 94. Hurley, 2016 page 91. Hurley, 2019 page 100. Hurley, 2021 page 113.

17.15 The extractive industry

References to earlier reports. Hurley, 1999 pages 151-152. Hurley, 2001 page 125. Hurley 2004, page 173. Hurley 2005, page 164. Hurley, 2007 pages 172-176. Hurley, 2009 page 89. Hurley, 2011 page 94. Hurley, 2012 page 98. Hurley, 2019 pages 100-101. Hurley, 2020 page 118. Hurley, 2022 page 93.

17.16 Housing and development

References to earlier reports. Hurley, 1999 page 152. Hurley, 2000 pages 170-173. Hurley, 2001 pages 125-128. Hurley, 2002 pages 149-151. Hurley 2004, pages 173-174. Hurley 2005, page 164. Hurley 2006, page 141. Hurley, 2008 page 123. Hurley, 2010 page 101. Hurley, 2014 pages 88-89.

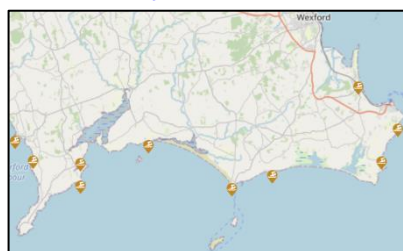
17.17 Wind farming

References to earlier reports. Hurley 2004, pages 174-175. Hurley 2005, page 166. Hurley 2006, page 142. Hurley, 2007 page 177. Hurley, 2008 page 123. Hurley, 2010 pages 101-102. Hurley, 2011 page 94-95. Hurley, 2012 page 99. Hurley, 2012 page 98. Hurley, 2013 page 109. Hurley, 2015 pages 94-95. Hurley, 2020 page 119.

17.17.1 Introduction

ORE Working Group. On 24 May 2022, Mayo-based Captain Robert McCade was appointed for a two-year period by Minister for Housing, Local Government and Heritage, Darragh O'Brien as independent Chair of the Seafood / Offshore Renewable Energy (ORE) Working Group. The Group was established to facilitate discussion on matters arising from the interaction of the seafood and offshore renewable energy industries, to promote and share best practice, and to encourage liaison with other sectors in the marine environment.

Port facility. On 7 December 2022, Irish Rail gave public notice that it has applied for a foreshore licence to build a port facility at Rosslare Harbour to support the construction, operation and maintenance of offshore wind farms (*Wexford People*, issue dated 7 December 2022, page 9).



17.17.2 Hook Head

References to earlier reports. Hurley, 2004 page 180. Hurley, 2005 page 171. Hurley, 2020 pages 120-121. Hurley, 2022 page 94.

17.17.3 Richfield

References to earlier reports. Hurley, 2020 page 121. Hurley, 2021 page 113. Hurley, 2022 page 94.

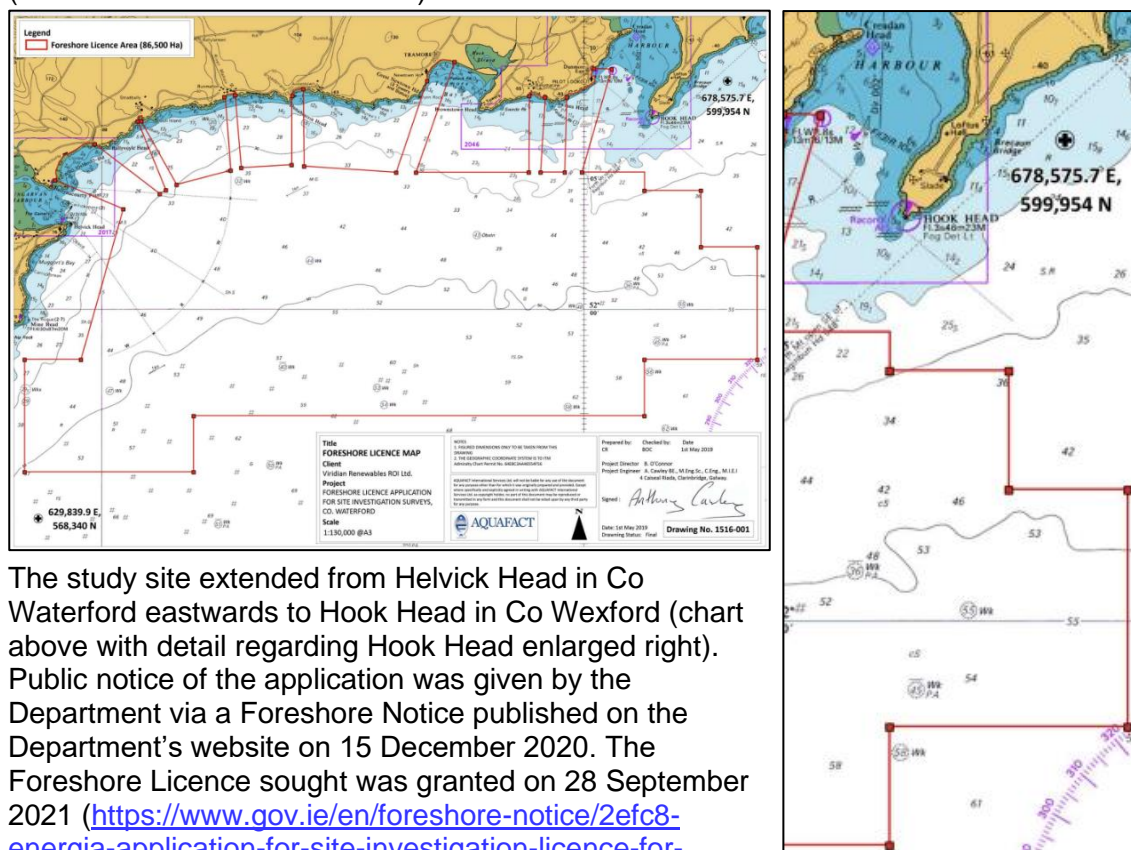
Update. On Tuesday 19 April 2022, Ted Walsh lodged his bird monitoring report for the winter season September 2021-March 2022 at Richfield Wind Farm (Walsh, 2022). The report was posted online under the tab “Correspondence with Planning Authority” at <https://dms.wexfordcoco.ie/application.php?q=20050156#>; Planning Authority (PA) Register Reference Number 20050156.

17.17.4 Carnsore Point

References to earlier reports. Hurley, 1999 pages 152-153. Hurley, 2000 pages 174, 192 and Annex 1 (8 pages) and Annex 2 (5 pages). Hurley, 2001 page 129 updates and Annex 1 on page 142 (19 pages). Hurley, 2002 page 151. Hurley, 2003 pages 151-166. Hurley, 2004 pages 175-176. Hurley 2005, pages 167-170. Hurley 2006, pages 143-145. Hurley, 2007 page 178. Hurley, 2008 page 124. Hurley, 2010 page 102. Hurley, 2017 page 136. Hurley, 2018 page 105. Hurley, 2020 page 121. Hurley, 2022 page 95.

17.17.5 North Celtic Sea

On 18 April 2019, Energia Renewables Ireland Ltd applied to the Department of Housing, Local Government and Heritage for a Site Investigation Licence to conduct site investigations of the seabed off Co Waterford for a proposed offshore wind farm (OWF) known as ‘the North Celtic Sea offshore renewable energy project’ (OREP) (Reference Number: FS006982).



The study site extended from Helvick Head in Co Waterford eastwards to Hook Head in Co Wexford (chart above with detail regarding Hook Head enlarged right). Public notice of the application was given by the Department via a Foreshore Notice published on the Department’s website on 15 December 2020. The Foreshore Licence sought was granted on 28 September 2021 (<https://www.gov.ie/en/foreshore-notice/2efc8-energia-application-for-site-investigation-licence-for-windfarm-off-helvick-head/?referrer=http://www.gov.ie/en/publication/e3106-energia-application-for-site-investigation-licence-for-windfarm-off-helvick-head/>). The developers’ website showed that the main offshore study area was west of the indicative shipping lane in and out of Waterford Harbour (<https://www.northcelticseawind.ie/>). The proposed development area did not impact on

the Hook Head SAC and the Aquafact screening report screened out any likely adverse impacts on that Natura 2000 site.

Events during 2022 are summarised below (Table 13) from the developers' website (<https://www.northcelticseawind.ie/news/>). The proposed €2 billion development was located 10-25km offshore, and consisted of 40-60 turbines with an ability to generate an estimated 600-800MW of electricity to service 500,000 homes.

Date	Event
11 Feb	Public consultation report published.
25 Mar	Information clinics opened.
28 Mar	Offshore survey contract awarded to Green Rebel.
31 Mar	First newsletter published.
23 July	Geotechnical seabed surveys planned for August and September.
17 Nov	Surveys successfully completed (started April 2022 and completed October 2022).
6 Dec	Jodie Neary appointed as Offshore Stakeholder and Engagement Manager.
9 Dec	Three videos launched regarding the marine surveys.

Table 13. Sequence of events at North Celtic Sea during 2022.

17.17.6 Celtic Sea Array

On 19 March 2019, SSE Renewables (Ireland) Ltd applied to the Department of Housing, Local Government and Heritage for a Site Investigation Licence to conduct site investigations of the seabed off Co Waterford for a proposed offshore renewable energy project (OREP) known as the 'Celtic Sea Array' (Reference Number: FS006983). The farm was outside the 12-mile limit and had two cable export corridors: one to Co Waterford and the other to Blackhall on the South Wexford Coast.

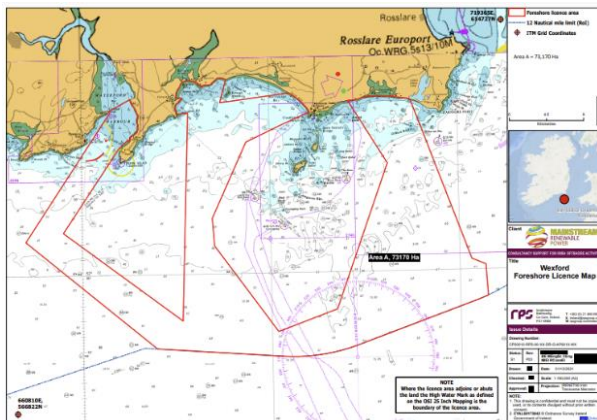
Since the eastern corridor passed close to the Keeragh Islands SPA the 104-page NIS proposed the following two mitigation measures (Intertek, 2019, Appendix B, page B-5, paragraph B.2.2.1).

- *"It is recommended that the survey vessels stay at least 750m away from the base of the Keeragh Islands during the period February to September to minimise disturbance to nesting birds.*
- *It is recommended that the survey of the application area from the coast to 4km offshore occurs during the period August through to February to avoid disturbance of incubating or chick-rearing adults."*

The first period of non-statutory consultation on the project closed on Friday 11 November 2022 (<https://www.sserenewables.com/offshore-wind/projects/celtic-array/>). Statutory public submissions regarding Appropriate Assessment were invited by the Department of Housing, Local Government and Heritage before 9 January 2023 (*New Ross Standard*, issue dated 30 November 2022, page 9). Jim Hurley made a submission (<https://www.southwexfordcoast.com/marine-protected-areas/>).

17.17.7 South East Wind

On 3 June 2021, Mainstream Renewable Power Ltd with an address at Ground Floor Block G, Central Park, Leopardstown, Dublin, Ireland, D18 NH10, applied to the Department of Housing, Local Government and Heritage (DHLGH) for an Investigative Foreshore Licence to conduct site investigations in an area of approximately 731.8km² (73,170ha) off Co Wexford (File Reference No FS007374). On 25 April 2022, the Department posted notice of receipt of the application on its website (<https://www.gov.ie/en/foreshore-notice/aa526-mainstream-renewable-power-ltd-site-investigations-off-co-wexford/>) together with a copy of the 22-page application form, and a one-page map (copy right) showing the application site. The application form stated that while the proposed offshore wind farm (OWF) was to be located mainly outside the 12-mile limit; the application referred only to the portion of the farm together with three potential cable export corridors, that lay within the State's maritime jurisdiction. The total area of interest was given as approximately 2,109km².



On 12 October 2022, Mainstream Renewable Power Ltd placed an advertisement in the local press inviting interested parties to call to Clayton Whites Hotel on one date each in October, November and December to find out more about their proposed Southeast OWF (*Wexford People*, issue dated 12 October 2022, page 19). On Monday 7 November 2022, Jim Hurley met with Jane Hennessy, the developer's Stakeholder and Development Manager, who explained that the company's area of



interest was the orange area of the attached map (Source: <https://www.southeastoffshorewind.ie/project/>). The project was known as "South East Wind". The aim was to conduct a comprehensive study to see if the area was suitable for an offshore wind farm.

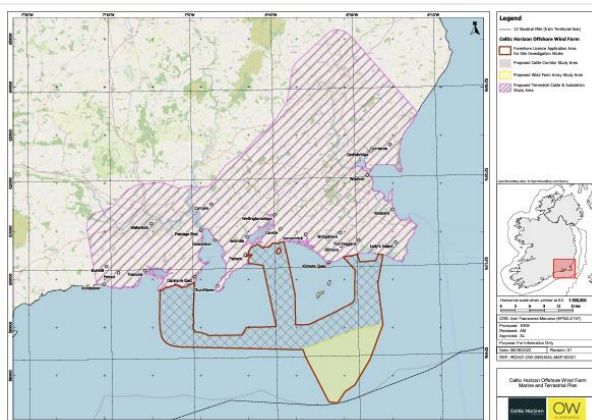
Events during 2022 are summarised below (Table 14) from the developers' website (<https://www.southeastoffshorewind.ie/news/>).

Date	Event
24 Mar	Brief update regarding the early stage of development.
28 June	Updated 115-page version of the US Offshore Wind Handbook produced.
16 Aug	Three major developments announced.
29 Aug	Project off the Wexford/Waterford coast announced.
2 Dec	Invitation to the drop-in event in Clayton White's Hotel published.

Table 14. Sequence of events at South East Wind during 2022.

17.17.8 Celtic Horizon

On 17 August 2022, Ocean Winds, a global company with headquarters in Madrid and with an Irish office in Nass, Co Kildare, gave public notice of what it called ‘community engagement clinics’ regarding a proposed offshore wind development to be located in the Celtic Sea. The proposed new farm with an undisclosed number of turbines of unknown height was called ‘Celtic Horizon’ (*Wexford People*, issue dated 17 August 2022, page 9). The Celtic Horizon website (<https://celtichorizonoffshorewind.ie/>) featured a map showing a proposed array area (right yellow) south of Kilmore Quay with three possible cable landfall corridors leading to a large proposed terrestrial cable and substation study area stretching as far north as Ferns (above, magenta hatching). The website advised “*The proposed wind farm array study area is located 9km from the Saltee Islands and 13.5km from mainland Wexford.*” The project had a capacity of up to 700MW, enough to power 657,000 Irish homes, expected to be in commercial operation by 2030, and had an expected operating life of 25 to 30 years.



On 17 August 2022, Conor Dolan, Project Development Executive, ‘phoned Jim Hurley with an invitation to meet. A meeting was arranged for Tuesday 23 August at 11am in the Stella Maris Centre, Kilmore Quay. A broad range of issues pertinent to the €1 billion project was discussed during the 45-minute meeting. Jim Hurley outlined his concerns regarding seabed habitats, fish, birds, seals, cetaceans, and possible MPA designation. Conor Dolan hoped that the proposed wind farm and MPA could coexist and confirmed that the array of an estimated 30-50 turbines would be located entirely within the yellow triangle.

On 24 November 2022, public notice was given that an application had been lodged on 7 June 2022 with the Department of Housing, Local Government and Heritage (DHLGH) for an Investigative Foreshore Licence (Reference Number: FS007384).

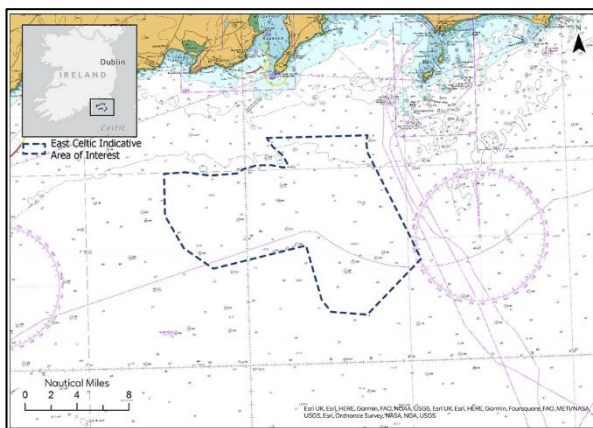
17.17.9 Bore Array

On 8 November 2022, ‘Ireland South East’ posted that a report in ‘The Currency’ announced that a new subsidiary company, Bore Array Ltd, had been established by the Norwegian state-owned renewable energy giant, Statkraft, in order to target the development of a new 500MW offshore wind farm off the South East coast of Ireland (<https://irelandsoutheast.com/2022/11/08/new-500mw-offshore-wind-farm-targeted-for-the-south-east/>).

On 24 November 2022, public notice was given that an application had been lodged on 5 April 2022 with the Department of Housing, Local Government and Heritage (DHLGH) for an Investigative Foreshore Licence (Reference Number: FS007464).

17.17.10 East Celtic

East Celtic. In late November 2022, RWE Renewables Ireland Limited, with an address at Unit 5, Desart House, Lower New Street, Kilkenny, R95 H488 (<https://uk-ireland.rwe.com/rwe-renewables-ireland>), a German-based multinational, confirmed that it had purchased the right to develop the proposed East Celtic wind farm (<https://eastceltic.com/>) located 9-36km off Hook Head from Irish company Western Power Offshore Holdings. RWE Renewables Ireland East Celtic Ltd, a wholly owned subsidiary of the German group, will develop the project and hopes to deliver 900 megawatts of electricity by 2030 (*The Irish Times*, issue dated 30 November 2022, Business News, and *Wexford People*, issue dated 7 December 2022, page 4).



On 30 November 2022, public notice was given that an application had been lodged on 22 April 2022 with the Department of Housing, Local Government and Heritage (DHLGH) for an Investigative Foreshore Licence (Reference Number: FS007488) regarding cable corridors. The application was made in the name of Celtic Offshore Renewable Energy Limited based in Co Kerry.

17.17.11 Opposition to offshore wind farms

On 7 September 2022, in a full-page news item in the local press, fishermen in Kilmore



Quay complained that they had not been consulted regarding the proposed offshore wind farms (copy right) (*Wexford People*, issue dated 12 October 2022, page 19). A further full-page news item was published in November (*Wexford People*, issue dated 9 November 2022, page 14 and *New Ross Standard*, issue dated 9 November 2022, page 22).

At the October meeting of the Rosslare Municipal District, Councillor Jim Codd raised the issue of possible adverse impacts of acoustic investigations for wind farms on fish stocks, marine habitats and the livelihoods of commercial fishers. The Planning Department of Wexford County Council promised to “look into the matter.” (*Wexford People*,

issue dated 20 October 2022, page 2).

17.18 Horses

References to earlier reports. Hurley, 2000 pages 169-170. Hurley, 2001 page 129. Hurley, 2002 page 152. Hurley, 2005 pages 171-172. Hurley, 2006 page 146. Hurley, 2007 page 179. Hurley, 2008 page 124.

17.19 Byelaws

References to earlier reports. Hurley, 2000 page 170. Hurley, 2001 page 129. Hurley, 2005 pages 172-173. Hurley, 2006 pages 146-147. Hurley, 2007 page 179. Hurley, 2008 page 124. Hurley, 2009 page 90. Hurley, 2019 page 101. Hurley, 2021 page 115. Hurley, 2022 page 95.

17.20 Forestry

References to earlier reports. Hurley, 2001 pages 129-130. Hurley, 2003 page 157. Hurley, 2007 page 180. Hurley, 2008 page 125. Hurley, 2009 page 90. Hurley, 2011 page 96. Hurley, 2012 page 101-102. Hurley, 2014 page 90. Hurley, 2016 page 92. Hurley, 2017 pages 137-138. Hurley, 2020 page 122.

17.21 Water sports

References to earlier reports. Hurley, 2002 page 152. Hurley, 2003 pages 157-158. Hurley, 2004 pages 180-181. Hurley, 2005 pages 173-174. Hurley, 2006 pages 147. Hurley, 2007 page 181-186. Hurley, 2008 pages 125-126. Hurley, 2009 page 90. Hurley, 2011 page 97. Hurley, 2012 pages 102-103. Hurley, 2013 page 110. Hurley, 2014 page 91. Hurley, 2015 page 96. Hurley, 2016 page 92. Hurley, 2017 page 138. Hurley, 2018 page 105-106. Hurley, 2019 page 103. Hurley, 2020 page 122. Hurley, 2022 page 96.

17.22 Beach parties

References to earlier reports. Hurley, 2002 pages 152-153. Hurley, 2003 page 160. Hurley, 2004 page 181. Hurley, 2005 pages 174-175. Hurley, 2007 page 186. Hurley, 2013 page 110.

17.23 Rural Environment Protection Scheme (REPS)

References to earlier reports. Hurley, 2002 page 153. Hurley, 2004 pages 181-182. Hurley, 2005 page 175. Hurley, 2006 page 148. Hurley, 2007 page 187. Hurley, 2008 page 126. Hurley, 2010 page 103. Hurley, 2011 page 97.

17.24 Aircraft

References to earlier reports. Hurley, 2004 page 182. Hurley, 2009 page 91. Hurley, 2010 page 103. Hurley, 2011 page 97.

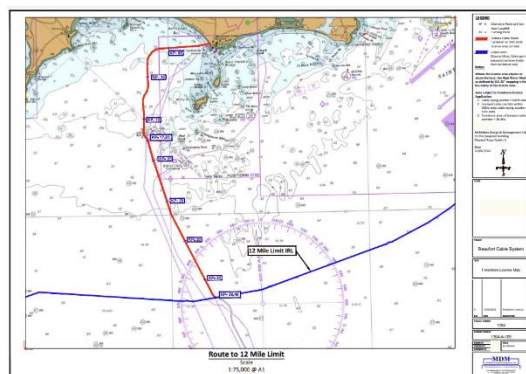
17.25 Infrastructure

References to earlier reports. Hurley, 2001 pages 18-19. Hurley, 2004 page 182. Hurley 2005, page 25. Hurley, 2010 page 101. Hurley, 2011 pages 97-98. Hurley, 2012, page 103. Hurley, 2013 pages 111-112. Hurley, 2014 page 92. Hurley, 2017 page 139. Hurley, 2018 page 106. Hurley, 2019 pages 104-105. Hurley, 2020 pages 123-124. Hurley, 2021 page 116. Hurley, 2022 pages 96-97.

Update

Greenlink interconnector. In late January 2022, construction work commenced on the converter station at Great Island (*New Ross Standard*, issue dated 2 February 2022, page 3).

Fibre optic cable. On 16 May 2022, McMahon Design & Management Ltd, 15 The Seapoint Building, Clontarf, Dublin 3, applied to the Department of Housing, Local Government and Heritage for a foreshore lease to decommission sections of the obsolete ESAT-1 subsea fibre optic cable running from Kilmore Quay to Britain and to replace it with a new Beaufort system (Reference Number: FS007361). The cable length from Ballyteige Burrow to the 12-mile limit was 38.4km, and the cable corridor was 10m wide resulting in an area of 38.4ha within a 500m-wide cable-laying swathe (<https://www.gov.ie/en/foreshore-notice/73943-fs007361-beaufort-sub-sea-fibre-optic-cable-system/>).



17.26 Fires

References to earlier reports. Hurley, 2002 page 153. Hurley, 2004 page 182. Hurley, 2005 page 176. Hurley, 2012 page 104. Hurley, 2013 page 112. Hurley, 2014 page 92. Hurley, 2015 page 97. Hurley, 2016 page 92.

17.27 People pressures

References to earlier reports. Hurley, 2004 pages 182-183. Hurley, 2005 page 176. Hurley, 2008 page 126. Hurley, 2012 pages 104-105. Hurley, 2013 pages 113-114. Hurley, 2017 page 140. Hurley, 2018 page 106. Hurley, 2019 page 105. Hurley, 2020 page 125. Hurley, 2021 page 117.

Update. Wild campers and camper van owners at Hook Head came in for criticism for choking roads, starting fires, putting lives at risk, impeding views with washing lines, trespassing, abusing facilities at Hook Lighthouse, removing stones from the lime kiln to make picnic fire surrounds, etc. Hook Lighthouse manager Lorraine Waters stated that in mid-August during a weekend of fine weather, there were 70 campers on the headland (*New Ross Standard*, online issue dated 7 September 2022).

17.28 Aquaculture

References to earlier reports. Hurley, 2009 page 91. Hurley, 2010 page 103. Hurley, 2011 page 99. Hurley, 2013 page 114. Hurley, 2014 page 92. Hurley, 2015 page 97. Hurley, 2019 page 106. Hurley, 2020 pages 125-127. Hurley, 2022 page 98.

Update. On 28 June 2022, Phase 1 of a new public online 'Aquaculture Management Information System' (AQUAMIS) was launched by the government. The online viewer comprised a map search facility for licensed aquaculture activity. The digital tool featured 13 licenced sites on the South Wexford Coast. At the launch, it was envisaged that eventually AQUAMIS would be integrated into other government systems such as the National Marine Planning Framework online portal and the wider marine spatial planning system. The 13 licenced sites at Bannow Bay were featured (Figure 21) and further information is available (<https://dafm-maps.marine.ie/aquaculture-viewer/>).

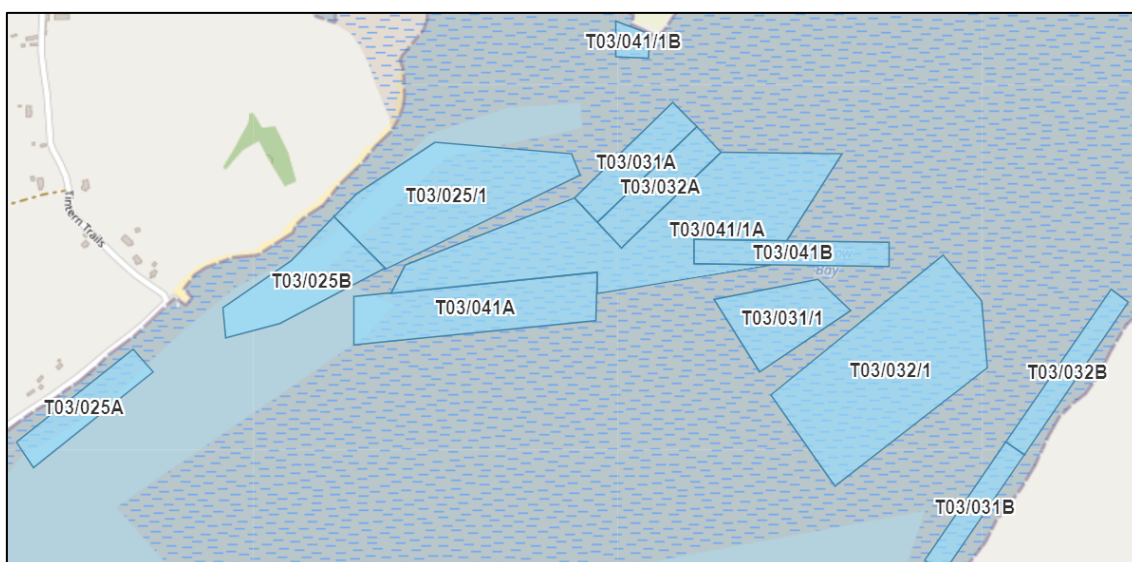


Figure 21. Licensed aquaculture sites at Bannow Bay.

(Source: <https://dafm-maps.marine.ie/aquaculture-viewer/>)

17.29 Solar farming

Applications for planning permission for solar farms are tabulated (Table 15) and figured (Figure 22) below.

References to earlier reports. Hurley, 2017 pages 140-142. Hurley, 2018 pages 107-108. Hurley, 2019 pages 107-108. Hurley, 2020 pages 128-130. Hurley, 2021 pages 118-120. Hurley, 2022 pages 99-102.

Site No	Application number	Application date	Applicant	Location	Site Area (ha)	Farm Output (MW)	Decision	Final grant date / decision date
01	20140392	4 June 2014	Sarah O'Flaherty	Coolroe, Tintern	10.19	5	Granted	(22 Dec 2014)
	PL 26.244351	16 Jan 2015					Granted	9 Jul 2015
02	20160008	8 Jan 2016	Philip Hore	Ballycarran, Rosslare	10.00	4	Granted	31 Mar 2016
03	20160009	8 Jan 2016	John Hore	Ballycarran, Rosslare	10.00	4	Granted	31 Mar 2016
04	20160520	17 May 2016	Wexford Solar Ltd	Ballycarran, Rosslare	10.00	4	Granted	16 Aug 2016
	20210793	24 May 2021	Ballycarran Solar Limited			6	Granted	9 Jul 2021
05	20160644	10 Jun 2016	Arena Capital Partners Ltd	Ballykereen, Rosslare	22.75	11	Granted	22 Jul 2016
06	20160690	17 Jun 2016	Highfield Solar Limited	Two separate sites: (6a) Grahormick west (Ballycogly) and (6b) Grahormick east (Killinick)	89.46	N/A	Refused	(10 Aug 2016)
	PL 26.247217	6 Sep 2016					Refused	2 Feb 2017
	High Court	15 Nov 2017					Case settled and resubmitted to the Board	
	PL 26.301321	3 Apr 2018					Granted	11 Jan 2019
07	20160811	15 Jul 2016	Harmony Solar Ralphtown Limited	Two separate sites: (7a) Ralphtown, Muchtown, Kilcowan, and (7b) Newtown Big, Baldwinstown	31.28 (= 19.5 at 7a + 11.7 at 7b)	17	Refused (see No 9 and 10 below)	(7 Sep 2016)
	PL 26.247366	4 Oct 2016					Granted for (7b) but refused for (7a)	23 Mar 2017
08	20161096	4 Oct 2016	Solas Éireann Development Ltd	Ballybrennan Little, Rosslare	9.91	5.9	Refused	(25 Nov 2016)
	PL 26.247780	22 Dec 2016					Refused	9 Feb 2018
09	20161110	7 Oct 2016	Harmony Solar Dennistown Limited	Murntown Lower, Newtown, Milltown, Dennistown, Sallystown, Gregorystown, and Rathaspeck	39.857	N/A	Granted	(14 Mar 2017)
	PL26.247801	4 Jan 2017					Granted	14 Feb 2018
	20200441	17 Apr 2020					Split	10 Jul 2020
10	20180389	29 Mar 2018	Harmony Solar Ralphtown Limited	Ralphtown, Muchtown, Kilcowan; see (7a) above.	8.90 (reduced from 19.5)	N/A	Granted (but see No 15 below)	18 May 2018
11	20180837	19 Jun 2018	Highfield Solar Limited	Raheenduff, Haresmead, Rosspile, Coolcliffe, Horetown North, Horetown, Clongeen, and Ballymitty	152.80	N/A	Refused	10 Aug 2018
	PL26.302475	3 Sep 2018					Granted	5 Jul 2019
	20191353	2 Oct 2019					Refused	22 Nov 2019
	PL26.306129	11 Dec 2019					Refused	12 May 2020
	PL26.308623	10 Nov 2020					Granted	27 Jan 2021
12	20181768	19 Dec 2018	Harmony Solar Mayglass Limited	Gardamus Great, Mayglass	32.72	N/A	Granted	22 Feb 2019
	PL26.303994	20 Mar 2019					Granted	16 Jul 2019

.../ continued

Site No	Application number	Application date	Applicant	Location	Site Area (ha)	Farm Output (MW)	Decision	Final grant date / decision date
13	20210807	26 May 2021	Highfield Solar Limited	Rochestown, Moortown Little and Harperstown	86.6	63,000-82,000	Granted	2 Feb 2022
14	20220900	5 July 2022	Ballygowry Solar Farm Limited	Ballygowry, Killesk	12.6	-	Granted	26 Aug 2022
15	20221551	23 Nov 2022	Harmony Solar Ralptown Limited	Ralptown and Kilcowan (this is a renewal of No 10 above)	8.9	-		

Table 15. Planning applications for solar farms.

(Source: <http://planning.wexford.ie/index.php>)

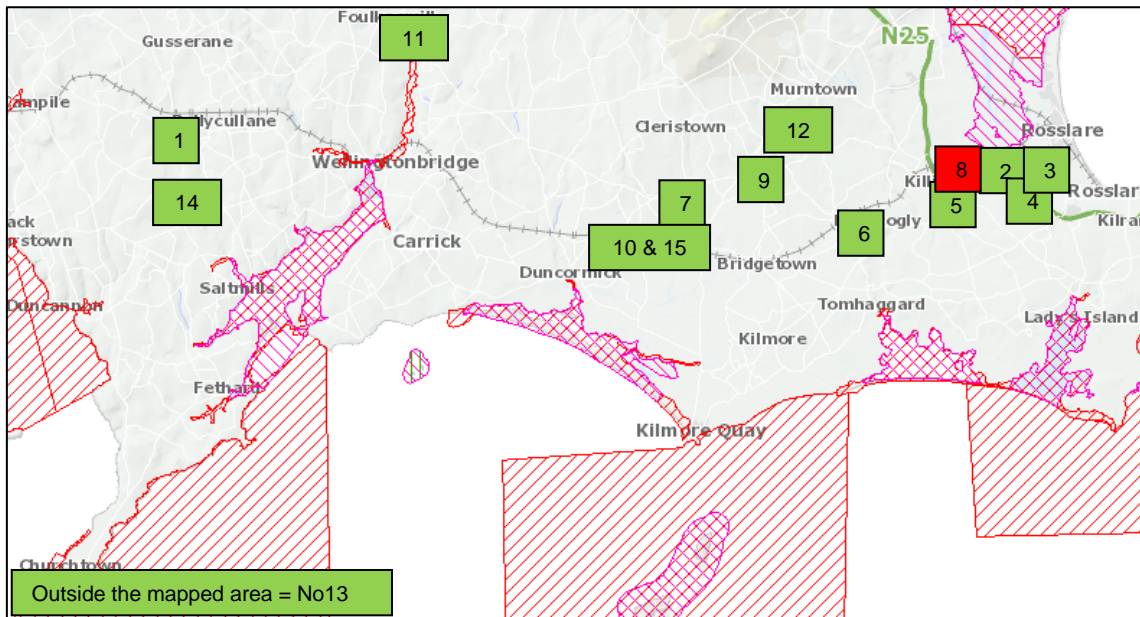


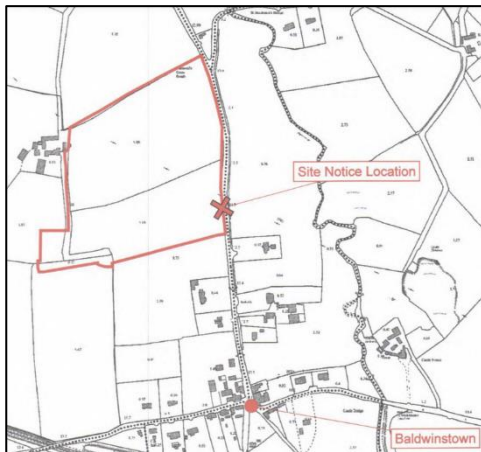
Figure 22. Planning applications for solar farms.

(Source: <http://webgis.npws.ie/npwsviewer/>)

Updates

Ballygowry (Site No 14 above refers). On 5 July 2022, Ballygowry Solar Farm Limited applied for a 10-year planning permission for development of a solar PV farm with an operational life of 35 years consisting of c 79,450m² of solar photovoltaic panels on ground mounted frames within a site area of 12.6ha and all associated ancillary development at Ballygowry, Killesk south-west of Ballycullane village (PA Reg Ref 20220900). On 26 August 2022, the permission sought was granted subject to 13 conditions.

Ralpthown (Sites Nos 10 and 15 refer). On Wednesday 23 November 2022, Harmony Solar Ralpthown Ltd applied for "Permission for a solar farm development which



consists of the following: A solar photovoltaic panel array consisting of the following; approximately 25,500 m² of solar panels on ground mounted steel frames, 4 no. inverter/transformer units, underground cabling and ducts, construction of internal access tracks and hardstanding areas, boundary security fences, use of a permitted new entrance onto the public road as permitted by An Bord Pleanála (ABP) pursuant to ABP Case Ref. PL26.247366, CCTV and all associated site services and works. A ten year permission is requested." (Application No 20221551).

Permission was also sought to revise the lifespan of the proposed development from 25 years to 35 years. The application was a renewal of an earlier application made in 2018 (Application No 20180389).

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).

18.1 Lady's Island Lake

References to earlier reports. Hurley, 1997 pages 170-180. Hurley, 1998 pages 65-76. Hurley 1999 page 153. Hurley, 2000 pages 175-178. Hurley, 2004, page 184.

18.2 Tacumshin Lake

References to earlier reports. Hurley 1999 page 153-154. Hurley, 2000 pages 174 and 179-180. Hurley, 2001 page 130. Hurley, 2002 page 155. Hurley, 2014 page 93.

18.3 Drainage works at other areas

19 CONCLUSIONS AND RECOMMENDATIONS

Reference to earlier report. Hurley, 1997 page 183.

19.1 Management Plan

References to earlier reports. Hurley, 1997 page 183. Hurley, 1998 pages 77, 79 (Figure 19) and 71 (Figure 13). Hurley, 1999 page 154. Hurley, 2000 page 180.

19.2 Breaching the barrier

References to earlier reports. Hurley, 1997 page 183. Hurley, 1998 page 77. Hurley, 1999 page 154. Hurley, 2000 page 181.

19.3 EU co-financing

References to earlier reports. Hurley, 1997 page 183. Hurley, 1998 page 77. Hurley, 1999 page 155. Hurley, 2000 page 181. Hurley, 2001 page 131.

19.4 Nutrient survey

References to earlier reports. Hurley, 1997 page 183. Hurley, 1998 page 77. Hurley, 1999 page 155.

19.5 Water Quality Management Plan

References to earlier reports. Hurley, 1997 page 183. Hurley, 1998 page 77. Hurley, 1999 page 155. Hurley, 2000 page 182. Hurley, 2001 page 131.

19.6 Local Development Plan

References to earlier reports. Hurley, 1997 page 183. Hurley, 1998 page 78. Hurley, 1999 page 155. Hurley, 2000 page 182. Hurley, 2001 page 131.

19.7 Nature Reserve

References to earlier reports. Hurley, 1997 page 183. Hurley, 1998 page 78. Hurley, 1999 page 155. Hurley, 2000 page 182. Hurley, 2001 page 131.

19.8 Barrier height

References to earlier reports. Hurley, 1999 page 156. Hurley, 2000 page 182. Hurley, 2001 page 131. Hurley, 2003 page 162.

19.9 Salinity

References to earlier reports. Hurley, 1999 page 156. Hurley, 2000 page 182. Hurley, 2001 page 131. Hurley, 2003 page 162.

20 ORDNANCE DATUM CONVERSION TABLE

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