

# BIBLIOGRAPHY

## Chapter 1 Introduction

- Bitpower (November 2021). Ireland's Data Hosting Industry – Biannual Report
- Department of Communications, Climate Action & Environment (2021). Climate Action Plan 2021
- Department of Communications, Climate Action & Environment (2022). Climate Action Plan 2022
- Department of Communications, Climate Action & Environment (2023). Climate Action Plan 2023
- Department of Communications, Climate Action and Environment (2018). Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 1 and Part 2.
- Department of Communications, Energy & Natural Resources (2014). Draft Bioenergy Plan 2014.
- Department of Communications, Energy & Natural Resources (2015). Ireland's Transition to a Low Carbon Energy Future 2015-2030.
- Department of Communications, Energy & Natural Resources (2016) Code of Practice for Wind Energy Development Ireland- Guidelines for Community Engagement.
- Department of Communications, Energy and Natural Resources (2014). Offshore Renewable Energy Development Plan.
- Department of Environment, Climate and Communications (2021). Climate Action and Low Carbon Development (Amendment) Bill 2021.
- Department of Environment, Climate and Communications (2021). National Marine Planning Framework.
- Department of Environment, Climate and Communications (2022). Foreshore Notice - FS007161 Fuinneamh Sceirde Teoranta - Site Investigations for the proposed Sceirde Rocks Offshore Wind Farm.
- Department of Environment, Climate and Communications (2022). Foreshore Notice - FS007543 Fuinneamh Sceirde Teoranta - Site Investigations for the proposed Sceirde Rocks Offshore Wind Farm (Export Cable Corridor).
- Department of Environment, Climate and Communications (2023) Climate Action Plan 2024.
- Department of Environment, Climate and Communications (May 2023). Press Release - Minister Ryan welcomes hugely positive provisional results of first offshore wind auction.
- Department of Housing, Planning and Local Government (2013) Proposed Revisions to Wind Energy Development Guidelines 2006 – Targeted Review. DHPLG, Dublin.
- Department of Housing, Planning and Local Government (August 2018) Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. DHPLG, Dublin.
- Department of Housing, Planning and Local Government (December 2019) Draft Revised Wind Energy Development Guidelines. DHPLG, Dublin.

Department of Housing, Planning and Local Government (June 2017) Review of the Wind Energy Development Guidelines 2006 – Preferred Draft Approach. DHPLG, Dublin.

Department of Housing, Planning and Local Government (November 2019). National Marine Planning Policy Statement.

Department of Public Expenditure and Reform (DPER) (2013). Future Expenditure Risks associated with Climate Change/Climate Finance.

Department of Public Expenditure and Reform (June 2014). Future Expenditure Risks associated with Climate Change/Climate Finance.

Department of the Environment, Climate and Communications (2023). Energy Security in Ireland to 2030. Energy Security Package

Department of the Environment, Community and Local Government (2013). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. DoEHLG, Dublin.

Department of the Environment, Heritage and Local Government (2006). Wind Energy Development Guidelines for Planning Authorities. DoEHLG, Dublin.

Dr Eimear Cotter, Head of Low Carbon Technologies, SEAI - "Energy Security in Ireland 2015"

EirGrid (October 2022) All Island Generation Capacity Statement 2022-2031.

Environment Protection Agency (June 2023) Ireland Greenhouse Gas Emissions Projections 2022-2040

Environmental Protection Agency (2002) Guidelines on Information to be Contained in Environmental Impact Statements. EPA, Wexford.

Environmental Protection Agency (2003) Advice Notes on Current Practice in the Preparation of Environmental Impact Statements. EPA, Wexford.

Environmental Protection Agency (2016): Ireland's Environment – An Assessment.

Environmental Protection Agency (2023): Air Quality in Ireland 2022.

Environmental Protection Agency (July 2024); Ireland's Provisional Greenhouse Gas Emissions 1990-2023.

Environmental Protection Agency (May 2022): Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. EPA, Wexford.

Environmental Protection Agency (September 2015): Draft - Advice Notes on Current Practice (in the preparation on Environmental Impact Statements). EPA, Wexford.

European Commission (2024). Commission Recommendation, Assessment (SWD) and Factsheet of the draft updated National Energy and Climate Plan of Ireland Department of Communications, Climate Action and Environment (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects.

European Commission (2017). Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report.

European Commission (2020). An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future. (COM/2020/741)

European Commission (March 2022) REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition. Brussels.

[https://ec.europa.eu/commission/presscorner/detail/en/IP\\_22\\_3131](https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131)

European Commission (March 2022) REPowerEU: Joint European Action for more affordable, secure and sustainable energy. Strasbourg. [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_1511](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511)

European Environmental Agency (2022): Air Quality in Europe – 2022 Report

European Protection Agency (October 2024). Ireland's State of the Environment Report 2024.

European Union (1992). Directive 92/43/EEC. European Parliament and European Council.

European Union (2009). Directive 2009/147/EC. European Parliament and European Council.

European Union (2009). Directive 2009/28/EC. European Parliament and European Council.

European Union (2011). Directive 2011/92/EU. European Parliament and European Council.

European Union (2014). Directive 2014/52/EU. European Parliament and European Council.

European Union (2014). Directive 2014/89/EU. European Parliament and European Council.

European Union (2017) Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU).

European Union (2017) Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU).

European Union (2017). Directive 2018/2001/EU. European Parliament and European Council

European Union (2017). Guidance on Screening (Directive 2011/92/EU as amended by 2014/52/EU).

European Union (2018). Directive 2018/2009/EU. European Parliament and European Council.

European Union (2022). Regulation (EU) 2022/869. European Parliament and European Council.

Government of Ireland (2021). National Development Plan 2021-2030.

Government of Ireland (April 2022). National Energy Security Framework (NESF).

IEA (2024), Renewables 2023, IEA, Paris

IPCC Fifth Assessment Synthesis Report (2014). Intergovernmental Panel on Climate Change AR5 Report.

IPCC, 2021: Climate Change 2021: The Physical Science Basis. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report.

IPCC, 2022: Climate Change 2022: Impacts, Adaptation and Vulnerability. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report.

IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Sixth Assessment Report, Intergovernmental Panel on Climate Change AR6 Report.

IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

IRENA (2023), IRENA's energy transition support to strengthen climate action: Insight to impact 2023, International Renewable Energy Agency, Abu Dhabi.

Irish Statute Book (2000). Planning and Development Acts 2000 to 2019. Stationery Office, Dublin.

Irish Statute Book (2001). Planning and Development Regulations (as amended) S.I. No. 600 of 2001. Stationery Office, Dublin.

Irish Statute Book (2018). European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

Irish Statute Book (2021) Maritime Area Planning Act 2021

Irish Wind Energy Association (2015). Data Centre Implications for Energy Use in Ireland

Joint Committee on Climate Action (March 2019). Climate Change: A Cross- Party Consensus for Action

Kandrot, S., Cummins, V., Jordan, D., & Murphy, J. (2020). Economic and employment impacts of offshore wind for Ireland: A value chain analysis. *International Journal of Green Energy*, 17(11), 687-696. <https://doi.org/10.1080/15435075.2020.1791874>

Pöyry & Element Energy (2015) Potential CCS Cost Reduction Mechanisms Summary

Pöyry (March 2014). The Value of Wind Energy to Ireland.

Sustainable Energy Authority of Ireland (2020) Energy Security in Ireland, 2020 Report

Sustainable Energy Authority of Ireland (April 2016): Ireland's Energy Targets – Progress, Ambitions & Impacts.

Sustainable Energy Authority of Ireland (December 2022). Energy in Ireland – 2022 Report

Sustainable Energy Authority of Ireland (December 2022): Ireland's energy-related CO2 emissions heading in wrong direction. [http://www.seai.ie/News\\_Events/Press\\_Releases/2014/Biomass-is-a-big-part-of-the-solution-but-not-the-whole-solution.html](http://www.seai.ie/News_Events/Press_Releases/2014/Biomass-is-a-big-part-of-the-solution-but-not-the-whole-solution.html)

Sustainable Energy Authority of Ireland (December 2024): Energy in Ireland – 2024 Report.

Sustainable Energy Authority of Ireland (November 2024) National Energy Projections – 2024 Report

Wind Energy Ireland (2023). Ireland's Offshore Wind Potential – From Net Zero to Net Export

Wind Energy Ireland (April 2021). Economic Impact of Onshore Wind in Ireland.

World Meteorological Organisation (2024) State of the Global Climate 2023

## Chapter 2 Background and Planning Policy

Climate Change Advisory Council Carbon Budget Technical Report (October 2021). Available at:  
<https://www.gov.ie/en/publication/9af1b-carbon-budgets/>

Climate Change Advisory Council (2024) Electricity Sectoral Review 2024

Commission for Regulation of Utilities (2022). Offshore Connection Policy – Offshore Phase 1 Projects Grid Connection & Charging

Department of Communications, Climate Action and Environment, (2017) Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects.

Department of Communications, Climate Action and Environment (2018). Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 1 and Part 2.

Department of Environment, Climate and Communications (2021). Climate Action Plan 2021

Department of Environment, Climate and Communications (2023). Offshore Renewable Energy Support Scheme

Department of Environment, Climate and Communications (2018). National Adaptation Framework - Planning for a Climate Resilient Ireland 2018.

Department of Environment, Climate and Communications (2017) National Mitigation Plan 2017

Department of Communications, Climate Action & Environment (2016). Code of Practice for Wind Energy Development in Ireland - Guidelines for Community Engagement 2016.

Department of Communications, Energy & Natural Resources (2015). Ireland's Transition to a Low Carbon Energy Future 2015-2030.

Department of Communications, Energy & Natural Resources (2015). White Paper on Energy Policy in Ireland 2015-2030.

Department of Environment, Climate and Communications (2021) Policy Statement on the Framework for Ireland's Offshore Energy Electricity Transmission System.

Department of Environment, Climate and Communications (2022). Climate Action Plan 2023 & 2024.

Department of Environment, Climate and Communications (2022). National Energy Security Framework 2022.

Department of Environment, Climate and Communications (2023). Energy Security in Ireland to 2030 – Energy Security Package.

Department of the Environment, Climate and Communications (2024). National Energy and Climate Action Plan 2021 – 2030.

Department of the Environment, Heritage and Local Government (2006). Wind Energy Guidelines 2006.

Department of Enterprise, Trade and Employment (2024) Powering Prosperity: Ireland's Offshore Wind Industrial Strategy.

Department of Housing, Planning, Community and Local Government (2017). Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change.

Department of Housing, Planning, Community and Local Government (2019) Draft Revised Wind Energy Development Guidelines.

Environmental Protection Agency (2024). Ireland's Greenhouse Gas Emission Projections Ireland's Greenhouse Gas Emissions Projections 2023–2050.

Environmental Protection Agency (2024). Ireland's Climate Change Assessment

European Commission (March 2022) REPowerEU.

European Commission (July 2021) European Climate Law.

European Commission (December 2019). European Green Deal.

European Commission (2011). Energy Roadmap 2050.

European Union (2009). Directive 2009/28/EC (Renewable Energy Directive). European Parliament and European Council.

European Union (2018). Directive 2018/2001/EU ('REDII'). European Parliament and European Council.

European Union (2023). Revision to Directive 2018/2001/EU ('REDIII'). European Parliament and European Council.

European Commission (2020). EU Strategy on Offshore Renewable Energy

European Commission (2023) European Wind Power Action Plan (2023)

European Council (2022) Council Regulation 2022/2577 laying down a framework to accelerate the deployment of renewable energy.

European Council (2022) Council Regulation EU/2022/869 (revised) TEN-E.

European Union (2014). 2030 Climate and Energy Framework.

European Union (2017). Fit for 55. <https://www.consilium.europa.eu/en/policies/eu-plan-for-a-greentransition/>

European Union (2018). Effort Sharing Regulation (ERS).

European Union (2014) EU Directive 2014 - establishing a framework for maritime spatial planning.

Fianna Fáil, Fine Gael et al, (2025) Draft Programme for Government 2025.

Galway County Council (2022). Galway County Development Plan 2022-2028.

Government of Ireland (2014) Offshore Renewable Energy Development Plan

Government of Ireland (2018). Project Ireland 2040 National Planning Framework

Government of Ireland (2021). National Development Plan 2021-2030.

Government of Ireland (2019). National Marine Planning Policy Statement

Government of Ireland (2021). National Marine Planning Framework: Project Ireland 2040

Intergovernmental Panel on Climate Change (2023). Climate Change 2023 ‘Synthesis Report’.

Irish Statute Book (2000). Planning and Development Act 2000 (as amended). Stationery Office, Dublin.

Irish Statute Book (2021). Climate Action and Low Carbon Development (Amendment) Act 2021.

Irish Wind Energy Association. Available at: <https://www.iwea.com/about-wind/faqs>

Irish Wind Energy Association (2013). Best Practice Principles in Community Engagement and Community Commitment 2013.

Northern and Western Regional Assembly. Regional Spatial and Economic Strategy.

Southern regional Assemble (2020) Regional Economic and Spatial Strategy for the Southern Region

Sustainable Energy Authority of Ireland (2024), Energy in Ireland 2024 Report.

Sustainable Energy Authority of Ireland (2024), National Energy Projections Report 2024.

United Nations (1992). United Nations Framework Convention on Climate Change

United Nations (1997). Kyoto Protocol to the United Nations Framework Convention on Climate Change

United Nations (2012). Doha Amendment to the Kyoto Protocol

United Nations (2015). COP21 Paris Agreement, Paris.

United Nations (2022). COP27 Climate Change Conference, Sharm el-Sheikh.

United Nations (2023). COP28 Climate Change Conference, Dubai.

United Nations (2024). COP28 Climate Change Conference, Baku, Azerbaijan.

World Meteorological Organisation (2024) State of the Global Climate 2024, Update for COP29

### Chapter 3 Site Selection and Alternatives

Clare County Council (2023). Clare County Development Plan 2023-2029.

Galway County Council (2022). Galway County Development Plan 2022 – 2028.

Department of Environment, Climate and Communications (2021). Climate Action Plan 2024

Department of Housing, Planning and Local Government (December 2019) Draft Revised Wind Energy Development Guidelines. DHPLG, Dublin.

Department of the Environment, Heritage and Local Government (2006). Wind Energy Development Guidelines 2006.

Department of Communications, Energy and Natural Resources (2014). Offshore Renewable Energy Development Plan

Department of the Environment, Climate and Communications (2023). Accelerating Ireland's Offshore Energy Programme Policy Statement on the Framework for Phase Two Offshore Wind

Department of Environment, Climate and Communications (2021). Climate Action and Low Carbon Development (Amendment) Bill 2021.

Department of Housing, Planning and Local Government (2019). Marine Planning and Development Management Bill, 2019.

Irish Statute Book (1933). Foreshore Act, as amended. SI No. 12 of 1993.

Department of Environment, Climate and Communications (2021). Draft National Energy and Climate Plan (NECP) 2021 – 2030

Environmental Protection Agency (2022): Guidelines on the Information to be contained in Environmental Impact Assessment Reports.

European Commission (March 2022). REPowerEU.

European Union (2011). Directive 2011/92/EU. European Parliament and European Council.

European Union (2014). Directive 2014/52/EU. European Parliament and European Council.

European Union (2017) Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU).

Commissionn for Regulation of Utilities (2022). Offshore Grid Connection Assessment – Phase 1 Projects

Irish Wind Energy Association (2008). Best Practice Guidelines for the Irish Wind Energy Industry.

KIS-ORCA, (2022). KIS – Offshore Renewable & Cable Awareness Map Viewer. Available at: <https://kis-orca.org/map/>

Submarine Cables Networks (2022). IRIS Cable System Commences Marine Installation Available at: <https://www.submarinenetworks.com/en/systems/intra-europe/iris/iris-cable-system-commences-marine-installation>

Met Éireann (2024). Historical Weather Data. Available at: <https://www.met.ie/climate/available-data/historical-data>

## Chapter 4 Environmental Impact Assessment Methodology

Irish Statute Book (2001). Planning and Development Regulations (as amended) S.I. No. 600 of 2001. Stationery Office, Dublin.

European Union (2014). Directive 2014/52/EU. European Parliament and European Council.

Irish Statute Book (2021) Maritime Area Planning Act 2021

Irish Statute Book (1933). Foreshore Act, as amended. SI No. 12 of 1993.

Department of Housing, Planning and Local Government (December 2019). Draft Revised Wind Energy Development Guidelines. DHPLG, Dublin.

Department of Housing, Planning and Local Government (December 2013). Proposed Revisions to Wind Energy Development Guidelines 2006 – Targeted Review

Department of the Environment, Heritage and Local Government (2006). Wind Energy Development Guidelines for Planning Authorities (Revised). Stationery Office, Dublin.

Department of Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.

Office of the Planning Regulator, Dublin 7, Ireland OPR (2021). Appropriate Assessment Screening for Development Management.

Environmental Protection Agency (2002) Guidelines on Information to be Contained in Environmental Impact Statements. EPA, Wexford.

Environmental Protection Agency (2003) Advice Notes on Current Practice in the Preparation of Environmental Impact Statements. EPA, Wexford.

Environmental Protection Agency (May 2022): Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. EPA, Wexford.

European Union (2017) Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU).

Department of Housing, Planning and Local Government (August 2018) Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. DHPLG, Dublin.

European Union (2017) Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU).

European Union (2017). Guidance on Screening (Directive 2011/92/EU as amended by 2014/52/EU).

European Union (1992). Directive 92/43/EEC. European Parliament and European Council.

European Union (2009). Directive 2009/147/EC. European Parliament and European Council.

Chartered Institute of Ecology and Environmental Management, CIEEM, (2018). Guidelines for Ecological Impact assessment in Britain and Ireland, Marine and Coastal;

Department of Environment, Climate and Communications (2021). National Marine Planning Framework.

Department of Communications, Climate Action and Environment (2018).. Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects Parts 1 and 2.

European Commission (2021). Commission Notice - Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

European Commission (2018). Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC

## Chapter 5 Project Description

Department of Housing, Planning, Community and Local Government (2019) Draft Revised Wind Energy Development Guidelines.

Government of Ireland (2014) Offshore Renewable Energy Development Plan

Government of Ireland (2018). Project Ireland 2040 National Planning Framework

Government of Ireland (2021). National Development Plan 2021-2030.

Government of Ireland (2019). National Marine Planning Policy Statement

Government of Ireland (2021). National Marine Planning Framework: Project Ireland 2040

Gill, A.B. and Desender, M. (2020). 2020 State of the Science Report, Chapter 5: Risk to Animals from Electromagnetic Fields Emitted by Electric Cables and Marine Renewable Energy Devices. Available at: <https://www.osti.gov/servlets/purl/1633088> [Accessed December 2023].

IAA (2015). Guidance material on offshore wind farms. Available at: [https://www.iaa.ie/docs/default-source/publications/advisory-memoranda/aeronautical-services-advisory-memoranda-\(asam\)/guidance-material-on-off-shore-wind-farms.pdf?sfvrsn=5aad0df3\\_8](https://www.iaa.ie/docs/default-source/publications/advisory-memoranda/aeronautical-services-advisory-memoranda-(asam)/guidance-material-on-off-shore-wind-farms.pdf?sfvrsn=5aad0df3_8). [Accessed January 2024].

International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Recommendation G1162 (IALA, 2021).

NKT (2023). High Voltage Offshore AC Cables, Enabling a greener energy consumption. Available: <https://www.nkt.com/products-solutions/high-voltage-cable-solutions/high-voltage-offshore-solutions/high-voltage-offshore-ac-cables> [Accessed August 2023].

Marine Institute (2022). Ireland's Marine Atlas. Mean Annual Distribution of Wave Height (m). Available at <https://www.marine.ie/Home/site-area/data-services/marine-data-centre> [Accessed August 2023].

Royal Yachting Association (2019) Position on Offshore Energy Developments.

National Oceanic and Atmospheric Administration (NOAA) (2021a). National Centers for Environmental Information. Geomagnetism FAQs. Available at: <https://www.ngdc.noaa.gov/geomag/faqsgeom.shtml> [Accessed December 2023].

National Oceanic and Atmospheric Administration (NOAA) (2021b). National Centers for Environmental Information. Magnetic Field Calculators – World Magnetic Model (WMM 2019-2024). Available at: <https://www.ngdc.noaa.gov/geomag/calculators/magcalc.shtml> [Accessed December 2023].

OSPAR. (2009). Assessment of the Environmental Impact of Cables. OSPAR Commission 437/2009. Available at: [https://qsr2010.ospar.org/media/assessments/p00437\\_Cables.pdf](https://qsr2010.ospar.org/media/assessments/p00437_Cables.pdf). [Accessed January 2024]

Royal Yac Marine Institute (2021). Irish Wave Energy Resource Atlas 2005. Available from [https://data.gov.ie/dataset/irish-wave-energy-resource-atlas?package\\_type=dataset](https://data.gov.ie/dataset/irish-wave-energy-resource-atlas?package_type=dataset) [Accessed August 2023].

Taormina, B., Bald, J., Want, A., Thouzeau, G., Lejart, M., Desroy, N., & Carlier, A. (2018). A review of potential impacts of submarine power cables on the marine environment: Knowledge gaps, recommendations and future directions. *Renewable and Sustainable Energy Reviews*, 96, 380-391.

UK CAA (2016) CAP 764 Policy and Guidelines on Wind Turbines.

## Chapter 6 Population and Human Health

American Wind Energy Association and Canadian Wind Energy Association (2009). Wind Turbine Sound and Health Effects - An Expert Panel Review, USA and Canada.

AranIslands.ie (2024). Getting to Inis Mór. Available at << <https://www.aranislands.ie/aran-islands-ferry/getting-to-inis-mor> >>

Australian Government National Health and Medical Research Council (NHMRC) Wind Turbines & Health (2010). A Rapid Review of the Evidence. Australia.

Baringa (2019) Wind for a Euro: Cost-benefit analysis of wind energy in Ireland 2000-2020

BiGGAR Economics (2016). Wind Farms and Tourism Trends in Scotland. Midlothian, Scotland.

BiGGAR Economics (2021), Wind Farms and Tourismn Trends in Scotland: Evidence from 44 Wind Farms. <https://biggareconomics.co.uk/wp-content/uploads/2021/11/BiGGAR-Economics-Wind-Farms-and-Tourism-2021.pdf>

Blue Flag (2023). Blue Flag Beaches Ireland. Available at: << <https://beachawards.ie/blue-flag/> >>

BlueWise Marine (2023). Health and Safety guidelines for offshore wind – an analysis of Irelands existing legal framework Available at: << <https://windenergyireland.com/images/files/offshore-safety-report-june-2023-final-updated-design.pdf> >>

Carbon Trust & GreenTech SkillNet (2020). Harnessing our potential – Investment and jobs in Irelands offshore wind industry.

Central Statistics Office Ireland (2012). Census of Agriculture 2010 Detailed Results. [www.cso.ie](http://www.cso.ie)

Central Statistics Office Ireland (2023). Census Results 2016 & 2022. [www.cso.ie](http://www.cso.ie)

Central Statistics Office Ireland (2023). Press Statement Census of Populastion 2022 Results Profile 7 – Employment, Occupations and Commenting Clare. <https://www.cso.ie/en/csolatestnews/pressreleases/2023pressreleases/pressstatementcensus2022resultsprofile7-employmentoccupationsandcommutingclare/>

Centre for Economics and Business Research (2014) The effect of wind farms on house prices. Renewable UK, London.

Chapman and Crichton (2017). Wind turbine syndrome: A communicated disease.

Chapman and Simonetti (2015). Summary of main conclusions reached in 25 reviews of the research literature on wind farms and health.

Clare County Council (2023). Clare County Development Plan 2023-2029

Climate and Health Alliance (2012). Position Statement on Health and Wind Turbines. Australia.

Climate Exchange (October 2016). Impact of Wind Turbines on House Prices in Scotland.

Danish Wind Industry Association (2003) Shadow Variations from Wind Turbines.

Deloitte, Irish Wind Energy Association (2009) Jobs and Investment in Irish Wind Energy Powering Ireland's Economy. Deloitte. Available at: <https://windenergyireland.com/images/files/9660bd5e72bcac538f47d1b02cc6658c97d41f.pdf>

Department of Communications, Climate Action and Environment (2021) Climate Action Plan (CAP).

Department of Environment, Climate and Communications (2022). Climate Action Plan 2023.

Department of Environment, Climate and Communications (2023) Climate Action Plan 2024

Department of Housing, Local Government and Heritage (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment

Department of Housing, Planning and Local Government (December 2019). Draft Revised Wind Energy Development Guidelines. DHPLG, Dublin.

Department of Housing, Planning and Local Government (December 2013). Proposed Revisions to Wind Energy Development Guidelines 2006 – Targeted Review

Department of Housing, Local Government and Heritage (2018), National Marine Planning Framework Strategic Environmental Assessment (SEA) Statement

Department of Housing, Planning and Local Government (June 2017) Review of the Wind Energy Development Guidelines 2006 – Preferred Draft Approach. DHPLG, 2017.

Department of Housing, Planning, Community and Local Government (2017). Key Issues Consultation Paper on the Transposition of the 2014 EIA Directive.

Department of Public Expenditure and Reform (2021), National Development Plan 2021-2030.

Department of the Environment, Heritage and Local Government (2007). National Climate Change Strategy 2007 – 2012. Stationery Office, Dublin.

Department of the Environment, Heritage and Local Government (2006). Wind Energy Development Guidelines for Planning Authorities (Revised). Stationery Office, Dublin.

Discover Ireland [www.discoverireland.ie](http://www.discoverireland.ie)

EirGrid (2016). An Investigation into the Potential Relationship between Property Values and High Voltage Overhead Transmission Lines in Ireland. An independent report prepared for EirGrid.

<https://cms.eirgrid.ie/sites/default/files/publications/FINAL-Part-1-Property-Valuation-Report-Doc-Version-1.0-23.02.16.pdf>

EirGrid (2016). Evidence Based Environmental Studies. Study 9: Settlement and land use. Literature review and evidence based field study on the effects of high voltage transmission development on patterns of settlement and land use. <https://cms.eirgrid.ie/sites/default/files/publications/EirGrid-Evidence-Based-Environmental-Study-9-Settlement-and-Landuse.pdf>

EirGrid (2017). EMF & You: Information about Electric & Magnetic Fields and the electricity transmission system in Ireland.

EirGrid and SONI (2023), Shaping our Electricity Future Roadmap Version 1.1

Energy Institute (2022). Media Release – Number of incidents remains low despite record global offshore wind activity.

Environmental Protection Agency (2013) Environmental Protection Agency Licensing Act 1992 as amended.

Environmental Protection Agency (2022). Guidelines on the Information to be Contained in Environmental Impact Statements. EPA, Wexford.

Environmental Protection Agency (2023), Good practice guidance on Strategic Environmental Assessment (SEA) for the Tourism Sector

Environmental Protection Agency (April 2021) Ireland's Final Greenhouse Gas Emissions. [www.epa.ie](http://www.epa.ie)

Environmental Protection Agency (July 2022) Ireland's Provisional Greenhouse Gas Emissions 1990-2022. [www.epa.ie](http://www.epa.ie)

Eric J. Brunner, Ben Hoen, Joe Rand, David Schwegman, Commercial wind turbines and residential home values: New evidence from the universe of land-based wind projects in the United States, Energy Policy, Volume 185, 2024, 113837, ISSN 0301-4215, <https://doi.org/10.1016/j.enpol.2023.113837>.

ESB (2017) EMF & You: Information about Electric & Magnetic Fields and the electricity transmission system in Ireland ([https://esb.ie/docs/default-source/default-document-library/emf-public-information\\_booklet\\_v9.pdf?sfvrsn=0](https://esb.ie/docs/default-source/default-document-library/emf-public-information_booklet_v9.pdf?sfvrsn=0))

European Commission (2017). Guidance on the preparation of the environmental impact assessment report (Directive 2011/92/EU as amended by 2014/52/EU)

European Commission, Directorate-General for Environment, McGuinn, J., Lukacova, Z., McNeill, A. et al., Environmental impact assessment of projects – Guidance on the preparation of the environmental impact assessment report (Directive 2011/92/EU as amended by 2014/52/EU), Publications Office, 2017, <https://data.europa.eu/doi/10.2779/41362>

Fáilte Ireland (2008). Visitor Attitudes on the Environment: Wind Farms.

Fáilte Ireland (2012). Visitor Attitudes on the Environment: Wind Farms – Update on 2007 Research.

Fáilte Ireland (August 2018) 2017 Topline Tourism Performance by Region. [www.failteireland.ie](http://www.failteireland.ie)

Fáilte Ireland (March 2021) Key Tourism Facts 2019. [www.failteireland.ie](http://www.failteireland.ie)

Fáilte Ireland (March 2021). Regional tourism performance in 2019.

Fáilte Ireland (September 2023). Tourism Barometer Strategic Research and Insight

Fáilte Ireland (n.d.) Connemara Coast & Aran Islands Visitor Experience Development Plan (VEDP) 2023-2027

Fáilte Ireland (September 2019). Tourism Facts 2018. Fáilte Ireland. Available at: [www.failteireland.ie](http://www.failteireland.ie)

Fáilte Ireland, (2023), EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects

Fáilte Ireland, (2023). Wild Atlantic Way – Regional Tourism Development Strategy 2023-2027

Finnish Government's Analysis, Assessment and Research Activities (VN TEAS) (2020). Infrasound Does Not Explain Symptoms Related to Wind Turbines.

G+ Global Offshore Wind Health and Safety Organisation (2024). 2023 Incident data report

Galway Bay FM (2023). Offshore wind project links up with Galway Hooker Association to boost boat racing. Available at: <https://galwaybayfm.ie/galway-bay-fm-news-desk/offshore-wind-project-links-up-with-galway-hooker-association-to-boost-boat-racing/>

Galway County Council (2022). County Galway Tourism Strategy 2023-2031

Galway County Council (2022). Galway County Development Plan 2022-2028

Galway Hooker Association (2024). Galway Hookers – Festivals. Available at: <https://www.galwayhookerassociation.ie/>

Galway Tourism (2024). Féile an tSrutháin (Carraroe) Sailing Regatta 2024. Available at: <>  
<https://www.galwaytourism.ie/event/feile-an-tsruhain-carraroe-co-galway/>>>

2. Galway Tourism.ie (2024). Féile an tSrutháin (Carraroe) Sailing Regatta 2025. Available at: <https://www.galwaytourism.ie/event/feile-an-tsruhain-carraroe-co-galway/>

Gillespie T, McHale P (2023) Wind Turbines and House Prices Along the West of Ireland: A Hedonic Pricing Approach, Centre for Economic Research on Inclusivity and Sustainability (CERIS) Working Paper Series, 2023/01

Government of Ireland Offshore Wind Delivery Taskforce (2024). Offshore Wind Energy Programme. Annual Review 2023 and Key Actions for 2024.

Health & Safety Authority (2006) Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations.

Health and Safety Authority (2016). A Guide to the Safety, Health and Welfare at Work (Electromagnetic Fields) Regulations 2016

Heblich S., Olner D., Pryce G., Timmins C., Bates E., and Birabi., (2016) Impact of wind turbines on house prices in Scotland. Available at: << [https://www.climatexchange.org.uk/wp-content/uploads/2023/09/cxc\\_wind\\_farms\\_impact\\_on\\_house\\_prices\\_final\\_17\\_oct\\_2016.pdf](https://www.climatexchange.org.uk/wp-content/uploads/2023/09/cxc_wind_farms_impact_on_house_prices_final_17_oct_2016.pdf) >>

Heblich, Dr. S. et al (2016) Impact of wind Turbines on House Prices in Scotland. Climate Xchange

Helimax Energy (2008). Shadow Flicker Analysis. Stantec, Ontario.

Hoen B., Wiser R., Cappers P., Thayer M., Sethu G., (2009). The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis. Available at: << <https://emp.lbl.gov/publications/impact-wind-power-projects> >>

HSE Public Health Medicine Environment and Health Group (2017) Position Paper on Wind Turbines and Public Health. Ireland.

Institute for Environmental Management and Assessment (2017) Health In Environmental Impact Assessment: A Primer for a Proportionate Assessment

Institute of Environmental Management and Assessment (IEMA) (2022). Determining Significance for Human Health In Environmental Impact Assessment

Institute of Public Health Ireland. (2009). Health Impact Assessment Guidance

International Commission on Non-Ionizing Radiation Protection (ICNIRP) (2020). RF EMF Guidelines 2020.

International Energy Agency (2023). Electricity Grids and Secure Energy Transitions Enhancing the foundations of resilient, sustainable and affordable power systems

Irish Statute Book (2005) Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005), as amended.

Irish Statute Book (2006) Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006).

Irish Statute Book (2007) Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended.

Irish Statute Book (2013) Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. 291 of 2013), as amended.

Irish Wind Energy Association (2009). Jobs and Investment in Irish Wind Energy – Powering Ireland’s Economy. Deloitte, Ireland.

Irish Wind Energy Association (2012). Best Practice Guidelines for the Irish Wind Energy Industry.

Irish Wind Energy Association (2014). “An Enterprising Wind” An economic analysis of the job creation potential of the wind sector in Ireland, Siemens Limited, Dublin.

Irish Wind Energy Association (January 2020) Interactions Opinion Poll on Wind Energy. Ireland

J. Glasson., B. Durning., K. Welch. (2022). The Impacts of Offshore Wind Farms (OWFs) on Local Tourism and Recreation -Evolving Lessons from Practice Keywords Offshore Wind Farms; impacts on local tourism and recreation. Journal of Energy and Power Technology. DOI: 10.21926/jept.2204037

Kandrot, S., Cummins, V., Jordan, D. and Murphy, J. (2020). 'Economic and employment impacts of offshore wind for Ireland: A value chain analysis', International Journal of Green Energy. doi: 10.1080/15435075.2020.1791874

Lawrence Berkley National Laboratory (2009). The Impact of Wind Power Projects on Residential Property Values in the United States: A multi-Site Hedonic Analysis. US Department of Energy

Lawrence Berkley National Laboratory (2013) A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States.

Le Blanc et al. (1991). Behavioral and Physiological Responses of Horses to Simulated Aircraft Noise.

MaREI and Wind Energy Ireland (March 2021). Report – Our Climate Neutral Future: Zeroby50

Marine Institute (2024). Irelands Marine Atlas. Data from the Offshore Energy and Ocean Infrastructure themes accessed through Ireland's Marine Atlas at <http://atlas.marine.ie/>, June 2024

Marine Ireland Industry Network (2024). Marine and Coastal Tourism & Recreation. Available at: <https://marine-ireland.ie/sectors/coastal-tourism>

Marshall Day Acoustics (2014). Summary of research of noise effects on Animals.

Massachusetts Departments of Environmental Protection and Public Health (2012). Wind Turbine Health Impact Study -Report of Independent Expert Panel. USA.

Massachusetts Institute of Technology (2014) Wind Turbines and Health, A Critical Review of the Scientific Literature, Journal of Occupational and Environmental Medicine Vol. 56 (11).

Met Éireann (2013). 30 Year Averages. <https://www.met.ie/climate/30-year-averages>

National Roads Authority/ Transport Infrastructure Ireland (2008). Environmental Impact Assessment of National Road Schemes- A practical Guide, Revision 1, November 2008

National Planning Framework (2022), National Spatial Strategy for Ireland 2022-2020

Noble Environmental Power LLC (2006). Wind Fact Sheet #4: Shadow Flicker. Noble Environmental Power, Connecticut.

ODPM Annual Report and Accounts 2004: Housing, Planning, Local Government and the Regions Committee; Planning Policy Statement 22

Pöry (2014) The Value of Wind Energy to Ireland A report to Irish Wind Energy Association. Cambridge Economics.

Red C and Tourism Ireland. (2024). Tourism Ireland Sentiment Tracking. Available at: [https://www.tourismireland.com/docs/default-source/sentiment-tracker-research/sentiment-tracker-research-july-2024.pdf?sfvrsn=84f8b64b\\_1](https://www.tourismireland.com/docs/default-source/sentiment-tracker-research/sentiment-tracker-research-july-2024.pdf?sfvrsn=84f8b64b_1)

Renewable UK (2010). Wind Turbine Syndrome - An independent review of the state of knowledge about the alleged health condition. London, UK.

RenewableUK and Cebr., (2014). The effect of wind farms on house prices. Available at: << <https://www.renewableuk.com/news/304411/RenewableUK-Cebr-Study—The-effect-of-wind-farms-on-house-prices.htm> >>

Siemens (2014) An Enterprising Wind" An economic analysis of the job creation potential of the wind sector in Ireland

Sustainable Energy Authority of Ireland (2003). Attitudes Towards the Development of Wind Farms in Ireland. SEAI, Dublin.

Sustainable Energy Authority of Ireland (2011), Wind Energy Roadmap 2011 to 2050. [www.seai.ie](http://www.seai.ie)

Sustainable Energy Authority of Ireland (October 2017). ‘Attitudes Towards the Development of Wind Farms in Ireland’. SEAI, Dublin.

The Northern and Western Regional Assembly (2020). Regional Spatial and Economic Strategy.

UK Department of Energy and Climate Change (2010). Update of Shadow Flicker Evidence Base. DECC,

US Environmental Protection Agency (2014). Framework for Human Health Risk Assessment to Inform Decision Making developed by the United States Environmental Protection Agency

Vanja Westerberg, Jette Bredahl Jacobsen, Robert Lifran. (2013). The case for offshore wind farms, artificial reefs and sustainable tourism in the French mediterranean, *Tourism Management*, Volume 34, 2013, Pages 172-183, ISSN 0261-5177,

Vattenfall (2021), The impacts of offshore wind farms on local tourism and recreation: a research study

Warren, C.R. *et al.*, (2005). Green on Green: Public Perceptions of Wind Power in Scotland and Ireland. Journal of Environmental Planning and Management 48(6): 853-875.

Wifa. E., (2016). The Health and Safety Implications of Offshore Wind Energy Development: More to it than Meets the Eye. Available at: << <https://www.abdn.ac.uk/law/blog/the-health-and-safety-implications-of-offshore-wind-energy-development-more-to-it-than-meets-the-eye/> >>

Wind Energy Ireland & KPMG (April 2021) Economic impact of onshore wind in Ireland.  
[www.windenergyireland.com](http://www.windenergyireland.com)

Wind Energy Ireland & MaREI (June 2023). Ireland’s Offshore Wind Potential From Net Zero to Net Export

Wind Energy Ireland & MaREI (March 2021) Our Climate Neutral Future Zero by 50.  
[www.windenergyireland.com](http://www.windenergyireland.com)

Wind Energy Ireland (January 2021) Public Attitudes Monitor. [www.windenergyireland.com](http://www.windenergyireland.com)

WindEurope (February 2022). Wind Energy in Europe: 2021 Statistics and the Outlook for 2022-2026.

WindEurope (September 2017). Wind energy in Europe: Scenarios for 2030.

World Health Organisation (2018). Constitution of the World Health Organization

World Health Organisation (2018). Environmental Noise Guidelines for the European Region: World Health Organisation Regional Office for Europe, 2018.

Zentacle (2024). Top Snorkelling and Scuba Diving in County Clare. Available at: << <https://www.zentacle.com/loc/ie/ce> >>

## Chapter 7 Marine Physical and Coastal Processes

Atan, R.; Goggins, J.; Nash, S. A Detailed Assessment of the Wave Energy Resource at the Atlantic Marine Energy Test Site. *Energies* 2016, 9, 967. <https://doi.org/10.3390/en9110967>

Calvino, C., Dadbrowski, T., & Dias, F. (2021). A Study of the Wave Effects on the Current Circulation in Galway Bay, using the Numerical Model COAWST. Available from: 2109.12936.pdf (arxiv.org) [Accessed -July 2023].

Carpenter, J.R., Merckelbach, L., Callies, U., Clark, S., Gaslikova, L., Baschek, B. (2016). Potential Impacts of Offshore Wind Farms on North Sea Stratification. PloS ONE 11(8): e0160830.

Cazenave, P. W., Torres, R., and Allen, I. J. (2016). Unstructured grid modelling of offshore wind farm impacts on seasonally stratified shelf seas. Progress in Oceanography 145 (2016) 25–41.

Deeny, D.E. (1975). The Sediments of Cill Chiaráin Bay (Co. Galway) between Cill Chiaráin and Dinish Shoals. M. Sc. Thesis, Dept. of Geology, University College Galway.

Delaney, A., Devaney, F.M., Martin, J.R. and Barron, S.J. (2013). Monitoring survey of Annex I sand dune habitats in Ireland. Irish Wildlife Manuals, No. 75. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Deltares (2022). Skerd Rocks offshore wind farm metocean study.

Department of the Environment, Climate and Communications (DECC) (2017). Guidance on EIA and Natura Impact Statement (NIS) Preparation for Offshore Renewable Energy Projects (Ireland). Available at: <https://www.gov.ie/en/publication/3d6efb-guidance-documents-for-offshore-renewable-energy-developers/> [Accessed April 2024].

Department of the Environment, Climate and Communications (DECC) (2018a; 2018b). Guidance on Marine Baseline Ecological Assessment and Monitoring Activities for Offshore Renewable Energy Projects (Parts 1 and 2) (Ireland). Available at: <https://www.gov.ie/en/publication/3d6efb-guidance-documents-for-offshore-renewable-energy-developers/> [Accessed April 2024].

Digital Ocean (2023). Download tide data. Available at: <https://www.digitalocean.ie/Data/DownloadTideData/Inishmore>. [Accessed August 2023].

Dorrell, R.M., Lloyd, C.J., Lincoln, B.J., Rippeth, T.P., Taylor, J.R., Caulfield, C.C.P., Sharples, J., Polton, J.A., Scannell, B.D., Greaves, D.M., Hall, R.A. and Simpson, J.H., (2022), Anthropogenic Mixing in Seasonally Stratified Shelf Seas by Offshore Wind Farm Infrastructure. Front. Mar. Sci. 9:830927.

EGS (2023a). Fuinneamh Sceirde Teoranta, Sceirde Rocks OWF Preliminary Geophysical Survey 2022: Interpretive report RSA & ESA

EGS (2023b). Fuinneamh Sceirde Teoranta, Sceirde Rocks OWF Preliminary Geophysical Survey 2022: Interpretive report (Export cable route).

EMODnet (2021). EMODnet Geology Mapper. Available at: <https://www.emodnet-geology.eu/map-viewer/>. [Accessed November 2023]

Erdmann, W. M., Scheffers, M.J. and Keeletat, D.H (1992). Holocene Coastal Sedimentation in a Rocky Environment: Geomorphological evidence from the Aran Islands and Galway Bay (Western Ireland), *Journal of Coastal research*. 34(4).

Floeter, J., van Beusekom, J. E. E., Auch, D., Callies, U., Carpenter, J., Dudeck, T. (2017). Pelagic effects of offshore wind farm foundations in the stratified north Sea. *Prog. Oceanogr.* 156, 154–173. doi: 10.1016/j.pocean.2017.07.003.

Folk, R.L., 1954. The Distinction between Grain Size and Mineral Composition in Sedimentary-Rock Nomenclature. *The Journal of Geology*, 62 (4), 344-359. <https://doi.org/10.1086/626171>.

IPCC, 2021, Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. In Press. [Accessed August 2023].

Irish Data Buoy Network (2023). Available at: <http://vis.marine.ie/dashboards/#/dashboards/weather?buoy=M1&measurement=SeaTemperature>. [Accessed August 2023].

Laine, E. and Iglesias, G (2023). Extreme climate change hazards and impacts on European coastal cities: A review. *Renewable and Sustainable Energy Reviews*, 18. <https://doi.org/10.1016/j.rser.2023.113587>.

Gleeson, G., Gallagher, S., Clancy, C. & Dias, F (2016). NAO and extreme ocean states in the Northeast Atlantic Ocean, *Advances in Science and Research*. doi:10.5194/asr-14-23-2017.

Healy, R (2003). Preliminary Geological Investigation of the Skerd Rocks Foreshore License Area for Fuinneamh Sceirde Teoranta (FST). Available at: [chrome-extension://efaidnbmnnibpcajpcglefindmkaj/http://www.healygeoscience.com/papers/Healy\\_2003.pdf](chrome-extension://efaidnbmnnibpcajpcglefindmkaj/http://www.healygeoscience.com/papers/Healy_2003.pdf). [Accessed August 2023].

Huang, W.G., Cracknell, A.P. and Vaughan, R.A (1993). Satellite Thermal Observation of the River Shannon Plume, *Estuarine and Coastal Shelf Science*. 36(3). <https://doi.org/10.1006/ecss.1993.1014>.

Marine Institute (2022). Ireland's Marine Atlas. Mean Annual Distribution of Wave Height (m). Available at <https://www.marine.ie/Home/site-area/data-services/marine-data-centre>.

Marine Institute (2023). Irish Ocean Climate Status and Ecosystems: Status report 2023. Available at: <https://oar.marine.ie/handle/10793/1844>. [Accessed August 2023].

Masselink, G., Russel, P., Rennie, P., S, Brooks. & T. Spencer (2020). Impacts of climate change on coastal geomorphology and coastal erosion relevant to the coastal and marine environment around the UK, *Marine Climate Change Impacts Partnership Science Review*, 158-189. doi: [10.14465/2020.arc08.cgm](https://doi.org/10.14465/2020.arc08.cgm).

McCarthy, G.D., Burmeister, K., Cunningham, S.A., Düsterhus, A., Frajka-Williams, E., Graham, J.A., Hodge, K.R., Holliday, N.P., Inall, M., Jackson, L.C., Menary, M.B., Moat, B.I., Moffa-Sanchez, P., Oltmanns, M., Polton, J.A., Rabe, B., Robson, J. and Thornalley, D.J.R. Climate change impacts on ocean circulation relevant to the UK and Ireland. MCCIP Science Review 2023, 29pp. doi: [10.14465/2023.reu05.cir](https://doi.org/10.14465/2023.reu05.cir)

McCullagh, D (2019). A paleoenvironmental reconstruction of Galway Bay, Western Ireland, from the last glacial maximum to the present day, *Ulster University*. Available at: <https://pure.ulster.ac.uk/ws/portalfiles/portal/77414615/2019McCullaghDPhD.pdf>. [Accessed January 2024].

McCullagh, D., Bennetti, S., Plets, R., Sacchetti, F., O'Keefe, E.m., & Lyons, KL. (2020). Geomorphology of Galway Bay, Western Ireland, *Journal of Maps*. Vol. 16 (2).

MERC Consultants (2005). Biodiversity of Cill Chiaráin Bay, Co. Galway. Available at: [http://www.mercenvironmental.com/resource\\_documents/Fn38hBiodiversity%20of%20Kilkieran%20bay1.pdf](http://www.mercenvironmental.com/resource_documents/Fn38hBiodiversity%20of%20Kilkieran%20bay1.pdf) [Accessed April 2024].

Met Éireann (2023). Marine meteorology: The wave climate of Ireland: from averages to extremes. Available at: <https://www.met.ie/science/marine-meteorology#top>. [Accessed September 2023].

Miller, P.I. and Christodoulou, S. (2014). Frequent locations of oceanic fronts as an indicator of pelagic diversity: Application to marine protected areas and renewables. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S03085977X13002066?via%3Dihub>. [Accessed August 2023].

Nolan, G.D. and Lyons, K (2006). Ocean climate variability on the western Irish Shelf, an emerging time series. Available at: chrome-extension://efaidnbmnnibpcajpcglclefindmkaj/<https://www.ices.dk/sites/pub/CM%20Documents/2006/C/C2806.pdf>. [Accessed August 2023].

NPWS (2013a). Dog's Bay SAC: Site Synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY001257.pdf> [Accessed April 2024].

NPWS (2013b) The status of EU protected habitats and species in Ireland. Unpublished report, NPWS. Department of Arts, Heritage and the Gaeltacht, Dublin

NPWS (2013c). Inishmaan Island SAC (site code 212): Site synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000212.pdf> [Accessed April 2024].

NPWS (2014a). Carrowmore Point to Spanish Point and Islands SAC (site code 1021): Conservation objectives supporting document -Coastal Lagoons. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Carrowmore%20Point%20to%20Spanish%20Point%20and%20Islands%20SAC%20\(001021\)%20Conservation%20objectives%20supporting%20document%20-%20Lagoons%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Carrowmore%20Point%20to%20Spanish%20Point%20and%20Islands%20SAC%20(001021)%20Conservation%20objectives%20supporting%20document%20-%20Lagoons%20habitats%20[Version%201].pdf) [Accessed April 2024].

NPWS (2014b). Carrowmore Point to Spanish Point and Islands SAC (site code: 1021): Conservation objectives series. Available at: [https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO001021.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001021.pdf) [Accessed April 2024].

NPWS (2014c). Kilkieran Bay and Islands SAC (site code: 2111): Conservation objectives supporting document – Lagoons. Available at: <https://www.npws.ie/sites/default/files/publications/pdf/002111%20Kilkieran%20Bay%20and%20Islands%20SAC%20Lagoons%20Supporting%20Doc%20V1.pdf> [Accessed April 2024].

NPWS (2014d). Kilkieran Bay and Islands SAC (site code: 2111): Conservation objectives supporting document - Marine Habitats and species. Available at: <https://www.npws.ie/sites/default/files/publications/pdf/002111%20Kilkieran%20Bay%20and%20Islands%20SAC%20Marine%20Supporting%20Doc%20V1.pdf> [Accessed April 2024].

NPWS (2014e). Carrowmore Dunes SAC (site code: 002250): Site Synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002250.pdf> [Accessed April 2024].

NPWS (2014f). Carrowmore Dunes SAC (site code 2250): Conservation objectives supporting document-coastal habitats. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Carrowmore%20Dunes%20SAC%20\(002250\)%20Conservation%20objectives%20supporting%20document%20-%20Coastal%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Carrowmore%20Dunes%20SAC%20(002250)%20Conservation%20objectives%20supporting%20document%20-%20Coastal%20habitats%20[Version%201].pdf) [Accessed April 2024].

NPWS (2014g). Kilkee Reefs SAC 002264: Conservation Objectives Series. Available at: [https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO002264.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002264.pdf) [Accessed April 2024].

NPWS (2014h). Inishmaan Island SAC (site code 212): Conservation objectives supporting document - Coastal Habitats. Available at: <https://www.npws.ie/protected-sites/sac/001021> [Accessed August 2023].

NPWS (2015a). Inishmore Island SAC (site code 213): Conservation objectives supporting document - Coastal Lagoons. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Inishmore%20Island%20SAC%20\(000213\)%20Conservation%20objectives%20supporting%20document%20-%20Lagoons%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Inishmore%20Island%20SAC%20(000213)%20Conservation%20objectives%20supporting%20document%20-%20Lagoons%20habitats%20[Version%201].pdf) [Accessed August 2023].

NPWS (2015b). Inishmore Island SAC (site code 213): Conservation objectives supporting document - Marine Habitats. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Inishmore%20Island%20SAC%20\(000213\)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Inishmore%20Island%20SAC%20(000213)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20[Version%201].pdf) [Accessed April 2024].

NPWS (2015c). Inishmore Island SAC (site code 213): Conservation Objectives Series. Available at: [https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO000213.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000213.pdf) [Accessed April 2024].

NPWS (2015d). Connemara Bog Complex SAC: Site synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002034.pdf> [Accessed April 2024].

NPWS (2015e). Connemara Bog Complex SAC: Conservation objectives supporting document - Coastal lagoons. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Connemara%20Bog%20Complex%20SAC%20\(002034\)%20Conservation%20objectives%20supporting%20document%20-%20E2%80%93%20Lagoons%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Connemara%20Bog%20Complex%20SAC%20(002034)%20Conservation%20objectives%20supporting%20document%20-%20E2%80%93%20Lagoons%20[Version%201].pdf) [Accessed April 2024].

NPWS (2015f). Slyne Head Peninsula SAC: Conservation objectives supporting document - Coastal lagoons. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Slyne%20Head%20Peninsula%20SAC%20\(002074\)%20Conservation%20objectives%20supporting%20document%20-%20Lagoons%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Slyne%20Head%20Peninsula%20SAC%20(002074)%20Conservation%20objectives%20supporting%20document%20-%20Lagoons%20habitats%20[Version%201].pdf) [Accessed April 2024].

NPWS (2015g). Slyne Head Peninsula SAC: Conservation objectives series. Available at: [https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO002074.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002074.pdf) [Accessed April 2024].

NPWS (2017). Dog's Bay SAC (site code 213): Conservation objectives supporting document - Coastal Habitats. Available at: <https://www.npws.ie/protected-sites/sac/001021> [Accessed August 2023].

NPWS (2019). Slyne Head Peninsula SAC: Site Synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002074.pdf> [Accessed April 2024].

NPWS (2024a). Inishmore Island SAC (site code 213): Site synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000213.pdf> [Accessed April 2024].

NPWS (2024b). Kilkieran Bay and Islands SAC: Site Synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002111.pdf> [Accessed April 2024].

Oliver, G. (2007) Inventory of Irish coastal lagoons (version 2). Unpublished report to the National Parks and Wildlife Service.

OPW (2023). Report of the Inter-Departmental Group on National Coastal Change Management Strategy. Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/274791/3629d224-a11d-479d-94e0-6e0e435999f3.pdf#page=null>. [Accessed January 2024].

Ren, L., Nash, S. and Hartnett, M (2015). Observations and modelling of tide- and wind-induced surface currents in Galway Bay, *Water Science and Engineering*. 8(4).

Ryle, T., Murray, A., Connolly, K. and Swann, M. (2009). Coastal Monitoring Project 2004-2006. Unpublished report to the National Parks and Wildlife Service, Dublin.

Schultze, L., Merckelbach, L., Horstmann, J., Raasch, S., and Carpenter, J., (2020). Increased mixing and turbulence in the wake of offshore wind farm foundations. *J. Geophys. Res. Oceans* 125, e2019JC015858. doi: 10.1029/2019JC015858.

Sea Temperature (2023). Galway. Available at: <https://seatemperature.net/current/ireland/galway-sea-temperature#:~:text=Average%20annual%20water%20temperature%20on,in%20autumn%2056%C2%B0F>. [Accessed: August 2023].

SEI. Tidal Current Ene4gy Resources in Ireland Report. Available at: <https://www.seai.ie/search/?magic Roxen automatic charset variable=%C3%A5%C3%A4%C3%B6%E8%8A%9F%40UTF-8&query=tidal>. [Accessed August 2023].

Sides, E.M., Picton, B.E., Emblow, C.S., Morrow, C.C., and Costello, M. J. (1994). Marine communities of Kilkieran Bay, the Aran Islands and the Skerd Rocks and an assessment of their conservation importance. Available at: <https://www.npws.ie/sites/default/files/publications/pdf/Sides et al 1994 Kilkieran Bay.pdf>

Stori, F. T. and O'Mahony, C. 2021. Coastal Climate Adaptation in Ireland: The Effects of Climate Change in Portrane (Fingal, Co. Dublin) and Future Perspectives. MaREI the SFI Research Centre for Energy, Climate and Marine; Environmental Research Institute; University College Cork. Coastal Communities Adapting Together – CCAT Project. 202p. Available at: [https://www.marei.ie/wp-content/uploads/2021/11/Stori-and-OMahony-2021\\_Coastal-Climate-Adaptation-Ireland-Portrane.pdf](https://www.marei.ie/wp-content/uploads/2021/11/Stori-and-OMahony-2021_Coastal-Climate-Adaptation-Ireland-Portrane.pdf) [Accessed September 2023].

Tonani, M., Ascione, I. and Saulter, A (2023). Ocean Physical-Wave Analysis and Forecast Product: Product user manual, *Copernicus*. Available at: <https://data.marine.copernicus.eu/viewer/expert?view=viewer&crs=epsg:4326&t=170618400000&z=0&center=5.945564437309176,48.976380788496876&zoom=13.118544412698107&layers=W3siaWQiOijjMyIsIm9wYWNpdHkiOjEsImxheWVySWQiOijHTE9CQUxfQU5BTFTSVNGT1JFQ0FTVF9XQVZfMDAxXzAyNy9jbWVtc19tb2RfZ2xvX3dhdl9hbmZjXzAuMDgzZGVnX1BUM0gtaV8yMDIzMTEvVk1EUiIsInpJbmRleCI6MCwibG9nU2NhbGUiOmZhbHNlfV0=&basemap=dark>. [Accessed November 2023].

Tully, O, and Ó'Céidigh, P. (1989). The ichthyoneuston of Galway Bay (Ireland) 1. The seasonal, diet and spatial distribution of larval, post-larval and juvenile fish. *Marine Biology*, 101:27-42.

Walther, C.A., García, C., Dwyer, N., Cusak, C., McGovern, E & Nolan, G (2020). Ocean surface and subsurface salinity. Available at: [https://www.climateireland.ie/#!/search&gsc.tab=0&gsc.q=salinity&gsc.sort="](https://www.climateireland.ie/#!/search&gsc.tab=0&gsc.q=salinity&gsc.sort=) [Accessed September 2023]

## Chapter 8 Water and Sediment Quality

Brooks, A., Whitehead, P. and Lambkin, D. (2018). Guidance on Best Practice for Marine and Coastal Physical Processes Baseline Survey and Monitoring Requirements to inform EIA of Major Development Projects.

Canadian Council of Ministers of the Environment (CCME) (1999). Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. Available at:  
<https://www.pla.co.uk/Environment/Canadian-Sediment-Quality-Guidelines-for-the-Protection-of-Aquatic-Life> [Accessed 18/07/2024].

Canadian Council of Ministers of the Environment (1995). Protocol for the derivation of Canadian sediment quality guidelines for the protection of aquatic life. CCME EPC-98E. Prepared by Environment Canada, Guidelines Division, Technical Secretariat of the CCME Task Group on Water Quality Guidelines, Ottawa.

Costello, M.J. (1993). Biogeography of Alien Amphipods Occurring in Ireland, and Interactions With Native Species. *Crustaceana*, 65(3), 287-299. doi:10.1163/156854093X00720.

Cronin, M., McGovern, E., McMahon, T. and Boelens, R. (2019). Addendum to guidelines for the assessment of dredge material for disposal in Irish waters.

Cronin, M., McGovern, E., McMahon, T. and Boelens, R (2006). Guidelines for the assessment of dredge material for disposal in Irish waters.

DCCAЕ (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. Available at: <https://assets.gov.ie/76533/6a82b451-e09f-483b-849e-07d4c7baa728.pdf>

Department of Business Enterprise and Regulatory Reform (BERR) (2008). Review of cabling techniques and environmental effects applicable to the offshore wind farm industry. Department for Business Enterprise & Regulatory Reform, London, UK, pp.211-223.

Department of Communications, Energy and Natural Resources (DCENR), 2014. Development Plan Available at: (OREDP ) <https://www.gov.ie/en/publication/71e36-offshore-renewable-energy-development-plan-ii-oredp-ii/>

Department of the Environment, Climate and Communications (2022). Offshore Renewable Energy Development Plan II (OREDP II). Available at: <https://www.gov.ie/en/publication/71e36-offshore-renewable-energy-development-plan-ii-oredp-ii/>

Department of Housing, Local Government and Heritage (2022) - Department of Housing, Planning and Local Government, 2022. River Basin Management Plan for Ireland 2018 – 2021. Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/131981/dea37730-1ef0-4106-875b-5c433e823ad6.pdf#page=null>

EGS (2023a). Fuinneamh Sceirde Teoranta, Sceirde Rocks OWF Preliminary Geophysical Survey 2022: Interpretive report RSA & ESA

EGS (2023b). Fuinneamh Sceirde Teoranta, Sceirde Rocks OWF Preliminary Geophysical Survey 2022: Interpretive report (Export cable route).

Environment, C. C. (2001). Canadian sediment quality guidelines for the protection of aquatic life: Introduction. Updated.

EPA (2019). Water Quality in Ireland 2013 – 2018. Available at:  
[https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/Water\\_Quality\\_in\\_Ireland\\_2013-2018-\(web\).pdf](https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/Water-Quality-in-Ireland-2013-2018-(web).pdf)

EPA (2020). Water Quality in Ireland 2019. Available at: [https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/Water\\_Quality\\_2019.pdf](https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/Water_Quality_2019.pdf)

EPA (2022a). Bathing Water Quality in Ireland – A report for the Year 2021. Available at:  
<https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/Bathing-water-quality-inIreland-in-2021.pdf> [Accessed 19/09/2022].

EPA (2022b). Water Quality in Ireland 2016 – 2021. Available at:  
<https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/water-quality-in-ireland-2016-2021.php> [Accessed 18/07/2024].

EPA (2023a). Water Quality in 2022 Available at: <https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/water-quality-in-2022.php> [Accessed 18/07/2024].

EPA (2023b). Supporting information for the interim water quality review as required as a condition of Ireland's derogation under the Nitrates Directive - Technical Document, Appendix 2. Available at:  
<https://www.epa.ie/publications/monitoring-assessment/freshwater-marine/supporting-information-for-the-interim-water-quality-review-as-required-as-a-condition-of-irelands-derogation-under-the-nitrates-directive-technical-document.php> [Accessed 18/07/2024].

DHLGH, EPA, and the Local Authority Waters Programme (2024). Catchment Management in Ireland Available at: <https://www.catchments.ie/>

EPA (2024). EPA Water Maps. Available at: <https://gis.epa.ie/EPAMaps/Water>

Irish Data Buoy Network (2023). Available at:  
<http://vis.marine.ie/dashboards/#/dashboards/weather?buoy=M1&measurement=SeaTemperature>

Department of Housing, Local Government and Heritage (2019). Marine Planning Policy Statement. Available at: <https://www.gov.ie/en/publication/3e262-marine-planning-policy-statement/>

Department of Housing, Local Government and Heritage (2021a). National Marine Planning Framework. Available at: <https://www.gov.ie/en/publication/a4a9a-national-marine-planning-framework/>

Irish Government (2021). Designated shellfish waters in the Galway - Mayo region. Kilkieran shellfish area county Galway. Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/128827/9965acc7-2918-4f82-8cba-5f4be1880600.pdf#page=null>

Irish Government (2022). River Basin Management Plan 2018 – 2021. Department of Housing, Local Government and Heritage. Available at: <https://www.gov.ie/en/publication/429a79-river-basin-management-plan-2018-2021/>

Irish Government (2024). River Basin Management Plan 2022 – 2027. Department of Housing, Local Government and Heritage. Available at: <https://www.gov.ie/en/policy-information/8da54-river-basin-management-plan-2022-2027/>

Marine Climate Change Impacts Partnership (2023). Physical Environment. Available at:  
<https://www.mccip.org.uk/all-uk/uk-impacts/hub/physical-environment>

Marine Institute (2024). Biotoxin Data. Available at:  
<https://webapps.marine.ie/HABs/AreaSummary/Inshore/58> [Accessed 10/09/2024].

Marine Institute. (2022). Ireland's Marine Atlas. Available at: <https://www.marine.ie/site-area/data-services/interactive-maps/irelands-marine-atlas> [Accessed 10/09/2024].

McCarthy G.D, Caesar L, Ulthaman, A., Daly, E. (2023). Marine Institute: Chapter 3: Physical Oceanography. Available at: <https://oar.marine.ie/bitstream/handle/10793/1851/Marine%20-%20Ocean%20Climate%20Report%20-%20Chapter%203.pdf?sequence=1&isAllowed=y> [Accessed 05/08/2024]

Met Éireann (2024). Marine meteorology: The wave climate of Ireland: from averages to extremes. Available at: <https://www.met.ie/science/marine-meteorology#top> [Accessed 10/09/2024].

National Parks & Wildlife Service. (2023a). Inishmore Island SAC. Available at: <https://www.npws.ie/protected-sites/sac/000213> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023b). Carrowmore Point to Spanish Point and Islands SAC. Available at: <https://www.npws.ie/protected-sites/sac/001021> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023c). Carrowmore Dunes SAC Available at: <https://www.npws.ie/protected-sites/sac/002250> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023d). Kilkieran Bay and Islands SAC. Available at: <https://www.npws.ie/protected-sites/sac/002111> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023e). Kilkee Reefs SAC. Available at: <https://www.npws.ie/protected-sites/sac/002264> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023f). Lough Nageeron SAC Available at: <https://www.npws.ie/protected-sites/sac/002119> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023g). Dog's Bay SAC Available at: <https://www.npws.ie/protected-sites/sac/001257> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023h). Connemara Bog Complex SAC Available at: <https://www.npws.ie/protected-sites/sac/002034> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023i). Murvey Machair SAC Available at: <https://www.npws.ie/protected-sites/sac/002129> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023j). Cregduff Lough SAC Available at: <https://www.npws.ie/protected-sites/sac/001251> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023k). Inishmaan Island SAC Available at: <https://www.npws.ie/protected-sites/sac/000212> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023l). Rosroe Bog SAC Available at: <https://www.npws.ie/protected-sites/sac/000324> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023m). Slyne Head Peninsula SAC Available at: <https://www.npws.ie/protected-sites/sac/002074> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023n). Mid-Clare Coast SPA Available at: <https://www.npws.ie/protected-sites/spa/004182> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023o). Inishmore SPA. Available at: <https://www.npws.ie/protected-sites/spa/004152> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023p). Slyne Head to Ardmore Point Islands SPA Available at: <https://www.npws.ie/protected-sites/spa/004159> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023q). Connemara Bog Complex SPA Available at: <https://www.npws.ie/protected-sites/spa/004181> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023r). Cliffs of Moher SPA Available at: <https://www.npws.ie/protected-sites/spa/004005> [Accessed 11/09/2024].

National Parks & Wildlife Service. (2023s). Illaunonearaun SPA Available at: <https://www.npws.ie/protected-sites/spa/004114> [Accessed 11/09/2024].

Nolan, G.D. and Lyons, K (2006). Ocean climate variability on the western Irish Shelf, an emerging time series. Available at <https://www.ices.dk/sites/pub/CM%20Documents/2006/C/C2806.pdf> [Accessed 10/09/2024].

Nolan, G., Smith, J., & O'Brien, L. (2023). Influence of wind, tides, and thermohaline factors on coastal currents. *Journal of Marine Science*, 45(3), pp. 123-145.

Ocean Ecology Limited (2024). Sceirde Rocks WindFarm Project. Benthic Characterisation Survey 2023: Technical Report. IRE1-OEL-SIT-EV-RP-0003.

OSPAR (2017). Concentrations of Dissolved Oxygen Near the Seafloor. Available at: <https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/pressures-human-activities/eutrophication/dissolved-oxygen/>

Rossby, T., (1996). The North Atlantic Current and surrounding waters: At the crossroads. *Reviews of Geophysics*, 34(4), pp.463-481.

Sea Temperature (2023). Galway. Available at: <https://seatemperature.net/current/ireland/galway-sea-temperature#:~:text=Average%20annual%20water%20temperature%20on,in%20autumn%2056%C2%B0F> [Accessed 10/09/2024].

Walther, C.A., García, C., Dwyer, N., Cusak, C., McGovern, E & Nolan, G (2020). Ocean surface and subsurface salinity. Available at: <https://www.climateireland.ie/#!/search&gsc.tab=0&gsc.q=salinity&gsc.sort=> [Accessed 10/09/2024].

Welsh Government (2017). Marine Non-native Species. Priority Monitoring and Surveillance List for Wales. Available at: <https://www.gov.wales/sites/default/files/publications/2018-02/invasive-aquatic-species-priority-marine-species.pdf>. [Accessed 10/04/2024].

## Chapter 9 Benthic Ecology

Bradán Beo Teoranta (2024). T09-280 Bradán Beo Teoranta Aquaculture/Foresore Licence application, Kilkieran Bay, Co. Galway (Environmental Impact Assessment Report and Benthic Survey Report). Available at: <https://www.gov.ie/en/aquaculture-licence/05f19-t09-280-bradan-beo-teoranta-aquacultureforeshore-licence-application-kilkieran-bay-co-galway/#environmental-impact-assessment-report> [Accessed 14/08/2024].

Budd, G.C., Ashley, M., Lloyd, K.A., & Watson, A., (2024). Hediste diversicolor in littoral mud. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 29-11-2024]. Available from: <https://www.marlin.ac.uk/habitat/detail/1135>. [Accessed 24/11/2024].

Centre for Environment, Fisheries and Aquaculture Science (Cefas) (2012). Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (UK). Available at: [https://tethys.pml.gov/sites/default/files/publications/CEFAS\\_2012\\_Environmental\\_Assessment\\_Guidance.pdf](https://tethys.pml.gov/sites/default/files/publications/CEFAS_2012_Environmental_Assessment_Guidance.pdf) [Accessed 24/04/2024].

Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). Guidelines for EIA in Britain and Ireland, Marine and Coastal (UK and Ireland). Available at: <https://cieem.net/resource/guidelines-for-ecological-impact-assessment-eia/> [Accessed 24/04/2024].

Costello, M.J. (1993). Biogeography of Alien Amphipods Occurring in Ireland, and Interactions With Native Species. *Crustaceana*, 65(3), 287-299. doi:10.1163/156854093X00720.

d'Avack, E.A.S., Tyler-Walters, H., Wilding, C.M., Garrard, S.L., & Watson, A., (2024). Zostera (Zostera) marina beds on lower shore or infralittoral clean or muddy sand. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 29-11-2024]. Available from: <https://www.marlin.ac.uk/habitat/detail/257>. [Accessed 24/11/2024].

De-Bastos, E.S.R., Hill, J.M. & Watson, A., (2023). Amphiura filiformis, Kurtiella bidentata and Abra nitida in circalittoral sandy mud. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews. Plymouth: Marine Biological Association of the United Kingdom. Available at: [https://www.marlin.ac.uk/habitats/detail/368/amphiura\\_filiformis\\_mysella\\_bidentata\\_and\\_abra\\_nitida\\_in\\_circalittoral\\_sandy\\_mud](https://www.marlin.ac.uk/habitats/detail/368/amphiura_filiformis_mysella_bidentata_and_abra_nitida_in_circalittoral_sandy_mud)

Department of Communications, Energy and Natural Resources (2014). Offshore Renewable Energy Development Plan (OREDP): A Framework for the Sustainable Development of Ireland's Offshore Renewable Energy Resource (Ireland). Available at: <https://www.gov.ie/en/publication/71e36-offshore-renewable-energy-development-plan-ii-oredp-ii/#oredp-i> [Accessed 24/04/2024].

Department of the Environment, Climate and Communications (DECC) (2017). Guidance on EIA and Natura Impact Statement (NIS) Preparation for Offshore Renewable Energy Projects (Ireland). Available at: <https://www.gov.ie/en/publication/3d6efb-guidance-documents-for-offshore-renewable-energy-developers/> [Accessed 24/04/2024].

DECC (2018a,b). Guidance on Marine Baseline Ecological Assessment and Monitoring Activities for Offshore Renewable Energy Projects (Parts 1 and 2) (Ireland). Available at: <https://www.gov.ie/en/publication/3d6efb-guidance-documents-for-offshore-renewable-energy-developers/> [Accessed 24/04/2024].

Department of Housing, Local Government and Heritage (DHLGH) (2019). Marine Planning Policy Statement (Ireland). Available at: <https://www.gov.ie/en/publication/3e262-marine-planning-policy-statement/> [Accessed 24/04/2024].

DHLGH (2021). National Marine Planning Framework (Ireland). Available at: <https://www.gov.ie/en/publication/a4a9a-national-marine-planning-framework/> [Accessed 24/04/2024].

De-Bastos, E.S.R. (2016). *Myrtea spinifera* and polychaetes in offshore circalittoral sandy mud. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at: [https://www.marlin.ac.uk/habitats/detail/1110/myrtea\\_spinifera\\_and\\_polychaetes\\_in\\_offshore\\_circalittoral\\_sandy\\_mud](https://www.marlin.ac.uk/habitats/detail/1110/myrtea_spinifera_and_polychaetes_in_offshore_circalittoral_sandy_mud) [Accessed 05/04/2023].

De-Bastos, E.S.R. (2023). *Owenia fusiformis* and *Amphiura filiformis* in offshore circalittoral sand or muddy sand. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at: [https://www.marlin.ac.uk/habitats/detail/381/owenia\\_fusiformis\\_and\\_amphiura\\_filiformis\\_in\\_deep\\_circalittoral\\_sand\\_or\\_muddy\\_sand](https://www.marlin.ac.uk/habitats/detail/381/owenia_fusiformis_and_amphiura_filiformis_in_deep_circalittoral_sand_or_muddy_sand) [Accessed 24/04/2024].

European Environment Agency (EEA) (2024). EUNIS habitat webpage accessed for Irish SAC Factsheets with Annex I Reefs. Available at: <https://eunis.eea.europa.eu/habitats/10009> [Accessed 10/04/2024].

EGS (International) Limited (2023a). Fuinneamh Sceirde Teoranta, Sceirde Rocks OWF Preliminary Geophysical Survey 2022: Interpretive Report RSA & ESA.

EGS (International) Limited (2023b). Fuinneamh Sceirde Teoranta, Sceirde Rocks OWF Preliminary Geophysical Survey 2022: Interpretive Report (Export cable route).

EMODnet (2023). EMODnet Map Viewer, EUSeaMap (2021). Available at: <https://emodnet.ec.europa.eu/geoviewer/#/> [Accessed 24/04/2024].

Environment Protection Agency (EPA) (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports. May 2022. Available at: [https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR\\_Guidelines\\_2022\\_Web.pdf](https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR_Guidelines_2022_Web.pdf) [Accessed 24/04/2024].

Evard, H., Krueve, A., and Leito, I. (2016). Tutorial on estimating the limit of detection using LC-MS analysis, part I: Theoretical review. *Analytica Chimica Acta*, vol 942, 26 October 2016, Pages 23-39. doi: 10.1016/j.aca.2016.08.043.

Feature Activity Sensitivity Tool (FeAST) (2023). Feature Activity Sensitivity Tool. Available at: <https://feature-activity-sensitivity-tool.scot/> [Accessed 05/04/2024].

Golding, N., Albrecht, J. & McBreen, F. (2020). Refining criteria for defining areas with a ‘low resemblance’ to Annex I stony reef: Workshop Report. JNCC Report No. 656, JNCC, Peterborough, ISSN 0963-8091.

Hughes, S.L., Hindson, J., Berx, B., Gallego, A. and Turrell, W.R. (2018). Scottish Ocean Climate Status Report 2016. Scottish Marine and Freshwater Science Vol 9 No 4, 167pp. DOI: 10.7489/12086-1.

INFOMAR (2023). Seabed and Sediment Data Interactive Map. Available at: <https://www.infomar.ie/maps/interactive-maps/seabed-and-sediment> [Accessed 24/04/2024].

Irving, R. (2009). The identification of the main characteristics of stony reef habitats under the Habitats Directive. Summary report of an inter-agency workshop 26-27 March 2008. JNCC Report No. 432, JNCC, Peterborough, ISSN 0963-8091.

Hill, J.M., Tyler-Walters, H., Burdett, E.G. & Jasper, C. (2023). Laminaria digitata on moderately exposed sublittoral fringe bedrock. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 29-11-2024]. Available from: <https://www.marlin.ac.uk/habitat/detail/297> [Accessed 24/11/2024]

Kelly, J., O'Flynn, C., and Maguire, C. (2013). Risk analysis and prioritisation for invasive and non-native species in Ireland and Northern Ireland. A report prepared for the Northern Ireland Environment Agency and National Parks and Wildlife Service as part of Invasive Species Ireland. Available at: <https://invasives.ie/app/uploads/2021/10/Risk-analysis-and-prioritization-29032012-FINAL.pdf> [Accessed 07/04/2024].

Marine Institute (2021). Ireland's Marine Atlas: Marine Strategy Framework Directive (MSFD) Predominant Habitat Type. Available at: <http://atlas.marine.ie/#?c=53.9108:-15.8862:6> [Accessed 24/04/2024].

Marine Life Information Network (MarLIN) (2024). Marine Life Information Network (MarLIN) – Habitats. Available at: <https://www.marlin.ac.uk/habitats> [Accessed 07/04/2024].

McQuillan, R. M., Tillin, H.M., Williams, E., Tyler-Walters, H., Lloyd, K.A., & Watson, A., 2024. Lanice conchilega in littoral sand. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 29-11-2024]. Available from: <https://www.marlin.ac.uk/habitat/detail/195> [Accessed 24/11/2025]

Moore, P.J. and Smale, D.A. (2020) Impacts of climate change on shallow and shelf subtidal habitats relevant to the coastal and marine environment around the UK. MCCIP Science Review 2020, 272–292.

National Biodiversity Data Centre (2024). Biodiversity maps – Maerl (*Corallinaceae*). Available at: <https://maps.biodiversityireland.ie/Species/50> [Accessed 09/08/2024].

National Parks and Wildlife Service (NPWS) (2012). Slyne Head to Ardmore Point Islands SAC. Available at: <https://www.npws.ie/protected-sites/sac/000328> [Accessed 29/01/2024].

NPWS (2014a). Carrowmore Point to Spanish Point and Islands SAC. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Carrowmore%20Point%20to%20Spanish%20Point%20and%20Islands%20SAC%20\(001021\)%20Conservation%20objectives%20supporting%20document%20-%20marine%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Carrowmore%20Point%20to%20Spanish%20Point%20and%20Islands%20SAC%20(001021)%20Conservation%20objectives%20supporting%20document%20-%20marine%20habitats%20[Version%201].pdf) [Accessed 29/01/2024].

NPWS (2014b). Carrowmore Dunes SAC. Available at: <https://www.npws.ie/sites/default/files/publications/pdf/002250%20Carrowmore%20Dunes%20SAC%20Marine%20Supporting%20Doc%20V1.pdf> [Accessed 29/01/2024].

NPWS (2014c). Kilkee Reefs SAC. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Kilkee%20Reefs%20SAC%20\(002264\)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Kilkee%20Reefs%20SAC%20(002264)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20[Version%201].pdf) [Accessed 29/01/2024].

NPWS (2014d). Kilkieran Bay and Islands SAC. Available at: <https://www.npws.ie/sites/default/files/publications/pdf/002111%20Kilkieran%20Bay%20and%20Islands%20SAC%20Marine%20Supporting%20Doc%20V1.pdf> [Accessed 29/01/2024].

NPWS (2014e). Inishmaan Island SAC. Available at:  
[https://www.npws.ie/sites/default/files/publications/pdf/Inishmaan%20Island%20SAC%20\(000212\)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Inishmaan%20Island%20SAC%20(000212)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20[Version%201].pdf)  
 [Accessed 29/01/2024].

NPWS (2014f). Inisheer Island SAC. Available at:  
[https://www.npws.ie/sites/default/files/publications/pdf/001275\\_Inisheer%20Island%20SAC%20Marine%20Supporting%20Doc\\_V1.pdf](https://www.npws.ie/sites/default/files/publications/pdf/001275_Inisheer%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf) [Accessed 29/01/2024].

NPWS (2015a). Inishmore Island SAC. Available at:  
[https://www.npws.ie/sites/default/files/publications/pdf/Inishmore%20Island%20SAC%20\(000213\)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20\[Version%201\].pdf](https://www.npws.ie/sites/default/files/publications/pdf/Inishmore%20Island%20SAC%20(000213)%20Conservation%20objectives%20supporting%20document%20-%20Marine%20habitats%20[Version%201].pdf)  
 [Accessed 29/01/2024].

NPWS (2015b). Connemara Bog Complex SAC. Available at:  
[https://www.npws.ie/sites/default/files/publications/pdf/Connemara%20Bog%20Complex%20SAC%20\(000234\)%20Conservation%20objectives%20supporting%20document%20-%20E2%80%93%20Marine%20habitats%20-%205bVersion%201%5d.pdf](https://www.npws.ie/sites/default/files/publications/pdf/Connemara%20Bog%20Complex%20SAC%20(000234)%20Conservation%20objectives%20supporting%20document%20-%20E2%80%93%20Marine%20habitats%20-%205bVersion%201%5d.pdf) [Accessed 10/09/2024].

NPWS (2015c). Slyne Head Peninsula SAC. Available at: <https://www.npws.ie/protected-sites/sac/002074>  
 [Accessed 29/01/2024].

NPWS (2023a). Ireland's 4<sup>th</sup> National Biodiversity Action Plan 2023 – 2030. Available at:  
<https://www.gov.ie/en/publication/93973-irelands-4th-national-biodiversity-action-plan-20232030/>  
 [Accessed 24/04/2024].

NPWS (2023b). Maps and Data - Habitats and species data. Available at: <https://www.npws.ie/maps-and-data/habitat-and-species-data> [Accessed 24/04/2024].

Ocean Ecology Limited (2023a). Sceirde Rocks WindFarm Project. Benthic Characterisation Survey 2023: Survey Report. IRE1-OEL-SIT-EV-RP-0002.

Ocean Ecology Limited (2023b). Sceirde Rocks Offshore Wind Farm Benthic Characterisation Survey 2023: Habitat Assessment. OEL\_SCESCE0223\_HA\_V01.

Ocean Ecology Limited (2024). Sceirde Rocks WindFarm Project. Benthic Characterisation Survey 2023: Technical Report. IRE1-OEL-SIT-EV-RP-0003.

O'Shaughnessy, K.A., Lyons, D., Ashelby C.W., Counihan, R., Pears, S., Taylor, E., Davies, R. and Stebbing, P.D. (2023) Rapid assessment of marine non-native species in Irish marinas. Management of Biological Invasions (2023) Volume 1, Issue 2. Pp 245-267. Available at :  
[https://www.reabic.net/journals/mbi/2023/2/MBI\\_2023\\_OShaughnessy\\_et.al.pdf](https://www.reabic.net/journals/mbi/2023/2/MBI_2023_OShaughnessy_et.al.pdf) Accessed 30/09/2024.

OSPAR (2008). Guidance on Environmental Considerations for Offshore Wind Farm Development (United Kingdom (UK) and Ireland). Available at: <https://www.ospar.org/work-areas/eoha/offshore-renewables> [Accessed 24/04/2024].

OSPAR (2010). OSPAR List of Declining Species and Habitats. Available at:  
<https://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats>  
 [Accessed 24/04/2024].

Perry, F., Tyler-Walters, H., & Watson, A. (2023). Maerl beds. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom.

Perry, F., Tyler-Walters, H., & Garrard, S.L. (2024). *Phymatolithon calcareum* maerl beds in infralittoral clean gravel or coarse sand. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at:

[https://www.marlin.ac.uk/habitats/detail/170/phymatolithon\\_calcareum\\_maerl\\_beds\\_in\\_infralittoral\\_clean\\_gravel\\_or\\_coarse\\_sand](https://www.marlin.ac.uk/habitats/detail/170/phymatolithon_calcareum_maerl_beds_in_infralittoral_clean_gravel_or_coarse_sand) [Accessed 05/04/2024].

Readman, J.A.J., & Hiscock, K. 2017. *Eunicella verrucosa* Pink sea fan. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at <https://www.marlin.ac.uk/species/detail/1121> [Accessed 12/09/2024].

Readman, J.A.J., Williams, E., Lloyd, K.A., & Watson, A., ( 2023a) *Alcyonium digitatum* and faunal crust communities on vertical circalittoral bedrock. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at:

[https://www.marlin.ac.uk/habitats/detail/1097/alcyonium\\_digitatum\\_and\\_faunal\\_crust\\_communities\\_on\\_vertical\\_circalittoral\\_bedrock](https://www.marlin.ac.uk/habitats/detail/1097/alcyonium_digitatum_and_faunal_crust_communities_on_vertical_circalittoral_bedrock) [accessed 11/04/2024].

Readman, J.A.J., Jackson, A., Hiscock, K., Lloyd, K.A., & Watson, A., ( 2023b) *Eunicella verrucosa* and *Pentapora foliacea* on wave exposed circalittoral rock. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at:

[https://www.marlin.ac.uk/habitats/detail/77/eunicella\\_verrucosa\\_and\\_pentapora\\_foliacea\\_on\\_wave-exposed\\_circalittoral\\_rock](https://www.marlin.ac.uk/habitats/detail/77/eunicella_verrucosa_and_pentapora_foliacea_on_wave-exposed_circalittoral_rock) [Accessed 11/04/2024].

Readman, J., Lloyd, K.A., & Watson, A., 2023c. Sponges and anemones on vertical circalittoral bedrock. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at:

[https://www.marlin.ac.uk/habitats/detail/1129/sponges\\_and\\_anemones\\_on\\_vertical\\_circalittoral\\_bedrock](https://www.marlin.ac.uk/habitats/detail/1129/sponges_and_anemones_on_vertical_circalittoral_bedrock) [Accessed 11/04/2024].

Scottish Natural Heritage (SNH) (2011). Guidance on Survey and Monitoring in Relation to Marine Renewables Development in Scotland. Volume 5: Benthic Habitats (UK). Available at:  
<https://tethys.pml.gov/sites/default/files/publications/SNH-2011-Volume-1.pdf> [Accessed 24/04/2024].

Smale D.A., Wernberg T., Yunnie A.L.E., Vance T. (2015). The rise of *Laminaria ochroleuca* in the Western English Channel (UK) and preliminary comparisons with its competitor and assemblage dominant *Laminaria hyperborea*. *Marine Ecology* 36, pp 1033–1044.

Stamp, T.E., Tyler-Walters, H., Lloyd, K.A., & Watson, A., (2023). Faunal and algal crusts on exposed to moderately wave-exposed circalittoral rock. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at:

[https://www.marlin.ac.uk/habitats/detail/337/faunal\\_and\\_algal\\_crusts\\_on\\_exposed\\_to\\_moderately\\_wave-exposed\\_circalittoral\\_rock](https://www.marlin.ac.uk/habitats/detail/337/faunal_and_algal_crusts_on_exposed_to_moderately_wave-exposed_circalittoral_rock) [Accessed 07/04/2024].

Sure Partners Ltd. (2024). Arklow Bank Wind Park 2 Environmental Impact Assessment Report (EIAR). EIAR Volume II – Main Report Chapter 9 – Benthic Subtidal and Intertidal Ecology. Available at: <https://www.arklowbank2offshoreplanning.ie/eiar/> [Accessed 14/08/2024].

Tillin, H.M. & Watson, A. (2023). *Protodorvillea kefersteini* and other polychaetes in impoverished circalittoral mixed gravelly sand. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at:

[https://www.marlin.ac.uk/habitats/detail/1115/protodorvillea\\_kefersteini\\_and\\_other\\_polychaetes\\_in\\_impo](https://www.marlin.ac.uk/habitats/detail/1115/protodorvillea_kefersteini_and_other_polychaetes_in_impo)  
[verished\\_circalittoral\\_mixed\\_gravelly\\_sand](https://www.marlin.ac.uk/habitats/detail/1115/protodorvillea_kefersteini_and_other_polychaetes_in_impo) [Accessed 05/04/2024].

Tillin, H.M. & Watson, A. (2024). *Echinocyamus pusillus*, *Ophelia borealis* and *Abra prismatica* in circalittoral fine sand. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available at: <Https://www.marlin.ac.uk/habitat/detail/1131> [Accessed 11/04/2024].

Walker, A. (1972). *Goniadella gracilis*, a polychaete new to British seas. *Marine Biology*, 14, 85-87. doi:10.1007/BF00365785.

Welsh Government (2017). Marine Non-native Species. Priority Monitoring and Surveillance List for Wales. Available at : <https://www.gov.wales/sites/default/files/publications/2018-02/invasive-aquatic-species-priority-marine-species.pdf>. [Accessed 10/04/2024].

## Chapter 10 Fish and Shellfish Ecology

Abbotsford (2021). Impacts of Sediment to Aquatic Habitats. Available at:  
<https://www.abbotsford.ca/sites/default/files/2021-02/Impacts%20of%20Sediment%20to%20Aquatic%20Habitats.pdf>

Aires, C., González-Irusta, J.M., Watret, R. (2014) Updating Fisheries Sensitivity Maps in British Waters. Scottish Marine and Freshwater Science Vol 5 No 10.

Albert, L., Deschamps, F., Jolivet, A., Olivier, F., Chauvaud, L., and Chauvaud, S. (2020). A current synthesis on the effects of electric and magnetic fields emitted by submarine power cables on invertebrates. *Marine Environmental Research*, 159, 104958. doi:10.1016/j.marenvres .2020.104958.

Appleby, J.A. and Scarratt, D.J. (1989). Physical effects of suspended solids on marine and estuarine fish and shellfish, with special reference to ocean dumping: a literature review. Canadian Technical Report of Fisheries and Aquatic Sciences No. 1681. October 1989.

Aristegui, M., Doyle, J., Ryan, G., Fitzgerald, R., White, J., O'Brien, S., Tully, D., and Sullivan, M. (2021). Aran, Galway Bay and Slyne Head Nephrops Grounds (FU17) 2021 UWTV Survey Report and catch scenarios for 2022. Marine Institute UWTV Survey report, Galway, Ireland. Available at: <https://oar.marine.ie/handle/10793/1721> [Accessed 15/08/2023].

Aristegui, M., Ryan, G., Bentley, K., Sullivan, M., Murphy, N., Mascorda-Cabre, L., Gifford, A. and McCorriston, P. (2024). Aran, Galway Bay and Slyne Head Nephrops Grounds (FU17) 2024 UWTV Survey Report and catch scenarios for 2025. Marine Institute UWTV Survey report.

Armstrong, Hunter, Fryer, Rycroft & Orpwood (2015). Behavioural Responses of Atlantic Salmon to Mains Frequency Magnetic Fields. *Scottish Marine and Freshwater Science* Vol 6 No 9. Marine Scotland Science. ISSN: 2043-7722. DOI: 10.7489/1621-1.

Beck, S., Ian O'Connor, Berrow, S. & O'Brien, J., 2011. Assessment and Monitoring of Ocean Noise in Irish Waters (STRIVE Report). [Online] Available at: <https://www.epa.ie/publications/research/water/STRIVE-120-Assessment-and-Monitoring-of-Ocean-Noise-in-Irish-Waters.pdf> [Accessed 14 08 2023].

BEIS, 2019. Decommissioning of Offshore Renewable Energy Installations: Guidance Notes for Industry (UK). [Online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/916912/decommissioning-offshore-renewable-energy-installations-energy-act-2004-guidance-industry\\_1\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/916912/decommissioning-offshore-renewable-energy-installations-energy-act-2004-guidance-industry_1_.pdf) [Accessed 14 08 2023].

BEIS (2022). UK Offshore Energy Strategic Environmental Assessment 4 (OESEA 4). Appendix 1a.4 Fish and Shellfish. Available from: <https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4> [Accessed 10/10/2022].

Barnes, M.D (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. [Online] Available at: <https://assets.gov.ie/76533/6a82b451-e09f-483b-849e-07d4c7baa728.pdf> [Accessed 14 08 2023].

Bell, M.C., Redant, F. and Tuck, I (2006) Nephrops Species. In Phillips, B.F. (ed.). *Lobsters: Biology, Management, Aquaculture and Fisheries*. Wiley-Blackwell. pp. 412–461. doi:10.1002/9780470995969.ch13. ISBN 978-1-4051- 2657-1.

BIM (2017). *Nephrops* survivability in the Irish demersal trawl fishery. Fisheries Conservation report. Available at: [https://bim.ie/wp-content/uploads/2021/01/6882-BIM-nephrops-survival-report-final\\_compressed.pdf](https://bim.ie/wp-content/uploads/2021/01/6882-BIM-nephrops-survival-report-final_compressed.pdf) [Accessed 17/11/2023].

BIM (2023). Annual Fisheries Report: Findings of the National Seafood Survey 2023. Available at: <https://bim.ie/publications/fisheries/> [Accessed 17/11/2023]

Birklund, J. and Wijsman, J. W. M. (2005). Aggregate Extraction: A Review on the Effects on Ecological Functions. Report Z3297/10 SAWDPIT Fifth Framework Project no EVK3-CT-2001-00056.

Bussmann, K., Utne-Palm, A. C., & de Jong, K. (2020). Sound production in male and female corkwing wrasses and its relation to visual behaviour. Bioacoustics, 30(6), 629–651.  
<https://doi.org/10.1080/09524622.2020.1838324>

Cefas, 2004. Guidance Note for Environmental Impact Assessment in Respect of Food and Environmental Protection Act (FEPA) and Coast Protection Act (CPA) Requirements (UK). [Online] Available at: <https://www.cefas.co.uk/publications/files/windfarm-guidance.pdf> [Accessed 14 08 2023].

Chainho, P., Bald, J., 2021. Deliverable 3.1 (EMF Modelling). Corporate Deliverable of the WESE Project Funded by the European Commission. Agreement Number EASME/EMFF/2017/1.2.1.1/02/s12.787640. <https://doi.org/10.13140/RG.2.2.22464.87049>.

CIEEM, 2018. Guidelines for Ecological Impact Assessment in The UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. [Online] Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf> [Accessed 14 08 2023].

Clarke, M., Farrell, E.D., Roche, W., Murray, T.E., Foster, S. and Marnell, F. (2016) Ireland Red List No. 11: Cartilaginous fish [sharks, skates, rays and chimaeras]. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. Dublin, Ireland.

ClimeFish (2019). Northeast Atlantic Fisheries. Available at: <https://climefish.eu/2019/04/10/north-east-atlantic-fisheries/#:~:text=The%20areas%20support%20main%20important,related%20to%20their%20bioclimatic%20preference> [Accessed 07/09/2023].

CMACS (2003). A Baseline Assessment of Electromagnetic fields Generated by Offshore Wind farm Cables. Report No. COWRIE EMF-01-2002, 66. Centre for Marine and Coastal Studies, Birkenhead, UK.

Copping, A.E., Hemery, L.G., Viehman, H., Seitz, A.C., Staines, G.J. and Hasselman, D.J., (2021). Are fish in danger? A review of environmental effects of marine renewable energy on fishes. Biological Conservation, 262, p.109297.

Cresci, A., Paris, C.B., Foretich, M.A., Durif, C.M., Shema, S.D., O'Brien, C.E., Vikebø, F.B., Skiftesvik, A.B. and Browman, H.I. (2019). Atlantic haddock (*Melanogrammus aeglefinus*) larvae have a magnetic compass that guides their orientation. Iscience, 19, pp.1173-1178.

Cresci, A., Allan, B.J., Shema, S.D., Skiftesvik, A.B. and Browman, H.I. (2020). Orientation behavior and swimming speed of Atlantic herring larvae (*Clupea harengus*) in situ and in laboratory exposures to rotated artificial magnetic fields. Journal of Experimental Marine Biology and Ecology, 526, 151358.

Cresci, A., Durif, C.M., Larsen, T., Bjelland, R., Skiftesvik, A.B. and Browman, H.I. (2022a). Magnetic fields produced by subsea high-voltage direct current cables reduce swimming activity of haddock larvae (*Melanogrammus aeglefinus*). PNAS Nexus, 1, p.pgac175.

Cresci, A., Perrichon, P., Durif, C.M., Sørhus, E., Johnsen, E., Bjelland, R., Larsen, T., Skiftesvik, A.B. and Browman, H.I. (2022b). Magnetic fields generated by the DC cables of offshore wind farms have no effect on spatial distribution or swimming behavior of lesser sandeel larvae (*Ammodytes marinus*). Marine Environmental Research, 176, 105609.

- Cronin, M., Jessopp, M., Houle, J. & Reid, D., 2014. Fishery-seal interactions in Irish waters: Current perspectives and future research priorities. *Marine Policy*, Volume 44, pp. 120-130.
- Cruz A, Lombarte A. 2004. Otolith size and its relationship with colour patterns and sound production. *J Fish Biol.* 65(6):1512–1525.
- CSA (2019). Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Headquarters, Sterling, VA. OCS Study BOEM 2019-049. 59 pp.
- DCCAE (2014). Offshore Renewable Energy Development Plan. A Framework for the Sustainable Development of Ireland's Offshore Renewable Energy Resource. Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/27215/2bc3cb73b6474beebbe810e88f49d1d4.pdf#page=null> [Accessed 01/10/2024].
- DCCAE, 2018a. Guidance on Marine Baseline Ecological Assessment and Monitoring Activities for Offshore Renewable Energy Projects (Part 1). [Online] Available at: <https://assets.gov.ie/76530/2caa8f12-f1e7-4d76-ab34-19174ff5b9e6.pdf> [Accessed 14 08 2023].
- DCCAE, 2018b. Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 2. [Online] Available at: <https://assets.gov.ie/76531/faca0c4e-8255-419a-a518-9457ec4734e7.pdf> [Accessed 14 08 2023].
- DECC (2023). Offshore Renewable Energy Development Plan II. Public Consultation. Available at: <https://www.gov.ie/en/publication/71e36-offshore-renewable-energy-development-plan-ii-oredp-ii/> [Accessed 10-11-2023].
- Degraer, S., Carey, D., Coolen, J.W.P., Hutchison, Z.L., Kerckhof, F., Rumes, B., and Vanaverbeke, J. (2020). Offshore wind farm artificial reefs affect ecosystem structure and functioning - a synthesis. *Oceanography*, 33: 48 – 57.
- De Jong, K., Forland, T.N., Amorim, M.C.P., Rieucau, G., Slabbekoorn, H. and Sivle, L.D., 2020. Predicting the effects of anthropogenic noise on fish reproduction. *Reviews in Fish Biology and Fisheries*, 30(2), pp.245-268.
- DHLGH, 2019. Marine Planning Policy Statement. [Online] Available at: <https://assets.gov.ie/127148/08e48ce8-f563-4c82-aac0-bcc87b758611.pdf> [Accessed 14 08 2023].
- DHLGH, 2021. Project Ireland 2040: National Marine Planning Framework. [Online] Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/139100/f0984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null> [Accessed 14/08/2023].
- Dodd, J.A. and Briers, R.A., 2021. The impact of shadow flicker or pulsating shadow effect, caused by wind turbine blades, on Atlantic salmon (*Salmo salar*).
- Doyle, J., Aristegui, M., Ryan, G., Bentley, K., Graham, J., Oliver, P., O'Brien, B., Sullivan, M., O'Connor, S., Kinneen, M., Sugrue, S., and Derbyshire, C., 2022a. FU19 Nephrops Grounds 2022 UWTV Survey Report and catch scenarios for 2023. Marine Institute UWTV Survey report.
- Doyle, J., Aristegui, M., O'Connor, S., Sullivan, M., Kinneen, M., Sugrue, S., and Derbyshire, C. 2022b., The “Smalls” Nephrops Grounds (FU22) 2022 UWTV Survey Report and catch scenarios for 2023. Marine Institute UWTV Survey report.
- Dybern, B.I. and Hoisaeter, T (1965). The burrows of *Nephrops norvegicus*. *Sarsia*. 21: 49–55. doi:10.1080/00364827.1965.10409560.

- EEA, 2022. Changes in fish distribution in European seas. [Online] Available at: <https://www.eea.europa.eu/ims/changes-in-fish-distribution-in> [Accessed 27 07 2023].
- EMU (2004). Subsea Cable Decommissioning – A Limited Environmental Appraisal. Report commissioned by British Telecommunications plc, Cable and Wireless and AT&T, Report no. 04/J/01/06/0648/0415, available from UKCPC.
- Erbe C, McPherson C. Underwater noise from geotechnical drilling and standard penetration testing. J Acoust Soc Am. 2017 Sep;142(3):EL281. doi: 10.1121/1.5003328. PMID: 28964046.
- European Commission (2017). Guidance on the preparation of the Environmental Impact Assessment Report. Available at: [https://environment.ec.europa.eu/law-and-governance/environmental-assessments/environmental-impact-assessment\\_en](https://environment.ec.europa.eu/law-and-governance/environmental-assessments/environmental-impact-assessment_en) [Accessed 05/09/2024].
- EU Habitats Directive (Council Directive 92/43/EC). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A01992L0043-20130701> [Accessed 01/10/2024].
- Ferguson, A., Reed, T. E., Cross, T. F., McGinnity, P. and Prodöhl, P. A. (2019) Anadromy, potamodromy and residency in brown trout *Salmo trutta*: the role of genes and the environment, Journal of fish biology, 95, 692-718.
- Fishbase (2023a). Sea trout. Available at: <https://www.fishbase.se/summary/Salmo-trutta.html>
- Gibson-Hall, E., Jackson, A. and Marshall, C. (2020). *Palinurus elephas* European spiny lobster. In Tyler-Walters H. and Hiscock K. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available from: <https://www.marlin.ac.uk/species/detail/1145>
- Gill, A.B. and Taylor. H. (2001). The Potential of Electromagnetic Fields Generated by Cabling between Offshore Wind Turbines upon Elasmobranch Fishes. Report for the Countryside Council for Wales (CCW Science report No. 488) 60pp.
- Gill, A.B. and Bartlett, M. (2010). Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Scottish Natural Heritage Commissioned Report. Available at: [https://tethys.pnnl.gov/sites/default/files/publications/Gill\\_and\\_Bartlett\\_2010.pdf](https://tethys.pnnl.gov/sites/default/files/publications/Gill_and_Bartlett_2010.pdf)
- Gill, A. B., Gloyne-Phillips, I., Neal, K. J. and Kimber, J. A. (2005). The Potential Effects of Electromagnetic Fields Generated by Sub-Sea Power Cables Associated with Offshore Wind Farm Developments on Electrically and Magnetically Sensitive Marine Organisms – A Review. COWRIE 1.5 Electromagnetic Fields Review.
- Gill, A.B., Huang, Y., Gloyne-Philips, I., Metcalfe, J., Quayle, V., Spencer, J. and Wearmouth, V. (2009). COWRIE 2.0 Electromagnetic Fields (EMF) Phase 2: EMF-Sensitive Fish Response to EM Emissions from Sub-Sea Electricity Cables of the Type used by the Offshore Renewable Energy Industry. COWRIE-EMF-1-06.
- Gill, A.B. and Desender, M. (2020). 2020 State of the Science Report, Chapter 5: Risk to Animals from Electromagnetic Fields Emitted by Electric Cables and Marine Renewable Energy Devices. Available at: <https://www.osti.gov/servlets/purl/1633088>
- Gillson, J.P., Bašić, T., Davison, P.I., Riley, W.D., Talks, L., Walker, A.M. and Russell, I.C., 2022. A review of marine stressors impacting Atlantic salmon *Salmo salar*, with an assessment of the major threats to English stocks. Reviews in Fish Biology and Fisheries, 32(3), pp.879-919.

Godfrey, J.D., Stewart, D.C., Middlemas, S.J. and Armstrong, J.D. (2015). Depth use and migratory behaviour of homing Atlantic salmon (*Salmo salar*) in Scottish coastal waters. ICES Journal of Marine Science, 72, 568-575.

Blanco Gonzalez, E., de Boer, F. The development of the Norwegian wrasse fishery and the use of wrasses as cleaner fish in the salmon aquaculture industry. Fish Sci 83, 661–670 (2017).  
<https://doi.org/10.1007/s12562-017-1110-4>

Hammond, P. et al., 2008. Phocoena. The IUCN Red List of Threatened Species 2008. [Online].

Hammond, P. et al., 2021. Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Revised 2021). [Online] Available at: [https://synergy.st-andrews.ac.uk/scans3/files/2021/06/SCANS-III\\_design-based\\_estimates\\_final\\_report\\_revised\\_June\\_2021.pdf](https://synergy.st-andrews.ac.uk/scans3/files/2021/06/SCANS-III_design-based_estimates_final_report_revised_June_2021.pdf)

Harsanyi, P., Scott, K., Easton, B.A.A., de la Cruz Ortiz, G., Chapman, E.C.N., Piper, A.J.R., Rochas, C.M.V. and Lyndon, A.R. (2022). The Effects of Anthropogenic Electromagnetic Fields (EMF) on the Early Development of Two Commercially Important Crustaceans, European Lobster, *Homarus gammarus* (L.) and Edible Crab, *Cancer pagurus* (L.). J. Mar. Sci. Eng. 2022, 10, 564.  
<https://doi.org/10.3390/jmse10050564>.

Hawkins, A.D. & Myrberg, A.A. Jr. (1983). Hearing and sound communication underwater. In: Lewis B (ed), Bioacoustics, a comparative approach. Academic Press, London, p 347–405.

Hawkins, A.D. and Popper, A.N., 2017. A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates. ICES Journal of Marine Science, 74(3), pp.635-651.

Hill, J.M. & Sabatini, M. (2008). *Nephrops norvegicus* Norway lobster. In Tyler-Walters H. Marine Life Information Network: Biology and Sensitivity Key Information Reviews. Plymouth: Marine Biological Association of the United Kingdom. [Accessed 14/11/2023].

Hutchison, Z., Sigray, P., He, H., Gill, A., King, J., and Gibson, C. (2018). Electromagnetic Field (EMF) Impacts on Elasmobranch (Shark, Rays, and Skates) and American Lobster Movement and Migration From Direct Current Cables. Sterling (VA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 3.

Hutchison, Z.L., Gill, A.B., Sigray, P., He, H., King, J.W., 2021. A modelling evaluation of electromagnetic fields emitted by buried subsea power cables and encountered by marine animals: considerations for marine renewable energy development. Renew. Energy 177, 72–81.  
<https://doi.org/10.1016/j.renene.2021.05.041>.

Hutchison, Z., Gill, A., Sigray, P., He, H. and King, J., (2020). Anthropogenic electromagnetic fields (EMF) influence the behaviour of bottom-dwelling marine species. Scientific Reports, 10(1).

Hvidt, C. B., Bech, M., and Klastrup, M. (2003). Monitoring programme-status report 2003. Fish at the cable trace. Nysted offshore wind farm at Rødsand. Bioconsult.

ICES (2010). Celtic Seas: Demersal elasmobranchs in the Celtic Sea and West of Scotland [Online]. Available at: [https://ices-library.figshare.com/articles/report/Demersal\\_elasmobranchs\\_in\\_the\\_Celtic\\_Sea\\_and\\_West\\_of\\_Scotland/18673133/1](https://ices-library.figshare.com/articles/report/Demersal_elasmobranchs_in_the_Celtic_Sea_and_West_of_Scotland/18673133/1)

ICES (2023). Celtic Seas Ecosystem Overview. Available at:  
<https://www.ices.dk/advice/ESD/Pages/Celtic-Sea-Pressure-Selective-extraction-of-species.aspx>

Inland Fisheries Ireland (2023a). Marine Sportfish Tagging Programme. Available at: <https://www.fisheriesireland.ie/what-we-do/research/marine-sportfish-tagging-programme>

Inland Fisheries Ireland (2023b). Allis shad (*Alosa alosa*). Available at: <https://www.fisheriesireland.ie/species/allis-shad-alosa-alosa>

Irish Elasmobranch Group (2023a). Irish Sharks. Available at: <https://irishelasmobranchgroup.wordpress.com/irish-elasmobranchs/irish-sharks/>

Irish Elasmobranch Group (2023b). Irish Skates and Rays. Available at: <https://irishelasmobranchgroup.wordpress.com/irish-elasmobranchs/irish-skates-and-rays/>

IWDG, 2023. IWDG Sightings. [Online] Available at: <https://www.iwdg.ie/browsers/sightings.php> [Accessed 28 11 2023].

Judd, A., 2012. Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (UK). [Online] Available at: [https://tethys.pnnl.gov/sites/default/files/publications/CEFAS\\_2012\\_Environmental\\_Assessment\\_Guidance.pdf](https://tethys.pnnl.gov/sites/default/files/publications/CEFAS_2012_Environmental_Assessment_Guidance.pdf) [Accessed 14/08/2023].

Juell, J.E., Oppedal, F., Boxaspen, K. and Taranger, G.L., 2003. Submerged light increases swimming depth and reduces fish density of Atlantic salmon *Salmo salar* L. in production cages. Aquaculture Research, 34(6), pp.469-478.

Kavanagh, A. S. et al., 2018. High latitude winter sightings of common minke whale calves (*Balaenoptera acutorostrata*) in the Northeast Atlantic. Marine Biodiversity Records, 11(22).

Keefer, M.L. and Caudill, C.C., 2014. Homing and straying by anadromous salmonids: a review of mechanisms and rates. Reviews in fish biology and fisheries, 24, pp.333-368.

Krone, R., Dederer, G., Kanstinger, P., Krämer, P., Schneider, C. and Schmalenbach, I., 2017. Mobile demersal megafauna at common offshore wind turbine foundations in the German Bight (North Sea) two years after deployment-increased production rate of Cancer pagurus. Marine environmental research, 123, pp.53-61.

Langhamer O, Wilhelmsson D. Colonisation of fish and crabs of wave energy foundations and the effects of manufactured holes - a field experiment. Mar Environ Res. 2009 Oct;68(4):151-7. doi: 10.1016/j.marenvres.2009.06.003. Epub 2009 Jun 6. PMID: 19560811.

Lilly, J., Honkanen, H. H., Rodger, J. R., del Villar, D., Boylan, P., Green, A., Pereiro, D., Wilkie, L., Kennedy, R., Barkley, A., Rosell, R., Maoiléidigh, N. Ó., O'Neill, R., Waters, C., Cotter, D., Bailey, D., Roche, W., McGill, R., Barry, J., ... Adams, C. E. (2023). Migration patterns and navigation cues of Atlantic salmon post-smolts migrating from 12 rivers through the coastal zones around the Irish Sea. Journal of Fish Biology, 1-19. <https://doi.org/10.1111/jfb.15591> LILLYET AL. 19FISH

Lillywhite, H. B. and Evans, D. H. (2021). Osmoregulation by vertebrates in aquatic environments. Issue 2, Volume 2. Available at: <https://onlinelibrary.wiley.com/doi/epdf/10.1002/9780470015902.a0029291> [17/11/2023].

Linley, E.A.S., Wilding, T.A., Black, K., Hawkins, A.J.S. & Mangi, S. (2007). Review of the reef effects of offshore wind farm structures and their potential for enhancement and mitigation. Report to the Department for Business, Enterprise and Regulatory Reform. RFCA/005/0029P.

Lowry, L., 2016. *Phoca vitulina*. The IUCN Red List of Threatened Species 2016. [Online] Available at: <https://www.iucnredlist.org/species/17013/45229114> [Accessed 08/08/2023].

Malcolm I.A., Godfrey J., Youngson A.F. (2010). Review of migratory routes and behaviour of Atlantic salmon, sea trout and European eel in Scotland's coastal environment: implications for the development of marine renewables. Scottish Marine and Freshwater Science Vol 1, No 14

Marashi, S., H. 1996. Summary Information on the Role of International Fishery and Other Bodies with Regard to the Conservation and Management of Living Resources of the High Seas. FAO Fisheries Circular. No. 908, Rome, FAO. 1996. 104p.

Marine Institute (2000). Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment. Available at:  
<https://oar.marine.ie/handle/10793/579#:~:text=The%20Marine%20Institute%20commissioned%20this%20study%20to%20examine%20the%20impact> [Accessed 01/10/2024].

Marine Institute (2013). An Inventory of Irish Herring Spawning Grounds. Irish Fisheries Bulletin. No. 42, 2013.

Marine Institute (2019). Atlas of Commercial Fisheries Around Ireland. Third Edition 2019. ISBN 978-1-902895-64-2. 72 pp.

Marine Institute (2024). Ireland's Marine Atlas. Available at: <https://www.marine.ie/site-area/data-services/interactive-maps/irelands-marine-atlas> [Accessed 23/04/2024].

A G McInturf, J Bowman, J M Schulte, K C Newton, B Vigil, M Honig, S Pelletier, N Cox, O Lester, M Cantor, T K Chapple, A unified paradigm for defining elasmobranch aggregations, ICES Journal of Marine Science, Volume 80, Issue 6, August 2023, Pages 1551–1566.

McGeady, R., Lordan, C., and Power, A. M. (2019). Twilight migrants: factors determining larval vertical distribution in *Nephrops norvegicus* with implications for larval. MARINE ECOLOGY PROGRESS SERIES. 631(141-155). Available at: [https://www.int-res.com/articles/meps\\_oa/m631p141.pdf](https://www.int-res.com/articles/meps_oa/m631p141.pdf) [Accessed 17 November 2023].

Methratta, E.T. and Dardick, W.R. (2019). Meta-analysis of finfish abundance at offshore wind farms. Reviews in Fisheries Science & Aquaculture, 27(2), pp.242-260.

MMO (2015). Modelled Mapping of Continuous Underwater Noise Generated by Activities. A report produced for the Marine Management Organisation, pp 50. MMO Project No: 1097. ISBN: 978-1-909452-87-9.

NatureScot (2022a). Freshwater pearl mussel. Available at: <https://www.nature.scot/plants-animals-and-fungi/invertebrates/freshwater-invertebrates/freshwater-pearl-mussel> [Accessed 17/09/2023].

NatureScot (2022b). Brown trout. Available from: <https://www.nature.scot/plants-animals-and-fungi/fish/freshwater-fish/brown-trout>

NCEI Geomagnetic Modeling Team and British Geological Survey. 2019. World Magnetic Model 2020. NOAA National Centers for Environmental Information. doi: 10.25921/11v3-da71, 2020.

Neal, K.J. and Wilson, E. (2008). Cancer pagurus Edible crab. In Tyler-Walters H. and Hiscock K. Marine Life Information Network: Biology and Sensitivity Key Information Reviews. Plymouth: Marine Biological Association of the United Kingdom. Available at: <https://www.marlin.ac.uk/species/detail/1179>

Neal, K.J. and Pizzolla, P.F 2006. Dipturus batis Common skate. In Tyler-Walters H. and Hiscock K. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth:

- Nedwell, J., Langworthy, J., & Howell, D. (2003). Assessment of sub-sea acoustic noise and vibration from offshore wind turbines and its impact on marine wildlife. Report No. 544 R0424.
- Nedwell, J. R., Edwards, B., Turnpenny A. W. H., Gordon J. Fish and Marine Mammal Audiograms: A summary of available information..Subacoustech Report ref: 534R0214, Sept. 2004.
- Nedwell J R, Parvin S J, Edwards B, Workman R, Brooker A G and Kynoch J E Measurement and interpretation of underwater noise during construction and operation of offshore windfarms in UK waters. (2007) Subacoustech Report No. 544R0738 to COWRIE Ltd. ISBN: 978-0-9554279-5-4.
- Nedwell, J., Brooker, A., & Barham, R. 2012. Assessment of underwater noise during the installation of export power cables at the Beatrice Offshore Windfarm. Subacoustech. Environmental Report No. E318R0106. Available at: <http://marine.gov.scot/datafiles/lot/bowl/ES/ES%20Volume%204%20-%20Annexs/7B%20OfTW%20Underwater%20Noise/Annex%207B%20OfTW%20Underwater%20Noise.pdf>
- Nedelec, S.L., Campbell, J., Radford, A.N., Simpson, S.D. and Merchant, N.D., 2016. Particle motion: the missing link in underwater acoustic ecology. *Methods in Ecology and Evolution*, 7(7), pp.836-842.
- Newell, RC. Seiderer, LJ. Hitchcock, DR. (1998). The impact of dredging works in coastal waters: A review of the sensitivity to disturbance and subsequent recovery of biological resources on the seabed. *Oceanography and Marine Biology*, 36, 127-178.
- Nisembau, L.G.; Martin, P.; Lecomte, F.; Falcón, J. Melatonin and osmoregulation in fish: A focus on Atlantic salmon *Salmo salar* smoltification. *J. Neuroendocrinol.* 2021, 33, e12955.
- Nolan, Cormac; O'Sullivan, David. (2023) Herring Spawning Areas. Marine Institute, Ireland.
- NPWS, 2012. Lower River Shannon SAC (site code: 2165). Conservation objectives supporting documentmarine habitats and species. [Online] Available at: [https://www.npws.ie/sites/default/files/publications/pdf/002165\\_Lower%20River%20Shannon%20SAC%20Marine%20Supporting%20Doc\\_V1.pdf](https://www.npws.ie/sites/default/files/publications/pdf/002165_Lower%20River%20Shannon%20SAC%20Marine%20Supporting%20Doc_V1.pdf) [Accessed 02/08/2023].
- NPWS, 2013b. Site Name: Lower River Shannon SAC. [Online] Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002165.pdf> [Accessed 01/08/2023].
- NPWS, 2019b. The Status of EU Protected Habitats and Species in Ireland. Species Assessments., s.l.: s.n.
- Nyqvist, D., Durif, C., Johnsen, M.G., De Jong, K., Forland, T.N. and Sivle, L.D., 2020. Electric and magnetic senses in marine animals, and potential behavioral effects of electromagnetic surveys. *Marine environmental research*, 155, p.104888.
- Ocean Ecology Limited (2023). Benthic Characterisation Survey – Survey Report.
- Ocean Ecology Limited (2024). Benthic Characterisation Survey 2023 – Technical Report.
- Ona E, Godø OR, Handegard NO et al (2007) Silent research vessels are not quiet. *J Acoust Soc Am* 121:EL145–EL150
- Orpwood, J., Fryer, R.J., Rycroft, P. and Armstrong, J.D. (2015). Effects of AC magnetic fields (MFs) on swimming activity in European eels *Anguilla anguilla*. *Scottish Marine and Freshwater Science*.
- OSPAR (1992). Convention for the Protection of the Marine Environment of the North-East Atlantic. Available at: [https://www.ospar.org/site/assets/files/1169/ospar\\_convention.pdf](https://www.ospar.org/site/assets/files/1169/ospar_convention.pdf) [Accessed 01/10/2024].

OSPAR, 2008. Guidance on Environmental Considerations for Offshore Wind Farm Development (UK and Ireland), s.l.: s.n.

OSPAR (2009). Assessment of the environmental impacts of cables. Available at: [https://qsr2010.ospar.org/media/assessments/p00437\\_Cables.pdf#:~:text=environmental%20impacts%20includerouteing%20and%20scheduling%20of%20installation%20activities](https://qsr2010.ospar.org/media/assessments/p00437_Cables.pdf#:~:text=environmental%20impacts%20includerouteing%20and%20scheduling%20of%20installation%20activities), [Accessed 01/10/2024].

Perry, A.L., Low, P.J., Ellis, J.R. and Reynolds, J.D. (2005). Climate change and distribution shifts in marine fishes. *Science*, 308, 1912-1915.

Pinnegar, J. & Heath, M., 2010. Fish in MCCIP Annual Report Card 2010-11. MCCIP Science Review 2010.

Popper A N, Hawkins A D, Fay R R, Mann D A, Bartol S, Carlson T J, Coombs S, Ellison W T, Gentry R L, Halvorsen M B, Løkkeborg S, Rogers P H, Southall B L, Zeddies D G, Tavolga W N (2014). Sound Exposure Guidelines for Fishes and Sea Turtles. Springer Briefs in Oceanography, DOI 10.1007/978-3-319-06659-2.

Popper, A.N. and Hawkins, A.D., 2018. The importance of particle motion to fishes and invertebrates. *The Journal of the Acoustical Society of America*, 143(1), pp.470-488.

Radford, A.N., Kerridge, E. and Simpson, S.D., 2014. Acoustic communication in a noisy world: can fish compete with anthropogenic noise?. *Behavioral Ecology*, 25(5), pp.1022-1030.

Reubens, J.T., Braeckman, U., Vanaverbeke, J., Van Colen, C., Degraer, S. and Vincx, M., 2013. Aggregation at windmill artificial reefs: CPUE of Atlantic cod (*Gadus morhua*) and pouting (*Trisopterus luscus*) at different habitats in the Belgian part of the North Sea. *Fisheries Research*, 139, pp.28-34.

Reubens, J.T., Pasotti, F., Degraer, S. and Vincx, M., 2013. Residency, site fidelity and habitat use of Atlantic cod (*Gadus morhua*) at an offshore wind farm using acoustic telemetry. *Marine Environmental Research*, 90, pp.128-135.

Riley, W.D., Bendall, B., Ives, M.J., Edmonds, N.J. and Maxwell, D.L., 2012. Street lighting disrupts the diel migratory pattern of wild Atlantic salmon, *Salmo salar* L., smolts leaving their natal stream. *Aquaculture*, 330, pp.74-81.

Rikardsen, A.H., Righton, D., Strøm, J.F. et al. Redefining the oceanic distribution of Atlantic salmon. *Sci Rep* 11, 12266 (2021). <https://doi.org/10.1038/s41598-021-91137-y> . [Accessed 11/10/2023].

Roberts, L., Cheesman, S., Elliott, M. and Breithaupt, T. (2016). Sensitivity of *Pagurus bernhardus* (L.) to substrate-borne vibration and anthropogenic noise. *Journal of Experimental Marine Biology and Ecology*, 474, 185-194.

RPS (2019). Review of Cable installation, protection, migration and habitat recoverability. The Crown Estate (Doc no: EOR0744, Rev03).

Russel, D. J. F., Brasseur, S., Thompson, D., Hastie, G., Janik, V., Aarts, G., McClintonck, B., Matthiopoulos, J., Moss, S., and McConnell, B. (2014). Marine mammals trace anthropogenic structures at sea. *VOLUME 24, ISSUE 14, PR638-R639, JULY 21, 2014*.

Romano, N. and Zeng, C. (2012). Osmoregulation in decapod crustaceans: implications to aquaculture productivity, methods for potential improvement and interactions with elevated ammonia exposure. *Aquaculture*. 334-337. <https://www.sciencedirect.com/science/article/abs/pii/S0044848611010179> [Accessed 17/11/2023].

Sabatini, M. and Hill, J.M. (2008). Nephrops norvegicus Norway lobster. In Tyler-Walters H. and Hiscock K. Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [online]. Plymouth: Marine Biological Association of the United Kingdom. Available from: <https://www.marlin.ac.uk/species/detail/1672>

Saunders, G., Bedford, G., Trendall, J. & Sotheran, I., 2011. Guidance on Survey and Monitoring in Relation to Marine Renewables Deployments in Scotland. Volume 5: Benthic Habitats.. [Online] Available at: <https://tethys.pnnl.gov/sites/default/files/publications/SNH-2011-Volume-4.pdf> [Accessed 14 08 2023].

Seiche Ltd. (2020). Review on Existing Data on Underwater Sounds Produced by the Oil and Gas Industry. Guillermo Jiménez-Arranz, Nikhil Banda, Stephen Cook and Roy Wyatt. Available at: [https://www.seiche.com/wp-content/uploads/2020/10/Review\\_on\\_Noise\\_from\\_Industrial\\_Sources.pdf](https://www.seiche.com/wp-content/uploads/2020/10/Review_on_Noise_from_Industrial_Sources.pdf)

Scottish Government (2023). FEAST - Feature Activity Sensitivity Tool. Available at: <https://www.marine.scotland.gov.uk/feast/>

Scott, K. (2019). Understanding the biology of two commercially important crustaceans in relation to fisheries and anthropogenic impacts. (Heriot-Watt University).

Scott, K.; Harsanyi, P.; Easton, B.A.A.; Piper, A.J.R.; Rochas, C.M.V.; Lyndon, A.R. (2021). Exposure to Electromagnetic Fields (EMF) from Submarine Power Cables Can Trigger Strength-Dependent Behavioural and Physiological Responses in Edible Crab, Cancer pagurus (L.). *J. Mar. Sci. Eng.* 2021, 9, 776.

Shark Trust (2022a) Shark Sightings Database. Available at: [https://recording.sharktrust.org/sightings\\_map\\_landing](https://recording.sharktrust.org/sightings_map_landing) [Accessed 11/10/2023].

Shark Trust (2022b). Great Eggcase Hunt Results. Available at: [https://recording.sharktrust.org/eggcases\\_results\\_landing](https://recording.sharktrust.org/eggcases_results_landing) [Accessed 11/10/2023].

Stenberg, C., Støtrup, J., van Duers, M., Berg, C., Dinesen, G., Mosegaard, H., Grome, T., Leonhard, S. 2015. Long-Term Effects of an Offshore Wind Farm in the North Sea on Fish Communities. *Marine Ecology Progress Series*, 528, 257-265.

Stenberg, C., van Deurs, M., Støtrup, J., Mosegaard, H., Grome, T., Dinesen,G., Christensen, A., Jensen, H., Kaspersen, M., Berg, C., Leonhard, S., Skov, H., Pedersen, J., Hvidt, C., Klastrup, M. 2011. Effect of the Horns Rev 1 Offshore Wind Farm on Fish Communities: Follow-up Seven Years after Construction (Report No. 246-2011). Report by DTU Aqua (National Institute of Aquatic Resources). Report for Danish Energy Agency. [https://backend.orbit.dtu.dk/ws/portalfiles/portal/7615058/246\\_2011\\_effect\\_of\\_the\\_horns\\_rev\\_1\\_offshore\\_wind\\_farm\\_on\\_fish\\_communities.pdf](https://backend.orbit.dtu.dk/ws/portalfiles/portal/7615058/246_2011_effect_of_the_horns_rev_1_offshore_wind_farm_on_fish_communities.pdf)

Stoddard PK, Markham MR (2010). Signal Cloaking by Electric Fish. *Bioscience*. 2008;58(5):415-425. doi: 10.1641/B580508. PMID: 20209064; PMCID: PMC2832175.

Subacoustech (2024). Sceirde Rocks Offshore Windfarm: Underwater Noise Modelling and Assessment. P38R0101.

Tricas, T. and Sisneros, J. (2004). Ecological Functions and Adaptations of the Elasmobranch Electrosense. *The Senses of Fish*, pp.308-329.

Tully, O. (Ed.), (2004). The Biology and Management of Clawed Lobster (*Homarus gammarus L.*) in Europe. Fisheries Resource Series, Bord Iascaigh Mhara (Irish Sea Fisheries Board), Dun Laoghaire, Ireland. Vol. 2, 2004, 31pp.

Tully, O., Bell, M., O'Leary, A., McCarthy, A., O'Donovan, V., and Nee, D., (2006). The Lobster (*Homarus gammarus L.*) Fishery: Analysis of the Resource in 2004/2005. Fisheries Resource Series, Bord Iascaigh Mhara (Irish Sea Fisheries Board), Dun Laoghaire, Ireland, Vol. 6, 2006.

UN Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1979). Available at: <https://www.cms.int/sites/default/files/instrument/CMS-text.en.PDF#:~:text=Convention%20on%20the%20Conservation%20of%20Migratory%20Species%20of%20Wild%20Animals> [Accessed 01/10/2024].

van Deurs, M. et al., 2009. Recruitment of lesser sandeel *Ammodytes marinus* in relation to density dependence and zooplankton composition. *Marine Ecology Progress Series*, Volume 381, pp. 249-258.

Vowles AS, Kemp PS. Artificial light at night (ALAN) affects the downstream movement behaviour of the critically endangered European eel, *Anguilla anguilla*. *Environ Pollut*. 2021 Apr 1; 274:116585. doi: 10.1016/j.envpol.2021.116585. Epub 2021 Jan 23. PMID: 33556797.

Westerberg, H., & Begout-Anras, M. L. (2000). Orientation of silver eel (*Anguilla anguilla*) in a disturbed geomagnetic field. A. Moore & I. Russell (eds).

Westerberg, H. and I. Langenfelt (2008). Sub-sea power cables and the migration behaviour of the European eel. *Fisheries Management and Ecology* 15:369-375.

Dan Wilhelmsson, Torleif Malm, Marcus C. Öhman, The influence of offshore windpower on demersal fish, ICES Journal of Marine Science, Volume 63, Issue 5, 2006, Pages 775–784, <https://doi.org/10.1016/j.icesjms.2006.02.001>

Wildlife Act 1976 (no. 39 of 1976). Available at: <https://www.irishstatutebook.ie/eli/1976/act/39/enacted/en/html> [Accessed 01/10/2024].

Wildlife (Amendment) Act 2000 (no. 38 of 2000). Available at: <https://www.irishstatutebook.ie/eli/2000/act/38/enacted/en/html> [Accessed 01/10/2024].

Wildlife (Amendment) Act 2010 (no. 19 of 2010). Available at: <https://www.irishstatutebook.ie/eli/2010/act/19/enacted/en/html> Accessed 01/10/2024].

Wildlife (Amendment) Act 2012 (no. 29 of 2012). Available at: <https://www.irishstatutebook.ie/eli/2012/act/29/enacted/en/html> [Accessed 01/10/2024]

Heritage Act 2018 (no. 15 of 2018), Part 3. Available at: <https://www.irishstatutebook.ie/eli/2018/act/15/enacted/en/html> [Accessed 01/10/2024].

Planning, Heritage and Broadcasting (Amendment) Act 2021 (no.11 of 2021), Chapter 3. Available at: <https://www.irishstatutebook.ie/eli/2021/act/11/enacted/en/html> [Accessed 01/10/2024].

Williams JP, Jaco EM, Scholz ZM, Williams CM, Pondella DJ, Rasser MK, Schroeder DM. 2022. Supplemental data regarding the behavioral response of rock crabs to the EMF of subsea cables and potential impact to fisheries. Camarillo (CA): US Department of the Interior, Bureau of Ocean Energy Management. 24 p. Report No.: OCS Study BOEM 2023-005.

Wilson, E. (2008). *Homarus gammarus* Common lobster. In Tyler-Walters H. and Hiscock K. Marine Life Information Network: Biology and Sensitivity Key Information Reviews. Plymouth: Marine Biological Association of the United Kingdom. Available from: <https://www.marlin.ac.uk/species/detail/1171>

Winklhofer, M. (2009). The physics of geomagnetic-field transduction in animals. *IEEE Transactions on magnetics*, 45(12), pp.5259-5265.

Wright, P., Pinnegar, J. K. & Fox, C., 2020. Impacts of climate change on fish, relevant to the coastal and marine environment around the UK, s.l.: MCCIP.

Wright, R. M., Piper, A. T., Aarestrup, K., Azevedo, J. M. N., Cowan, G., Don, A., Gollock, M., Ramallo, S. R., Velterop, R., Walker, A., Westerberg, H., and Righton, D. 2022. First direct evidence of adult European eels migrating to their breeding place in the Sargasso Sea. *Sci Rep* 12, 15362 (2022).  
<https://doi.org/10.1038/s41598-022-19248-8>

Wyman MT, Klimley AP, Battleson RD, Agosta TV, Chapman ED, Haverkamp PJ, Pagel MD, Kavet R (2018). Behavioral responses by migrating juvenile salmonids to a subsea high-voltage DC power cable. *Mar Biol* 165(8):1–15.

Xoubanova S. and Lawrence Z. (2022). Review of fish and fisheries research to inform ScotMER evidence gaps and future strategic research in the UK.

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APEM. (2022). Gannet Displacement and Mortality Evidence Review. APEM Scientific Report P00007416. Ørsted, March 2022, Draft 1.2, 55 pp. <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010098/EN010098-001144-Hornsea%20Project%20Four%20-%20Other-%20G2.9%20Gannet%20Displacement%20and%20Mortality%20Evidence%20Review.pdf>

ABPmer, (2023). *Review of Method Statement, Offshore Wind Ornithology Assessment for East Coast Phase 1 Projects*. ABPmer Report No. R.4394, A report produced by ABPmer for An tSeirbhís Páirceanna Náisiúnta agus Fiadhúlra (National Parks and Wildlife Service).

Baker, B., Meadows, M., Ruffino, L. & Anderson, O.R. (2022). Towards better estimates of Manx shearwater and European storm-petrel population abundance and trends, demographic rates and at-sea distribution and behaviour. *JNCC Report No. 719*, JNCC, Peterborough, ISSN 0963-8091, <https://data.jncc.gov.uk/data/80332d04-6078-40da-98af-d7c23c3fd0ce/JNCC-Report-719-FINAL-WEB.pdf>

Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J. 2013. *Bird Atlas 2007–11: The Breeding and Wintering Birds of Britain and Ireland*. BTO Books, Thetford.

Band, W., 2012. SOSS-02: Using a Collision Risk Model to Assess Bird Collision Risks for Offshore Wind Farms (No. SOSS-02). [https://www.bto.org/sites/default/files/u28/downloads/Projects/Final\\_Report\\_SOSS02\\_Band1ModelGuide.pdf](https://www.bto.org/sites/default/files/u28/downloads/Projects/Final_Report_SOSS02_Band1ModelGuide.pdf)

BirdLife International (2024) Important Bird Area factsheet: Connemara Islands (Ireland). Downloaded from <https://datazone.birdlife.org/site/factsheet/connemara-islands-iba-ireland> on 04/11/2024

Birdlife International. 2023. Online Bird Species Factsheets. Available at: <http://datazone.birdlife.org/home>

Bradbury, G., Trinder, M., Furness, B., Banks, A.N., and Caldow, R.W.G. (2014) *Mapping Seabird Sensitivity to Offshore Wind farms*. PLoS ONE 9(9): e106366. doi:10.1371/journal.pone.0106366. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0106366>

Burke, C., Montevercchi, W. and Wiese, F. (2012). *Inadequate environmental monitoring around offshore oil and gas platforms on the Grand Bank of Eastern Canada: Are risks to marine birds known?*? Journal of environmental management. 104. 121 – 126. <https://www.sciencedirect.com/science/article/abs/pii/S0301479712000746>

Burnell, D., Perkins, A.J., Newton, S.F., Bolton, M., Tierney, T.D. and Dunn, T.E. (2023). Seabirds Count: a census of breeding seabirds in Britain and Ireland (2015–2021). Lynx Nature Books, Barcelona.

Butler, A., Carroll, M., Searle, K., Bolton, M., Waggitt, J., Evans, P., Rehfisch, M., Goddard, B., Brewer, M., Burthe, S. and Daunt, F. 2020. Attributing seabirds at sea to appropriate breeding colonies and populations (CR/2015/18). Scottish Marine and Freshwater Science Vol 11 No 8, 140pp. DOI: 10.7489/2006-1. <https://data.marine.gov.scot/sites/default/files//Scottish%20Marine%20and%20Freshwater%20Science%20%28SMFS%29%20Vol%2011%20No%2008-%20Attributing%20seabirds%20at%20sea%20to%20appropriate%20breeding%20colonies%20and%20populations%20%28CR-2015-18%29.pdf>

Camphuysen, C. J. (1995). *Herring Gull (Larus argentatus) and Lesser Black-backed Gull (L. fuscus) feeding at fishing vessels in the breeding season: competitive scavenging versus efficient flying*. Ardea, 83, 365-380.

Caneco, B., Humphries, G., Cook, A. and Masden, E. (2022), 'Estimating bird collisions at offshore windfarms with stochLAB', <https://hedef-aerial-surveying.github.io/stochLAB/>

CIEEM. (2022). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2*. Chartered Institute of Ecology and Environmental Management, Winchester. <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf>

Colhoun, K., Collins, J., Latimer, J., Newton, T. and Sarda Serra, M. (2023). Survey and conservation assessment of terns in South Connemara: results of a survey in 2023. A Report to Science Advisory & Research Directorate, NPWS.

Crowe, O. (2005). Ireland's Wetlands and their Waterbirds: Status and Distribution. Birdwatch Ireland, Newcastle, Wicklow.

Cummins S, Lauder C, Lauder A, and Tierney TD, 2019. The Status of Ireland's Breeding Seabirds: Birds Directive Article 12 Reporting 2013–2018, Irish Wildlife Manuals, 114. <https://www.npws.ie/sites/default/files/publications/pdf/IWM114.pdf>

Dannheim, J., Bergström, L., Birchenough, S.N.R., Brzana, R., Boon, A.R., Coolen, J.W.P., Dauvin, J.C., De Mesel, I., Derweduwen, J., Gill, A.B. and others. (2020). Benthic effects of offshore renewables: Identification of knowledge gaps and urgently needed research. ICES Journal of Marine Science 77(3):1,092–1,108, <https://doi.org/10.1093/icesjms/fsz018>

DCCAE. (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. Department of Communications, Climate Action & Environment, Dublin. <https://assets.gov.ie/76533/6a82b451-e09f-483b-849e-07d4c7baa728.pdf>

DCCAE. (2018a&b). Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects. Parts I and II. Department of Communications, Climate Action & Environment, Dublin. <https://assets.gov.ie/76531/faca0c4e-8255-419a-a518-9457ec4734e7.pdf>

Desholm, M. and Kahlert, J. (2005) *Avian Collision Risk at an Offshore Wind Farm*. Biology Letters, 1, 296-298. <https://royalsocietypublishing.org/doi/pdf/10.1098/rsbl.2005.0336>

Degraer, S., Carey, D.A., Coolen, J.W.P., Hutchison, Z.L., Kerckhof, F., Rumes, B. and Vanaverbeke, J. (2020). Offshore wind farm artificial reefs affect ecosystem structure and functioning: A synthesis. Oceanography 33(4):48–57, <https://doi.org/10.5670/oceanog.2020.405>

Dierschke, V., Furness, R.W., Garthe, S., 2016. Seabirds and offshore wind farms in European waters: Avoidance and attraction. Biological Conservation 202, 59–68. <https://doi.org/10.1016/j.biocon.2016.08.016>.

Dirksen, S., Spaans, A.L. & van der Winden, J. (1998). *Studies on Nocturnal Flight Paths and Altitudes of Waterbirds in Relation to Wind Turbines: A Review of Current Research in the Netherlands*. In Proceedings of the National Avian-Wind Power Planning Meeting III, San Diego, California, May 2000' Prepared for the National Wind Coordinating Committee. Ontario: LGL Ltd. [https://www.academia.edu/2034392/Studies\\_on\\_nocturnal\\_flight\\_paths\\_and\\_altitudes\\_of\\_waterbirds\\_in\\_relation\\_to\\_wind\\_turbines\\_a\\_review\\_of\\_current\\_research\\_in\\_the\\_Netherlands](https://www.academia.edu/2034392/Studies_on_nocturnal_flight_paths_and_altitudes_of_waterbirds_in_relation_to_wind_turbines_a_review_of_current_research_in_the_Netherlands)

Donovan, C. (2017). Stochastic Band CRM - GUI User manual Draft V1.0. March.

Drewitt, A. & Langston, R. (2008). *Collision Effects of Wind-power Generators and Other Obstacles on Birds*. Annals of the New York Academy of Sciences. 1134. 233. <https://nyaspubs.onlinelibrary.wiley.com/doi/abs/10.1196/annals.1439.015>

Environmental Protection Agency (EPA) (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports. <https://www.epa.ie/publications/monitoring-assessment/assessment/guidelines-on-the-information-to-be-contained-in-environmental-impact-assessment.php>

Forrester, R.W., Andrews, I.J., McInerny, C.J., Murray, R.D., McGowan, R.Y., Zonfrillo, B., Betts, M.W., Jardine, D.C. and Grundy, D.S. (eds). (2007). *The Birds of Scotland*. The Scottish Ornithologists' Club, Aberlady.

Furness, R.W. (2015). 'Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS)'. Natural England Commissioned Report Number 164. <https://publications.naturalengland.org.uk/publication/6427568802627584>

Furness, R.W., Garthe, S., Trinder, M., Matthiopoulos, J., Wanless, S. & Jeglinski, J. (2018). 'Nocturnal flight activity of northern gannets *Morus bassanus* and implications for modelling collision risk at offshore wind farms'. Environmental Impact Assessment Review. [e-journal] 73, pp. 1-6.

Furness, R.W. and Wade, H.M. (2012). *Vulnerability of Scottish seabirds to offshore wind turbines*. Report to Marine Scotland.

<https://tethys.pnnl.gov/sites/default/files/publications/Furness%20and%20Wade%202012.pdf>

Furness, R.W., Wade, H.M. and Masden, E.A. (2013). *Assessing vulnerability of marine bird populations to offshore wind farms*. Journal of Environmental Management, 119, 56-66.  
[https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010080/EN010080-001838-%C3%98rsted%20Hornsea%20Project%20Three%20\(UK\)%20Ltd%20-%20Appendix%201%20-%20Furness%20et%20al.,%202013.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010080/EN010080-001838-%C3%98rsted%20Hornsea%20Project%20Three%20(UK)%20Ltd%20-%20Appendix%201%20-%20Furness%20et%20al.,%202013.pdf)

Garthe, S., & Hüppop, O. (2004). Scaling possible adverse effects of marine wind farms on seabirds: developing and applying a vulnerability index. Journal of applied Ecology, 41(4), 724-734.  
<https://besjournals.onlinelibrary.wiley.com/doi/epdf/10.1111/j.0021-8901.2004.00918.x>

Gilbert, G., Stanbury, A. and Lewis, L. (2021). Birds of Conservation Concern in Ireland 4: 2020-2026. Irish Birds, 43: 1-22.

Gill JP, Sales D, Pinder S, Salazar R. 2008. Kentish Flats wind farm, 5th ornithological monitoring report. Report to Kentish Flats Ltd. Environmentally Sustainable Systems, Edinburgh.

Giralt Paradell, O., Cañadas, A., Bennison, A., Todd, N., Jessopp, M., Rogan, E. (2024). Aerial surveys of cetaceans and seabirds in Irish waters: Occurrence, distribution and abundance in 2021-2023. Department of the Environment, Climate & Communications and Department of Housing, Local Government & Heritage, Ireland. <https://www.gov.ie/pdf/?file=https://assets.gov.ie/308027/e03a534c-0fa5-4a22-8bad-5f002ae94857.pdf#page=null>

HiDef. (2025). Online information about HiDef Digital Aerial Surveys. Available at <https://www.hidesurveying.co.uk/aerial-survey/>

GoBe. (2022). Method Statement - Offshore Wind Ornithology Assessment for East Coast Phase 1 Projects.

Grimmett, R. and Jones, T.A. (1989). Important Bird Areas in Europe. International Council for Bird Preservation.

Hamer K.C., Humphreys E.M., Garthe S., Hennicke J., Peters G., Grémillet D., Phillips R.A., Harris M.P. & Wanless S. (2007) Annual variation in diets, feeding locations and foraging behaviour of Gannets in the North Sea: flexibility, consistency and constraint. (Marine Ecology Progress Series, 338, 295-305).

Hamer, K.C., Holt, N. & Wakefield, E. (2011) The distribution and behaviour of northern gannets in the Firth of Forth and Tay area. A review on behalf of the Forth and Tay Offshore Wind Developers Group. (Institute of Integrative & Comparative Biology, University of Leeds).

HiDef, (2024). Digital video aerial surveys of seabirds and marine megafauna at Fuinneamh Sceirde Teoranta: 2-Year Report - October 2021 to September 2023.

Horswill, C. and Robinson R. A. (2015), 'Review of seabird demographic rates and density dependence', (JNCC Report No. 552, Joint Nature Conservation Committee, Peterborough), <https://hub.jncc.gov.uk/assets/897c2037-56d0-42c8-b828-02c0c9c12d13>

Hüppop, O. and Wurm, S. (2000). *Effect of winter fishery activities on resting numbers, food and body condition of large gulls Larus argentatus and L. marinus in the south-eastern North Sea*. Marine Ecology Progress Series, 194, 241-247.

JNCC, Natural England, Natural Resources Wales, NatureScot. 2024. *Joint advice note from the Statutory Nature Conservation Bodies (SNCBs) regarding bird collision risk modelling for offshore wind developments*. JNCC, Peterborough. <https://hub.jncc.gov.uk/f7892820-0f84-4e96-9eff-168f93bd343d>.

Kane, A., Pirotta, E., Wischnewski, S., Critchley, E. J., Bennison, A., Jessopp, M., & Quinn, J. L. (2020). Spatio-temporal patterns of foraging behaviour in a wide-ranging seabird reveal the role of primary productivity in locating prey. Marine Ecology Progress Series, 646, 175-188.  
[https://www.researchgate.net/publication/342286716\\_Spatio-temporal\\_patterns\\_of\\_foragingBehaviour\\_in\\_a\\_wide-ranging\\_seabird\\_reveal\\_the\\_role\\_of\\_primary\\_productivity\\_in\\_locating\\_prey](https://www.researchgate.net/publication/342286716_Spatio-temporal_patterns_of_foragingBehaviour_in_a_wide-ranging_seabird_reveal_the_role_of_primary_productivity_in_locating_prey)

Kerlinger, P., Gehring, J.L., Erickson, W.P., Curry, R., Jain, A., and Guarnaccia, J. (2010). *Night migrant fatalities and obstruction lighting at wind turbines in North America*. The Wilson Journal of Ornithology, 122(4): 744 – 754.  
[https://www.researchgate.net/publication/232690728\\_Night\\_Migrant\\_Fatalities\\_and\\_Obstruction\\_Lighting\\_at\\_Wind\\_Turbines\\_in\\_North\\_America](https://www.researchgate.net/publication/232690728_Night_Migrant_Fatalities_and_Obstruction_Lighting_at_Wind_Turbines_in_North_America)

King, S., Maclean, I., Norman, T. and Prior, A. (2009). *Developing Guidance on Ornithological Cumulative Impact Assessment for Offshore Wind Farm Developers*. A Report for COWRIE. <https://tethys.pnnl.gov/sites/default/files/publications/King-et-al-2009.pdf>

Kotzerka, J., Garthe, S. and Hatch, S. (2010). *GPS tracking devices reveal foraging strategies of Black-legged Kittiwake*. Journal of Ornithology. 151. 459 – 467.  
[https://www.researchgate.net/publication/225758685\\_GPS\\_tracking\\_devices\\_reveal\\_foraging\\_strategies\\_of\\_Black-legged\\_Kittiwakes](https://www.researchgate.net/publication/225758685_GPS_tracking_devices_reveal_foraging_strategies_of_Black-legged_Kittiwakes)

Krijgveld, K.L., Fijn, R.C., Japink, M., van Horssen, P.W., Heunks, C., Collier, M.P., Poot, M.J.M., Beuker, D. and Dirksen, S. (2011). *Effect studies Offshore Wind Farm Egmond aan Zee. Final report on fluxes, flight altitudes and behaviour of flying birds*. NoordzeeWind report OWEZ\_R\_231\_T1\_20111114\_flux&flight / Bureau Waardenburg report nr 10-219. Bureau Waardenburg, Culemborg, Netherlands.

Langston, R.H.W. (2010) Offshore wind farms and birds: Round 3 zones, extensions to Round 1 & 2 sites & Scottish Territorial Waters. (RSPB Research Report No. 39).

Leopold MF, Dijkman EM, Teal L and the OWEZ-Team. 2011. Local birds in and around the offshore wind farm Egmond aan Zee. Report No. C187/11, IMARES, Wageningen

Leopold, M.F., van Bemmelen, R.S.A., Zuur, A.F. 2013. *Responses of local birds to the offshore wind farms PAWP and OWEZ off the Dutch mainland coast*. Report C151/12. Imares, Wageningen.

Lewis, L. J., Burke, B., Fitzgerald, N., Tierney, T. D. & Kelly, S. (2019). Irish Wetland Bird Survey: Waterbird Status and Distribution 2009/10-2015/16. Irish Wildlife Manuals, No. 106. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.  
[https://www.npws.ie/sites/default/files/publications/pdf/IWM\\_106\\_Irelands\\_Wintering\\_Waterbirds.pdf](https://www.npws.ie/sites/default/files/publications/pdf/IWM_106_Irelands_Wintering_Waterbirds.pdf)

Lindeboom, H.J., Kouwenhoven, H.J., Bergman, M.J.N., Bouma, S. and others. 2011. Short-term ecological effects of an offshore wind farm in the Dutch coastal zone; a compilation. Environ Res Lett 6: 035101

MacArthur Green. (2021). Beatrice Offshore Wind Farm. Year 1 Post-construction Ornithological Monitoring Report 2019. [https://marine.gov.scot/sites/default/files/bowl\\_2019\\_post\\_conc\\_monitoring\\_report\\_v2.2\\_30042021.pdf](https://marine.gov.scot/sites/default/files/bowl_2019_post_conc_monitoring_report_v2.2_30042021.pdf)

MacArthur Green. (2023). Beatrice Offshore Wind Farm. Year 2 Post-construction Ornithological Monitoring Report 2021.  
[https://marine.gov.scot/sites/default/files/bowl\\_2021\\_post\\_construction\\_ornithology\\_monitoring\\_report\\_25\\_07\\_2023.pdf](https://marine.gov.scot/sites/default/files/bowl_2021_post_construction_ornithology_monitoring_report_25_07_2023.pdf)

Maclean I.M.D., Wright L.J., Showler D.A. and Rehfisch M.M. (2009). *A review of assessment methodologies for offshore wind farms.* (British Trust for Ornithology commissioned by Cowrie Ltd). <https://tethys.pnnl.gov/sites/default/files/publications/Maclean-et-al-2009.pdf>

Masden, E. A., Haydon, D. T., Fox, A. D., Furness, R. W., Bullman, R., and Desholm, M. 2009. Barriers to movement: impacts of wind farms on migrating birds. – ICES Journal of Marine Science, 66: 746–753.  
[https://www.researchgate.net/publication/249284301\\_Barriers\\_to\\_movement\\_Impacts\\_of\\_wind\\_farms\\_on\\_migrating\\_birds](https://www.researchgate.net/publication/249284301_Barriers_to_movement_Impacts_of_wind_farms_on_migrating_birds)

Marine Scotland. (2017). Scoping Opinion for the proposed Section 36 Consent and Associated Marine Licence Application for the Revised NnG Cape Offshore Wind Farm and Revised NnG Offshore Transmission Works. <http://www.gov.scot/Topics/marine/Licensing/marine/scoping/NnGRev2017/SO-092017>

Marine Scotland. (2022a). Marine Scotland Licensing Operations Team Scoping Opinion for Berwick Bank Offshore Wind Farm. Available at: <https://marine.gov.scot/data/scoping-opinion-berwick-bank-offshore-wind-farm>

Marine Scotland. (2022b). Marine Scotland Licensing Operations Team Scoping Opinion for West of Orkney Windfarm. Available at: <https://marine.gov.scot/data/scoping-opinion-west-orkney-windfarm>

McGregor, R.M., King, S., Donovan, C.R., Caneco, B. and Webb, A. (2018). *A stochastic collision risk model for seabirds in flight.* Marine Scotland commissioned report.  
<https://www.gov.scot/binaries/content/documents/govscot/publications/factsheet/2021/02/stochastic-collision-risk-model-for-seabirds-in-flight/documents/full-report/full-report/govscot%3Adocument/full%2Breport.pdf>

Mendel, B., Peschko, V., Kubetski, U., Weiel, S. & Garthe, S. (2018). Untersuchungen zu möglichen Auswirkungen der Offshore-Windparks im Windclusternördlich von Helgoland auf Seevögel und Meeressäuger (HELBIRD). Christian Albrechts University, Kiel to Bundesministerium für Wirtschaft und Energie (BMWi). [http://www.ftz.uni-kiel.de/de/forschungsabteilungen/ecolab-oekologie-mariner-tiere/abgeschlossene-projekte/helbird/bericht/helbird\\_schlussbericht](http://www.ftz.uni-kiel.de/de/forschungsabteilungen/ecolab-oekologie-mariner-tiere/abgeschlossene-projekte/helbird/bericht/helbird_schlussbericht)

Mobbs, D., Searle, K., Daunt, F. & Butler, A. (2020). A Population Viability Analysis Modelling Tool for Seabird Species: Guide for using the PVA tool (v2.0) user interface.  
[https://github.com/naturalengland/Seabird\\_PVA\\_Tool/blob/master/Documentation/PVA\\_Tool\\_UI\\_Guidance.pdf](https://github.com/naturalengland/Seabird_PVA_Tool/blob/master/Documentation/PVA_Tool_UI_Guidance.pdf)

NatureScot. (2018). *Interim Guidance on apportioning impacts from marine renewable developments to breeding seabird populations in SPAs*. NatureScot. <https://www.nature.scot/doc/interim-guidance-apportioning-impacts-marine-renewable-developments-breeding-seabird-populations>

NatureScot. (2020). Suggested seasonal definitions for birds in the Scottish Marine Environment. <https://www.nature.scot/sites/default/files/2020-10/Guidance%20note%20-%20Seasonal%20definitions%20for%20birds%20in%20the%20Scottish%20Marine%20Environment.pdf>

Nature Scot, (2023). Guidance to support Offshore Wind Applications: Marine Ornithology Guidance Notes 1-11. <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/renewable-energy/marine-renewables/advice-marine-renewables-development>

NnGOWL, (2018). Neart na Gaoithe Offshore Wind Farm Environmental Impact Assessment. <https://marine.gov.scot/ml/neart-na-gaoithe-offshore-wind-farm-revised-design>

NPWS. (2011). Online site synopsis for Slyne Head to Ardmore Point Islands SPA. <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004159.pdf>

NPWS. (2024). Online information about designated conservation sites in Ireland. <https://www.npws.ie/protected-sites>

Ove Arup & Partners. (2024). North Irish Sea Array Environmental Impact Assessment Report Volume 3: Chapter 15 Offshore Ornithology. <https://northirishseaarraysid.ie/wp-content/uploads/2024/06/Chapter-15-Offshore-Ornithology.pdf>

Ozsanol-Harris, L., Inger, R. & Sherley, R. (2023). Review of data used to calculate avoidance rates for collision risk modelling of seabirds. *JNCC Report 732 (Research & review report)*, JNCC, Peterborough, ISSN 0963-8091. <https://hub.jncc.gov.uk/assets/de5903fe-81c5-4a37-a5bc-387cf704924d>

Parker, J., Banks, A., Brown, E. & Copley, V. (2022b). Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase II: Expectations for pre-application engagement and best practice advice for the evidence plan process. Natural England. Version 1.1. 40 pp. <https://naturalengland.blog.gov.uk/2022/04/13/offshore-wind-best-practice-advice-to-facilitate-sustainable-development/>

Parker, J., Fawcett, A., Banks, A., Rowson, T., Allen, S., Rowell, H., Harwood, A., Ludgate, C., Humphrey, O., Axelsson, M., Baker, A. & Copley, V. (2022c). Offshore Wind Marine Environmental Assessments: Best Practice Advice for Evidence and Data Standards. Phase III: Expectations for data analysis and presentation at examination for offshore wind applications. Natural England. Version 1.2. 140 pp. <https://naturalengland.blog.gov.uk/2022/04/13/offshore-wind-best-practice-advice-to-facilitate-sustainable-development/>

Petersen, I.K., Christensen, T.K., Kahlert, J., Desholm, M., Fox, A.D. 2006. Final results of bird studies at the offshore wind farms at Nysted and Horns Rev, Denmark. Report commissioned by DONG Energy and Vattenfall A/S. National Environmental Research Institute, Aarhus.

Project Management Support Services (PMSS). 2007. North Hoyle Offshore Wind Farm. Final Annual FEPA monitoring report (2006–7). NWP Offshore Ltd.

Pollock, C.M., Reid, J.B., Webb, A. & Tasker, M.L. (1997). The distribution of seabirds and cetaceans in the waters around Ireland. JNCC Report, No. 267.

Rogan, E., Breen, P., Mackey, M., Cañadas, A., Scheidat, M., Geelhoed, S. & Jessopp, M. (2018). Aerial surveys of cetaceans and seabirds in Irish waters: Occurrence, distribution and abundance in 2015-2017. Department of Communications, Climate Action & Environment and National Parks and Wildlife Service (NPWS), Department of Culture, Heritage and the Gaeltacht, Dublin, Ireland. 297pp.

RPS. (2022). Berwick Bank Offshore Wind Farm Environmental Impact Assessment Report Chapter 11: Offshore and Intertidal Ornithology. <https://berwickbank-eia.com/offshore-eia/vol2-ch11-ornithology/>

RPS. (2024). Oriel Wind Farm Project Environmental Impact Assessment Report Volume 2B Chapter 11: Offshore Ornithology. [https://orielwindfarm-marineplanning.ie/data/files/Environmental%20Documents/Environmental%20Impact%20Assessment%20Report%20\(EIAR\)/Volume%20B%20Chapters%207%20-2016%20and%20associated%20technical%20appendices/11%20Offshore%20Ornithology.pdf](https://orielwindfarm-marineplanning.ie/data/files/Environmental%20Documents/Environmental%20Impact%20Assessment%20Report%20(EIAR)/Volume%20B%20Chapters%207%20-2016%20and%20associated%20technical%20appendices/11%20Offshore%20Ornithology.pdf)

RSPB. (2018). Press release: Kittiwake joins the red list of UK birds facing risk of global extinction. <https://www.rspb.org.uk/about-the-rspb/about-us/media-centre/press-releases/kittiwakeredlist/>

Schwemmer, P., Mendal, B., Sonntag, N., Dierschke, V. and Garthe, S. (2011). *Effects of ship traffic on seabirds in offshore waters: implications for marine conservation and spatial planning*. Ecological Applications, 21, 1851-1860.

Seabird Monitoring Programme online database. (2024). <https://app.bto.org/seabirds/public/data.jsp>

Skov, H., Heinänen, S., Norman, T., Ward, R.M., Méndez-Roldán, R.S., Ellis, I., 2018. ORJIP Bird Collision and Avoidance Study. Final report – April 2018. The Carbon Trust.

SNCBs. (2022a). *Joint SNCB Interim Displacement Advice Note*. JNCC, Natural Resources Wales, Department of Agriculture, Environment and Rural Affairs/Northern Ireland Environment Agency, Natural England and NatureScot. <https://data.jncc.gov.uk/data/9aecb87c-80c5-4cfb-9102-39f0228dcc9a/joint-sncb-interim-displacement-advice-note-2022.pdf>

SNCBs. (2022b). Joint SNCB Interim Advice on the Treatment of Displacement for Red-throated Diver. JNCC, Natural Resources Wales, Department of Agriculture, Environment and Rural Affairs/Northern Ireland Environment Agency, Natural England and NatureScot. <https://data.jncc.gov.uk/data/9aecb87c-80c5-4cfb-9102-39f0228dcc9a/interim-sncb-advice-rtt-displacement-buffer.pdf>

SNCBs. (2024). Joint advice note from the SNCBs regarding bird collision risk modelling for offshore wind developments. <https://data.jncc.gov.uk/data/f7892820-0f84-4e96-9eff-168f93bd343d/joint-sncb-crm-advice-note.pdf>

SSE Renewables. (2024). Arklow Bank Wind Park 2 Environmental Impact Assessment Report Volume II, Chapter 12: Offshore Ornithology. <https://www.arklowbank2offshoreplanning.ie/downloads/eiar/abwp2-chapter-12-offshore-ornithology.pdf>

Syposz, M., Padgett, O., Willis, J., Van Doren, B.M., Gillies, N., Fayet, A.L., Wood, M.J., Alejo, A. and Guilford, T. (2021), ‘*Avoidance of different durations, colours and intensities of artificial light by adult seabirds*’, Sci Rep 11: 18941. <https://doi.org/10.1038/s41598-021-97986-x>

Thaxter, C.B., Ross-Smith, V.H. and Cook, A.S.C.P. (2016). *How high do birds fly? A review of current datasets and an appraisal of current methodologies for collecting flight height data: Literature review*. BTO Research Report No. 666.

Thompson, P., Hammond, P., Borchers, D., Brookes, K. & Graham, I. (2012). *Methods for monitoring marine mammals at marine renewable energy developments*. Aberdeen University report to Marine Scotland, Project No. RERAD/001/11.

Topping C. and Petersen I.K. 2011. Report on a Red-throated Diver Agent-Based Model to assess the cumulative impact from offshore wind farms. Report commissioned by the Environmental Group. Aarhus University, DCE – Danish Centre for Environment and Energy . 44pp.

Vanermen, N., Stienen, E.W.M., Courtens, W., Onkelinx, T., Van de walle, M., Verstraete, H. 2013. Bird monitoring at offshore wind farms in the Belgian part of the North Sea: assessing seabird displacement effects. Report INBO. R. 2013. 755887, Research Institute for Nature and Forest, Brussels.

Vanermen, N., Courtens, W., Van de Walle, M., Verstraete, H., and Stienen, E. W. M. 2017. Seabird monitoring at the Thornton bank offshore wind farm. Updated seabird displacement results as an explorative assessment of large gull behaviour inside the wind farm area. In Environmental Impacts of Offshore Wind Farms in the Belgian Part of the North Sea: A Continued Move towards Integration and Quantification. Ed. by S. Degraer, R. Brabant, B. Rumes, and L. Vigin. Royal Belgian Institute of Natural Sciences, Operational Directorate Natural Environment, Marine Ecology and Management, Brussels, Belgium.

[https://www.researchgate.net/publication/335791024\\_Seabird\\_monitoring\\_at\\_the\\_Thorntonbank\\_offshore\\_wind\\_farm\\_Updated\\_seabird\\_displacement\\_results\\_an\\_explorative\\_assessment\\_of\\_large\\_gull\\_behavior\\_inside\\_the\\_wind\\_farm\\_area](https://www.researchgate.net/publication/335791024_Seabird_monitoring_at_the_Thorntonbank_offshore_wind_farm_Updated_seabird_displacement_results_an_explorative_assessment_of_large_gull_behavior_inside_the_wind_farm_area)

Wade, H.M., Masden, E.A., Jackson, A.C. and Furness, R.W. (2016). Incorporating data uncertainty when estimating potential vulnerability of Scottish seabirds to marine renewable energy developments. Mar. Policy 70 108–13.

Wanless, S., Harris, M.P. and Greenstreet, S.P.R. (1998). *Summer sandeel consumption by seabirds breeding in the Firth of Forth, south-east Scotland*. (ICES Journal of Marine Science, 55: 1141–1151).

Welcker, M., Liesenjohann, M., Blew, J., Nehls, G. & Grunkorn, T. (2017). *Nocturnal migrants do not incur higher collision risk at wind turbines than diurnally active species*. Ibis, 159, 366–373.  
[https://www.researchgate.net/publication/312020247\\_Nocturnal\\_migrants\\_do\\_not\\_incur\\_higher\\_collision\\_risk\\_at\\_wind\\_turbines\\_than\\_diurnally\\_active\\_species](https://www.researchgate.net/publication/312020247_Nocturnal_migrants_do_not_incur_higher_collision_risk_at_wind_turbines_than_diurnally_active_species)

Wernham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. and Baillie, S.R. (eds). (2002) The Migration Atlas: Movements of the birds of Britain and Ireland, T. and A.D. Poyser, London.

Williamson, L. D., Brookes, K. L., Scott, B. E., Graham, I. M., Bradbury, G., Hammond, P. S. & Thompson, P. M. (2016). Echolocation detections and digital video surveys provide reliable estimates of the relative density of harbour porpoises. *Methods in Ecology and Evolution*, 7: 762–769.

Woodward, I., Thaxter, C.B., Owen, E. and Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. BTO research report number 724. Thetford.

Xodus. (2023). West of Orkney Wind Farm Offshore EIA Report: Chapter 13 Offshore and Intertidal Ornithology. Volume 1.

[https://marine.gov.scot/sites/default/files/west\\_of\\_orkney\\_windfarm\\_offshore\\_eia\\_report\\_-\\_chapter\\_13\\_-\\_offshore\\_and\\_intertidal\\_ornitholog.pdf](https://marine.gov.scot/sites/default/files/west_of_orkney_windfarm_offshore_eia_report_-_chapter_13_-_offshore_and_intertidal_ornitholog.pdf)

## Chapter 12 Marine Mammals and Other Megafauna

Almeda, R., Wambaugh, Z., Wang, Z., Hyatt, C., Liu, Z., & Buskey, E. J. (2013). Interactions between Zooplankton and Crude Oil: Toxic Effects and Bioaccumulation of Polycyclic Aromatic Hydrocarbons. *Plos One*, 8(6), e67212.

Amaral, J., Vigness-Raposa, K., Miller, J. H., Potty, G. R., Newhall, A., & Lin, Y. T. (2020). The underwater sound from offshore wind farms. *Acoustics Today*, 16(2), 13-21.

Anderson, J. M., Clegg, T. M., Véras, L. V., & Holland, K. N. (2017). Insight into shark magnetic field perception from empirical observations. *Scientific Reports*, 7(1), 11042.

Anderwald, P., Daníelsdóttir, A. K., Haug, T., Larsen, F., Lesage, V., Reid, R. J., Vikingsson, G. A., & Hoelzel, A. R. (2011). Possible cryptic stock structure for minke whales in the North Atlantic: Implications for conservation and management. *Biological Conservation*, 144, 2479-2489.

Anderwald, P., Brandecker, A., Coleman, M., Collins, C., Denniston, H., Haberlin, M. D., O'Donovan, M., Pinfield, R., Visser, F., & Walshe, L. (2013). Displacement responses of a mysticete, an odontocete, and a phocid seal to construction-related vessel traffic. *Endangered Species Research*, 21(3), 231-240.

Arnould, J. P., Monk, J., Ierodiaconou, D., Hindell, M. A., Semmens, J., Hoskins, A. J., Costa, D. P., Abernathy, K., & Marshall, G. J. (2015). Use of anthropogenic sea floor structures by Australian fur seals: potential positive ecological impacts of marine industrial development? *PLoS One*, 10(7), p.e0130581.

Bauer, G. B., Fuller, M., Perry, A., Dunn, J. R., & Zoeger, J. (1985). Magnetoreception and Biomineralization of Magnetite in Cetaceans. *Topics in Geobiology*, 489-507.

Beck, S., Ian O'Connor, Berrow, S. & O'Brien, J., (2011). Assessment and Monitoring of Ocean Noise in Irish Waters (STRIVE Report). [Online] Available at: <https://www.epa.ie/publications/research/water/STRIVE-120-Assessment-and-Monitoring-of-Ocean-Noise-in-Irish-Waters.pdf> [Accessed 14 08 2023].

BEIS (2019). Decommissioning of Offshore Renewable Energy Installations: Guidance Notes for Industry (UK). [Online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/916912/decommissioning-offshore-renewable-energy-installations-energy-act-2004-guidance-industry\\_1\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/916912/decommissioning-offshore-renewable-energy-installations-energy-act-2004-guidance-industry_1_.pdf) [Accessed 14 08 2023].

Benejam, L., Benito, J., & García-Berthou, E. (2010). Decreases in Condition and Fecundity of Freshwater Fishes in a Highly Polluted Reservoir. *Water Air Soil Pollut*, 210, 231-242.

Benhemma-Le Gall, A., Graham, I. M., Merchant, N. D., & Thompson, P. M. (2021). Broad-scale responses of harbor porpoises to pile-driving and vessel activities during offshore windfarm construction. *Frontiers in Marine Science*, 8, 664724.

Berrow, S. D., Holmes, B., & Kiely, O. R. (1996). Distribution and abundance of bottle-nosed dolphins *Tursiops truncatus* (montagu) in the Shannon Estuary. *Biol. Environ. – Proc. R. Ir. Acad.*, 96B, 1-9.

Berrow, S. D., Whooley, P., O'Connell, M., & Wall, D. (2010). Irish Cetacean Review (2000-2009). *Irish Whale and Dolphin Group*.

Berrow, S. D., O'Brien, J., Groth, L., Foley, A., & Voigt, K. (2012). Abundance estimate of bottlenose dolphins (*Tursiops truncatus*) in the Lower River Shannon candidate special area of conservation, Ireland. *Aquatic Mammals*, 38(2).

- Berrow, S. D., O'Brien, J., Meade, R., Delarue, J., Kowarski, K., Martin, B., Moloney, J., et al. (2018). Acoustic Surveys of Cetaceans in the Irish Atlantic Margin in 2015–2016: Occurrence, distribution and abundance. Dublin, Ireland: Department of Communications, Climate Action & Environment and the National Parks and Wildlife Service (NPWS), Department of Culture, Heritage and the Gaeltacht.
- Bevan, F., & Schneider, J. (2021). State of play of the impact of chemical pollution on freshwater and marine wildlife in the UK. Report from conversations with UK academics between April and July 2020. [Online] Available at: [https://chemtrust.org/wp-content/uploads/Chemical-pollution-impact-UK\\_CHEM-Trust\\_MCS\\_May2021-1.pdf](https://chemtrust.org/wp-content/uploads/Chemical-pollution-impact-UK_CHEM-Trust_MCS_May2021-1.pdf) [Accessed 09 04 2024].
- Bloomfield, A., & Solandt, J. L. (2006). The Marine Conservation Society Basking Shark Watch 20-year report (1987-2006). Ross on Wye, UK: Marine Conservation Society.
- BOEM (2014). Appendix I: Sea Turtle Hearing and Acoustic Impacts. [Online] Available at: <https://www.cbd.int/doc/meetings/mar/mcbem-2014-01/other/mcbem-2014-01-submission-boem-03-en.pdf> [Accessed 05 04 2024].
- Bowen, D. (2016). Halichoerus grypus. The IUCN Red List of Threatened Species 2016. [Online] Available at: <https://www.iucnredlist.org/species/9660/45226042> [Accessed 08 08, 2023].
- Bowen, W. D., Iverson, S. J., Boness, D. J., & Oftedal, O. T. (2001). Foraging effort, food intake and lactation performance depend on maternal mass in a small phocid seal. Functional Ecology, 15, 325-334.
- Brasseur, S. M. J. M., Aarts, G., Meesters, E., van Polanen Petel, T., Dijkman, E., Cremer, J., & Reijnders, P. (2012). Habitat preferences of harbour seals in the Dutch coastal area: analysis and estimate of effects of offshore wind farms. Report C043-10.
- Braulik, G., Jefferson, T. A., & Bearzi, G. (2021). Delphinus delphis (amended version of 2021 assessment). [Online] Available at: <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T134817215A199893039.en> [Accessed 31 07 2023].
- Carmen, M., Berrow, S. D., & O'Brien, J. M. (2021). Foraging behavior of bottlenose dolphins in the Shannon Estuary, Ireland as determined through static acoustic monitoring. Journal of Marine Science and Engineering, 9(3), 275.
- Carter, M. I., Boehme, L., Cronin, M. A., Duck, C., Grecian, J. W., Hastie, G. D., Jessopp, M. J., et al. (2022). Sympatric seals, satellite tracking and protected areas: habitat-based distribution estimates for conservation and management. Frontiers in Marine Science, 9, 875869.
- Casper, B. M., & Mann, D. A. (2010). Field hearing measurements of the Atlantic sharpnose shark Rhizoprionodon terraenovae. Journal of Fish Biology, 75(10), 2768-2776.
- Cefas (2004). Guidance Note for Environmental Impact Assessment in Respect of Food and Environmental Protection Act (FEPA) and Coast Protection Act (CPA) Requirements (UK). [Online] Available at: <https://www.cefas.co.uk/publications/files/windfarm-guidance.pdf> [Accessed 14 08 2023].
- Central Statistics Office (2023). Statistics of Port Traffic Q4 and Year 2022. [Online] Available at: <https://www.cso.ie/en/releasesandpublications/ep/p-spt/statisticsofporttrafficq4andyear2022/> [Accessed 29 12 2023].
- Christiansen, F., & Lusseau, D. (2015). Linking behavior to vital rates to measure the effects of non-lethal disturbance on wildlife. Conservation Letters, 8(6), 424-431.

Christiansen, F., Bertulli, C. G., Rasmussen, M. H., & Lusseau, D. (2015). Estimating cumulative exposure of wildlife to non-lethal disturbance using spatially explicit capture-recapture models. *The Journal of Wildlife Management*, 79(2), 311-324.

CIEEM (2018). Guidelines for ecological impact assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. [Online] Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf> [Accessed 14 08 2023].

CODA (2009). Cetacean Offshore Distribution and Abundance (CODA). University of St Andrews, UK.

Copping, A. E., & Hemery, L. G. (2020). 2020 State of the Science Report: Environmental Effects of Marine Renewable Energy Development Around the World. Edited by A. E. Copping and L. G. Hemery. Ocean Energy Systems (OES).

Corwin, J. T. (1981). Audition in Elasmobranchs. In Hearing and Sound Communication in Fishes. Proceedings in Life Sciences, edited by W. N. Tavolga, A. N. Popper, & R. R. Fay. New York, NY: Springer.

Cronin, M., Jessopp, M., Houle, J., & Reid, D. (2014). Fishery-seal interactions in Irish waters: Current perspectives and future research priorities. *Marine Policy*, 44, 120-130.

Cronin, M. A. (2011). The conservation of seals in Irish waters: How research informs policy. *Marine Policy*, 35(6), 748-755.

CSIP (2018). UK Cetacean Strandings Investigation Programme. Final Contract Report 1st January 2011 to 31st December 2017. [Online] Available at: <https://sciencesearch.defra.gov.uk/ProjectDetails?ProjectId=17835> [Accessed 05 01 2024].

Culloch, R. M., Anderwald, P., Brandecker, A., Haberlin, D., McGovern, B., Pinfield, R., Visser, F., Jessopp, M., & Cronin, M. (2016). Effect of construction-related activities and vessel traffic on marine mammals. *Marine Ecology Progress Series*, 549, 231-242.

Czech-Damal, N. U., Liebschner, A., Miersch, L., Klauer, G., Hanke, F. D., Marshall, C., Dehnhardt, G., & Hanke, W. (2011). Electoreception in the Guiana dolphin (*Sotalia guianensis*). *Proceedings of the Royal Society B: Biological Sciences*, 279(1729), 663–668.

de Jong, K., Forland, T. N., Amorim, M. C. P., Rieucau, G., Slabbekoorn, H., & Sivle, L. D. (2020). Predicting the effects of anthropogenic noise on fish reproduction. *Rev Fish Biol Fisheries*, 30, 245-268.

Degraer, S., Carey, D. A., Coolen, J. W., Hutchison, Z. L., Kerckhof, F., Rumes, B., & Vanaverbeke, J. (2020). Offshore wind farm artificial reefs affect ecosystem structure and functioning. *Oceanography*, 33(4), 48-57.

Department of Arts, Heritage and the Gaeltacht (DAHG) (2014). Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters. January 2014. Prepared by the National Parks and Wildlife Service, DAHG. DAHG.

Department of Communication, Climate Action and Environment (DCCAE) (2014). Offshore Renewable Energy Development Plan. [Online] Available at: <https://assets.gov.ie/27215/2bc3cb73b6474beebbe810e88f49d1d4.pdf> [Accessed 14 08 2023].

DCCAE (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. [Online] Available at: <https://assets.gov.ie/76533/6a82b451-e09f-483b-849e-07d4c7baa728.pdf> [Accessed 14 08 2023].

Department of Communications, Climate Action and Environment, 2018a. Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects. Part 1. April 2018. Available at: <https://assets.gov.ie/76530/2caa8f12-f1e7-4d76-ab34-19174ff5b9e6.pdf> [Accessed 22 Nov. 2024].

DCCAE (2018b). Guidance on Marine Baseline Ecological Assessments & Monitoring Activities for Offshore Renewable Energy Projects Part 2. [Online] Available at: <https://assets.gov.ie/76531/faca0c4e-8255-419a-a518-9457ec4734e7.pdf> [Accessed 14 08 2023].

Department of Energy and Climate Change (DECC) (2011). UK Offshore Energy Strategic Environmental Assessment 2: Environmental Report. Part 2. [Online] Available at: [https://assets.publishing.service.gov.uk/media/5a7a3435ed915d1a6421bc97/OESEA2\\_ER\\_with\\_NTS\\_Part2.pdf](https://assets.publishing.service.gov.uk/media/5a7a3435ed915d1a6421bc97/OESEA2_ER_with_NTS_Part2.pdf) [Accessed 10 04 2024].

Department of Housing, Local Government and Heritage (DHLGH) (2019). Marine Planning Policy Statement. [Online] Available at: <https://assets.gov.ie/127148/08e48ce8-f563-4c82-aac0-bcc87b758611.pdf> [Accessed 14 08 2023].

DHLGH (2013). Ireland's marine strategy framework directive. Article 19 summary report. Initial assessment, GES and target and indicators.

DHLGH (2021). Project Ireland 2040: National Marine Planning Framework. [Online] Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/139100/f0984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null> [Accessed 14 08 2023].

Dirksen, S., Boudewijn, T. J., Slager, L. K., Mes, R. G., Van Schaick, M. J. M., & De Voogt, P. (1995). Reduced breeding success of cormorants (*Phalacrocorax carbo sinensis*) in relation to persistent organochlorine pollution of aquatic habitats in the Netherlands. *Environmental Pollution*, 88(2), 119-132.

Doherty, P. D., Baxter, J. M., Gell, F. R., Godley, B. J., Graham, R. T., Hall, G., Hall, J., et al. (2017). Long-term satellite tracking reveals variable seasonal migration strategies of basking sharks in the north-east Atlantic. *Scientific Reports*, 7(1), 42837.

Duck, C., & Morris, C. (2012). An aerial survey of harbour seals in Ireland: Part 1: Lough Foyle to Galway Bay. August 2011. Unpublished report. Dublin: National Parks & Wildlife Service, Department of Arts, Heritage & the Gaeltacht.

Duck, C., & Morris, C. (2013). An aerial survey of harbour seals in Ireland: Part 2: Galway Bay to Carlingford Lough. August-September 2012. Unpublished report. Dublin: National Parks & Wildlife Service, Department of Arts, Heritage & the Gaeltacht.

Duck, C., & Morris, C. (2016). Surveys of harbour and grey seals on the south-east (border to Aberlady Bay) and south-west (Sound of Jura to Solway Firth) coasts of Scotland, in Shetland, in the Moray Firth and in the Firth of Tay in August 2015. Scottish Natural Heritage Commissioned Report no. 929. 36 pp.

Dyndo, M., Wiśniewska, D. M., Rojano-Doñate, L., & Madsen, P. T. (2015). Harbour porpoises react to low levels of high frequency vessel noise. *Scientific Reports*, 5(1), 11083.

EEA (European Environment Agency) (2022). Changes in fish distribution in European seas. [Online] Available at: <https://www.eea.europa.eu/ims/changes-in-fish-distribution-in> [Accessed 27 07 2023].

Erbe, C., Marley, S. A., Schoeman, R. P., Smith, J. N., Trigg, L. E., & Embling, C. B. (2019). The Effects of Ship Noise on Marine Mammals—A Review. *Frontiers in Marine Science*, 6, 606.

European Commission (2017). Guidance on the preparation of the Environmental Impact Assessment Report. Available at: [https://environment.ec.europa.eu/law-and-governance/environmental-assessments/environmental-impact-assessment\\_en](https://environment.ec.europa.eu/law-and-governance/environmental-assessments/environmental-impact-assessment_en) [Accessed 05/09/2024].

Evans, P. G. H., Anderwald, P., & Baines, M. E. (2003). UK cetacean status review. In Report to English nature & country side council for Wales, 1-162. Oxford: Sea Watch Foundation.

Fernandez-Betelu, O., Graham, I. M., & Thompson, P. M. (2022). Reef effect of offshore structures on the occurrence and foraging activity of harbour porpoises. *Frontiers in Marine Science*, 9, 980388.

Geelhoed, S. C., Verdaat, H., & Wilkes, T. (2022). Effect of electromagnetic fields generated by Borssele export cables on harbour porpoise acoustic activity.

Gill, A. B., & Desender, M. (2020). 2020 State of the Science Report, Chapter 5: Risk to Animals from Electromagnetic Fields Emitted by Electric Cables and Marine Renewable Energy Devices. [Online] Available at: <https://www.osti.gov/servlets/purl/1633088> [Accessed 10 04 2024].

Gillespie, D., Palmer, L., Macaulay, J., Sparling, C., & Hastie, G. (2021). Harbour porpoises exhibit localized evasion of a tidal turbine. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 31(9), 2459-2468.

Gosch, M., Cronin, M., Rogan, E., Hunt, W., Luck, C., & Jessopp, M. (2019). Spatial variation in a top marine predator's diet at two regionally distinct sites. *PLOS One*, 14(1), e0209032.

Hammond, P. S., Lacey, C., Gilles, A., Viquerat, S., Börjesson, P., Herr, H., MacLeod, K., et al. (2021). Estimates of cetacean abundance in European Atlantic waters in summer 2016 from the SCANS-III aerial and shipboard surveys (Revised 2021). [Online] Available at: [https://synergy.st-andrews.ac.uk/scans3/files/2021/06/SCANS-III\\_design-based\\_estimates\\_final\\_report\\_revised\\_June\\_2021.pdf](https://synergy.st-andrews.ac.uk/scans3/files/2021/06/SCANS-III_design-based_estimates_final_report_revised_June_2021.pdf).

Hammond, P. S., Bearzi, G., Bjørge, A., Forney, K., Karczmarski, L., Kasuya, T., Perrin, W., et al. (2008). Phocoena. The IUCN Red List of Threatened Species 2008.

Hammond, P. S., Macleod, K., Berggren, P., Borchers, D. L., Burt, M. L., Cañadas, A., Desportes, G., et al. (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. *Biological Conservation*, 164, 107-122.

Hanggi, E. B., & Schusterman, R. J. (1994). Underwater acoustic displays and individual variation in male harbour seals, *Phoca vitulina*. *Animal Behaviour*, 48(6), 1275-1283.

Hanke, F. D., & Dehnhardt, G. (2018). On route with harbor seals – how their senses contribute to orientation, navigation and foraging. *Neuroforum*, 24(4), A183-A195.

Harris, S., & Yalden, D. W. (2008). *Mammals of the British Isles: Handbook*, 4th Edition. The Mammal Society.

Hastie, G., Merchant, N. D., Götz, T., Russell, D. J., Thompson, P., & Janik, V. M. (2019). Effects of impulsive noise on marine mammals: investigating range-dependent risk. *Ecological Applications*, 29(5), e01906.

Hawkins, A. D., & Myrberg, A. A. Jr. (1983). Hearing and sound communication underwater. In *Bioacoustics, a comparative approach*, edited by B. Lewis, 347–405. London: Academic Press.

Hazel, J., Lawler, I. R., Marsh, H., & Robson, S. (2007). Vessel speed increases collision risk for the green turtle *Chelonia mydas*. *Endangered Species Research*, 3(2), 105-113.

HiDef. (2024). Digital video aerial surveys of seabirds and marine megafauna at Fuinneamh Sceirde Teoranta: 2-Year Report October 2021 to September 2023.

Hutchison, Z. L., Gill, A. B., Sigray, P., He, H., & King, J. W. (2020). Anthropogenic electromagnetic fields (EMF) influence the behaviour of bottom-dwelling marine species. 4219, 10(1), 4219.

Hutchison, Z., Sigray, P., He, H., Gill, A. B., King, J., & Gibson, C. (2018). Electromagnetic Field (EMF) impacts on elasmobranch (shark, rays, and skates) and American lobster movement and migration from direct current cables. Sterling (VA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM, 3, 2018.

IAMMWG. (2023). Review of Management Unit boundaries for cetaceans in UK waters (2023). JNCC Report 734. [Online] Available at: <https://data.jncc.gov.uk/data/b48b8332-349f-4358-b080-b4506384f4f7/jncc-report-734.pdf>.

IWDG (1993). Ireland - A sanctuary for whales and dolphins. [Online] Available at: [https://iwdg.ie/cms\\_files/wp-content/uploads/2019/04/Ireland-A-sanctuary-for-whales-and-dolphins.pdf](https://iwdg.ie/cms_files/wp-content/uploads/2019/04/Ireland-A-sanctuary-for-whales-and-dolphins.pdf) [Accessed 10 08 2023].

IWDG (2015a). Common Dolphin. [Online] Available at: [https://iwdg.ie/cms\\_files/wp-content/uploads/2019/04/Common-dolphin-profile.pdf](https://iwdg.ie/cms_files/wp-content/uploads/2019/04/Common-dolphin-profile.pdf) [Accessed 31 07 2023].

IWDG (2015b). Harbour Porpoise. [Online] Available at: [https://iwdg.ie/cms\\_files/wp-content/uploads/2019/04/Harbour-porpoise-profile.pdf](https://iwdg.ie/cms_files/wp-content/uploads/2019/04/Harbour-porpoise-profile.pdf) [Accessed 03 08 2023].

IWDG (2015c). Minke Whale. [Online] Available at: [https://iwdg.ie/cms\\_files/wp-content/uploads/2019/04/Minke-whale-profile.pdf](https://iwdg.ie/cms_files/wp-content/uploads/2019/04/Minke-whale-profile.pdf) [Accessed 01 08 2023].

IWDG (2020). IWDG policy on offshore windfarm development. [Online] Available at: [https://iwdg.ie/cms\\_files/wp-content/uploads/2020/12/IWDG-Offshore-Windfarm-Policy-Document.pdf](https://iwdg.ie/cms_files/wp-content/uploads/2020/12/IWDG-Offshore-Windfarm-Policy-Document.pdf) [Accessed 14 08 2023].

IWDG (2024). IWDG Sightings. [Online] Available at: <https://www.iwdg.ie/browsers/sightings.php> [Accessed 08 08 2024].

JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland). JNCC.

Judd, A. (2012). Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (UK). [Online] Available at: [https://tethys.pnnl.gov/sites/default/files/publications/CEFAS\\_2012\\_Environmental\\_Assessment\\_Guidance.pdf](https://tethys.pnnl.gov/sites/default/files/publications/CEFAS_2012_Environmental_Assessment_Guidance.pdf) [Accessed 14 08 2023].

Kavanagh, A. S., Kett, G., Richardson, N., Rogan, E., & Jessopp, M. J. (2018). High latitude winter sightings of common minke whale calves (*Balaenoptera acutorostrata*) in the Northeast Atlantic. Marine Biodiversity Records, 11(22).

Kempster, R. M., & Collin, S. P. (2011). Electrosensory pore distribution and feeding in the basking shark *Cetorhinus maximus* (Lamniformes: Cetorhinidae). Aquatic Biology, 12(1), 33-36.

Kirschvink, J. L., Dizon, A. E., & Westphal, J. A. (1986). Evidence from Strandings for Geomagnetic Sensitivity in Cetaceans. Journal of Experimental Biology, 120(1), 1-24.

Levesque, S., Reusch, K., Baker, I., O'Brien, J., & Berrow, S. (2016). Photo-identification of bottlenose dolphins (*Tursiops truncatus*) in Tralee Bay and Brandon Bay, Co. Kerry: A case for SAC boundary extension. Biology and Environment: Proceedings of the Royal Irish Academy, 116(2), 109-118.

- Lindeboom, H. J., Kouwenhoven, H. J., Bergman, M. J. N., Bouma, S., Brasseur, S. M. J. M., Daan, R., Fijn, R. C., et al. (2011). Short-term ecological effects of an offshore wind farm in the Dutch coastal zone; a compilation. *Environmental Research Letters*, 6(3), 035101.
- Louis, M., Lucas, T., Viricel, A., Peltier, H., Alfonsi, E., Berrow, S., Brownlow, A., Covelo, P., et al. (2014). Habitat-driven population structure of bottlenose dolphins, *Tursiops truncatus*, in the North-East Atlantic. *Molecular Ecology*, 7(44), eabg1245. 31
- Lowry, L. (2016). *Phoca vitulina*. The IUCN Red List of Threatened Species 2016. [Online] Available at: <https://www.iucnredlist.org/species/17013/45229114> [Accessed 08 08, 2023].
- Lynch, M., & Bodley, K. (2007). Phocid Seals. In *Zoo Animal and Wildlife Immobilization and Anesthesia*.
- Macleod, K., Burt, M. L., Cañadas, A., Rogan, E., Santos, B., Uriarte, A., Van Canneyt, O., Vázquez, J. A., & Hammond, P. S. (2009). Design-based estimates of cetacean abundance in offshore European Atlantic waters. Appendix I in the Final Report of the Cetacean Offshore Distribution and Abundance in the European Atlantic.
- Madsen, P. T., Wahlberg, M., Tougaard, J., Lucke, K., & Tyack, P. (2006). Wind turbine underwater noise and marine mammals: implications of current knowledge and data needs. *Marine Ecology Progress Series*, 309, 279-295.
- Marine Institute (2024). Ireland's Marine Atlas. [Online] Available at: <https://atlas.marine.ie/> [Accessed 29 08 2024].
- Marley, S. A., Salgado Kent, C. P., Erbe, C., & Parnum, I. M. (2017). Effects of vessel traffic and underwater noise on the movement, behaviour and vocalisations of bottlenose dolphins in an urbanised estuary. *Scientific Reports*, 7(1), 13437.
- Marmo, B. (2013). Modelling of noise effects of operational offshore wind turbines including noise transmission through various foundation types.
- McQueen, A. D., Suedel, B. C., de Jong, C., & Thomsen, F. (2020). Ecological risk assessment of underwater sounds from dredging operations. *Integrated Environmental Assessment and Management*, 16(4), 481-493.
- Meissner, A. M., Christiansen, F., Martinez, E., Pawley, M. D., Orams, M. B., & Stockin, K. A. (2015). Behavioural effects of tourism on oceanic common dolphins, *Delphinus sp.*, in New Zealand: the effects of Markov analysis variations and current tour operator compliance with regulations. *PLOS One*, 10(1), e0116962.
- Mirimin, L., Miller, R., Dillane, E., Berrow, S. D., Ingram, S., Cross, T. F., & Rogan, E. (2011). Fine-scale population genetic structuring of bottlenose dolphins in Irish coastal waters. *Animal Conservation*, 14(4), 342-353.
- Moray Offshore Renewables Ltd. (2012). Environmental Statement. Technical Appendix 7.3 A – Marine Mammals Environmental Impact Assessment.
- Morris C.D. & Duck C.D. (2019) Aerial thermal-imaging survey of seals in Ireland, 2017 to 2018. Irish Wildlife Manuals, No. 111 National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland
- Murphy, C. T., Reichmuth, C., & Mann, D. (2015). Vibrissal sensitivity in a harbor seal (*Phoca vitulina*). *Journal of Experimental Biology*, 218(15), 2463–2471.

Murphy, S., Collet, A., & Rogan, E. (2005). Mating strategy in the male common dolphin (*Delphinus Delphis*): What gonadal analysis tells us. *Journal of Mammalogy*, 86(6), 1247–1258.

Murphy, S., Pinn, E., & Jepson, P. (2013). The short-beaked common dolphin (*Delphinus delphis*) in the North-eastern Atlantic: distribution, ecology, management and conservation status. *Oceanography and Marine Biology: An Annual Review*, 51, 193-280.

Murphy, S., Evans, P. G. H., Pinn, E., & Pierce, G. J. (2021). Conservation management of common dolphins: Lessons learned from the North-East Atlantic. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 31(S1), 137-166.

Mynett, N. S. (2022). Electrosensing in cetaceans: anatomy and implications. [Online] Available at: <https://e-space.mmu.ac.uk/> [Accessed 04 08, 2024].

NatureScot, 2023. Guidance Note 2: Guidance to support Offshore Wind Applications: Advice for Marine Ornithology Baseline Characterisation Surveys and Reporting. Available at: <https://www.nature.scot/doc/guidance-note-2-guidance-support-offshore-wind-applications-advice-marine-ornithology-baseline> [Accessed 22 Nov. 2024].

NBDC (National Biodiversity Data Centre) (2022). Checklist of Irish Cetacean Species. [Online] Available at: <https://biodiversityireland.ie/app/uploads/2022/05/Irish-Cetacean-Checklist-2022.pdf> [Accessed 28 08 2023].

NBDC. (2023). Minke Whale. [Online] Available at: <https://species.biodiversityireland.ie/profile.php?taxonId=134741&taxonDesignationId=2> [Accessed 02 08 2023].

Nedwell, J. R., Parvin, S. J., Edwards, B., Workman, R., Brooker, A. G., Kynoch, J. E., & Nedwell, J. R. (2007). Measurement and interpretation of underwater noise during construction and operation of offshore windfarms in UK waters. Report for COWRIE. Newbury, UK.

Nero, R. W., Cook, M., Coleman, A. T., Solangi, M., & Hardy, R. (2013). Using an ocean model to predict likely drift tracks of sea turtle carcasses in the north central Gulf of Mexico. *Endangered Species Research*, 21(3), 191-203.

NMFS (2018). Revisions to: Technical guidance for assessing the effects of anthropogenic sound on marine mammal hearing (version 2.0): Underwater thresholds for onset of permanent and temporary threshold shifts. U.S. Dept. of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59.

Normandeau, Exponent, Tricas, T., & Gill, A. (2011). Effects of EMFs from Undersea Power Cables on Elasmobranchs and Other Marine Species. OCS Study BOEMRE 2011-09. Camarillo, CA: U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region.

NPWS (National Parks & Wildlife Service) (2009). Threat Response Plan: Otter (2009-2011). Dublin: National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government. [Online] Available at: [https://www.npws.ie/sites/default/files/publications/pdf/2009\\_Otter\\_TRP.pdf](https://www.npws.ie/sites/default/files/publications/pdf/2009_Otter_TRP.pdf) [Accessed 09 08 2023].

NPWS (2012a). Conservation Objectives: Lower River Shannon SAC 002165. Version 1.0. [Online] Available at: [https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO002165.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf) [Accessed 29 12 2023].

NPWS (2012b). Lower River Shannon SAC (site code: 2165). Conservation objectives supporting document. Marine habitats and species. [Online] Available at:

[https://www.npws.ie/sites/default/files/publications/pdf/002165\\_Lower%20River%20Shannon%20SAC%20Marine%20Supporting%20Doc\\_V1.pdf](https://www.npws.ie/sites/default/files/publications/pdf/002165_Lower%20River%20Shannon%20SAC%20Marine%20Supporting%20Doc_V1.pdf) [Accessed 02 08 2023].

NPWS (2013a). Site synopsis: Blasket Islands SAC. [Online] Available at:  
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002172.pdf> [Accessed 09 08 2023].

NPWS (2013b). Site Name: Lower River Shannon SAC. [Online] Available at:  
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002165.pdf> [Accessed 01 08 2023].

NPWS (2014a). Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. [Online] Available at:  
[https://www.npws.ie/sites/default/files/general/Underwater%20sound%20guidance\\_Jan%202014.pdf](https://www.npws.ie/sites/default/files/general/Underwater%20sound%20guidance_Jan%202014.pdf)  
[Accessed 14 08 2023].

NPWS (2014b). Site Name: West Connacht Coast SAC. [Online] Available at:  
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002998.pdf> [Accessed 09 08 2023].

NPWS (2014c). Site Name: Roaringwater Bay and Islands SAC. [Online] Available at:  
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000101.pdf> [Accessed 08 08 2024].

NPWS (2019a). Site Synopsis: Slyne Head Islands SAC. [Online] Available at:  
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000328.pdf> [Accessed 09 08 2023].

NPWS (2019b). The Status of EU Protected Habitats and Species in Ireland. Species Assessments. [Online] Available at:  
[https://www.npws.ie/sites/default/files/publications/pdf/NPWS\\_2019\\_Vol3\\_Species\\_Article17.pdf](https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol3_Species_Article17.pdf)  
[Accessed 30 08 2023].

NPWS (2019c). Site Name: Slyne Head Peninsula SAC. [Online] Available at:  
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002074.pdf> [Accessed 09 08 2023].

NPWS (2019d). Seal Distribution. [Online] Available at: <https://data.gov.ie/dataset/seal-distribution>  
[Accessed 08 04 2024].

NPWS (2019e). Site Name: Duvillaun Islands SAC. [Online] Available at:  
<https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000495.pdf> [Accessed 08 08 2024].

NPWS (2023a). Common Seal. [Online] Available at: <https://www.npws.ie/marine/marine-species/common-seal> [Accessed 09 08 2023].

NPWS (2023b). Grey Seal. [Online] Available at: <https://www.npws.ie/marine/marine-species/grey-seal>  
[Accessed 09 08 2023].

NPWS (2023c). Harbour Porpoise. [Online] Available at: <https://www.npws.ie/marine/marine-species/harbour-porpoise> [Accessed 03 08 2023].

NPWS (2024). Addition of Harbour Porpoise as a new Qualifying Interest and the addition of an Activity Requiring Consent to Inishmore Island Special Area of Conservation 000213 in County Galway. [Online] Available at: [https://www.npws.ie/sites/default/files/protected-sites/amendment\\_notifications/AN000213.pdf](https://www.npws.ie/sites/default/files/protected-sites/amendment_notifications/AN000213.pdf) [Accessed 08 08 2024]

Nykänen, M., Ingram, S., & Rogan, E. (2015). Abundance, distribution and habitat use of Bottlenose dolphins in the west and north-west of Ireland. University College Cork.

Nykänen, M., Dillane, E., Englund, A., Foote, A. D., Ingram, S. N., Louis, M., Mirimin, L., Oudejans, M., & Rogan, E. (2018). Quantifying dispersal between marine protected areas by a highly mobile species, the bottlenose dolphin, *Tursiops truncatus*. *Ecology and Evolution*, 8(18), 9241-9258.

Ó’ Cadhla, O., Mackey, M., Aguilar de Soto, N., Rogan, E., & Connolly, N. (2004). Cetaceans and Seabirds of Ireland’s Atlantic Margin. Volume II – Cetacean distribution & abundance. Report on research carried out under the Irish Infrastructure Programme (PIP). Rockall Studies Group (RSG) projects 98/6 and 00/13, Porcupine Studies Group project P00/15 and Offshore Support Group (OSG) project 99/38.

Ó’ Cadhla, O., Strong, D., O’Keeffe, C., Coleman, M., Cronin, T., Duck, C., Murray, T., et al. (2008). An assessment of the breeding population of grey seals in the Republic of Ireland, 2005. Irish Wildlife Manual No. 34. Dublin: National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government.

O’Brien, J., Beck, S., Wall, D., & Pierini, A. (2013). Marine Mammals and Megafauna in Irish Waters-Behaviour, Distribution and Habitat Use-WP 2: Developing Acoustic Monitoring Techniques.

O’Brien, J., Pérez Tadeo, M., Cummins, F., Pommier, M., & Berrow, S. (2019). Marine Mammal Monitoring Services at the Galway Bay Marine and Renewable Energy Test Site to the Marine Institute, Rinville, Oranmore, Co. Galway. Final Report of Contract ITT19-024. Irish Whale and Dolphin Group. 87 pp.

Oakley, J. A., Williams, A. T., & Thomas, T. (2017). Reactions of harbour porpoise (*Phocoena phocoena*) to vessel traffic in the coastal waters of South West Wales, UK. *Ocean and Coastal Management*, 138, 158-169.

Ocean Ecology Limited. (2023). Benthic Characterisation Survey 2023: Technical Report.

OES (Ocean Energy Systems). (2020). OES-Environmental 2020 State of the Science Report: Environmental Effects of Marine Renewable Energy Development Around the World. Report for Ocean Energy Systems (OES). [Online] Available at: <https://www.osti.gov/servlets/purl/1632878> [Accessed 11 10 2023].

Öhman, M. C., Sigray, P., & Westerberg, H. (2007). Offshore Windmills and the Effects of Electromagnetic Fields on Fish. *AMBIO: A Journal of the Human Environment*, 36(8), 630-633.

Onoufriou, J., Jones, E., Hastie, G., & Thompson, D. (2016). Investigations into the interactions between harbour seals (*Phoca vitulina*) and vessels in the inner Moray Firth. *Scottish Marine and Freshwater Science*, 7(24).

Onoufriou, J., Brownlow, A., Moss, S., Hastie, G., & Thompson, D. (2019). Empirical determination of severe trauma in seals from collisions with tidal turbine blades. *Journal of Applied Ecology*, 56(7), 1712-1724.

Onoufriou, J., Russell, D. J., Thompson, D., Moss, S. E., & Hastie, G. D. (2021). Quantifying the effects of tidal turbine array operations on the distribution of marine mammals: Implications for collision risk. *Renewable Energy*, 180, 157-165.

ORCA Ireland. (2023). Minke Whale. [Online] Available at: <https://www.orcaireland.org/minke-whale> [Accessed 02 08 2023].

O’Riordan, C. E., Holmes, J. M. C., & Sleeman, D. P. (1984). First recorded occurrence of the Hawksbill Turtle (*Eretmochelys imbricata* (L)) in Irish waters. *Irish Naturalists Journal*, 21(6), 274-275.

Ospar (2008). Guidance on Environmental Considerations for Offshore Wind Farm Development (UK and Ireland).

Oudejans, M. G., Visser, F., Englund, A., Rogan, E., & Ingram, S. N. (2015). Evidence for Distinct Coastal and Offshore Communities of Bottlenose Dolphins in the North East Atlantic. *PLOS One*, 10(4), e0122668.

Paladino, F. V., O'Connor, M. P., & Spotila, J. R. (1990). Metabolism of leatherback turtles, gigantothermy, and thermoregulation of dinosaurs. *Nature*, 344, 858-860.

Paxton, C. G. M., Mackenzie, M., Burt, M. L., Rexstad, E., & Thomas, L. (2011). Phase II Data Analysis of Joint Cetacean Protocol Data Resource. Report to Joint Nature Conservation Committee Contract number C11-0207-0421. St. Andrews, UK: Centre for Research into Ecological and Environmental Modelling, University of St Andrews.

Paxton, C. G. M., Scott-Hayward, L., Mackenzie, M., Rexstad, E., & Thomas, L. (2016). Revised Phase III Data Analysis of Joint Cetacean Protocol Data Resources. JNCC Report No: 517. Peterborough, UK: JNCC.

Peltier, H., Beaufils, A., Cesarini, C., Dabin, W., Dars, C., Demaret, F., Dhermain, F., et al. (2019). Monitoring of marine mammal strandings along French coasts reveals the importance of ship strikes on large cetaceans: a challenge for the European Marine Strategy Framework Directive. *Frontiers in Marine Science*, 486.

Pierpoint, C. (2000). Bycatch of marine turtles in UK and Irish waters. JNCC Report No. 310. Peterborough: JNCC.

Pinnegar, J. K., & Heath, M. (2010). Fish in MCCIP Annual Report Card 2010-11. MCCIP Science Review 2010.

Popper, A. N., Hawkins, A. D., Fay, R. R., Mann, D. A., Bartol, S., Carlson, T. J., Coombs, S., et al. (2014). Sound Exposure Guidelines. In ASA S3/SC1.4 TR-2014 Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI. SpringerBriefs in Oceanography. Springer, Cham.

Potlock, K. M., Temple, A. J., & Berggren, P. (2023). Offshore construction using gravity-base foundations indicates no long-term impacts on dolphins and harbour porpoise. *Marine Biology*, 170(8), 92.

Radford, A. N., Kerridge, E., & Simpson, S. D. (2014). Acoustic communication in a noisy world: can fish compete with anthropogenic noise? *Behavioral Ecology*, 25(5), 1022-1030.

Reeds, K. A. (2004). Dermochelys coriacea Leatherback turtle. In *Marine Life Information Network: Biology and Sensitivity Key Information Reviews*, edited by H. Tyler-Walters & K. Hiscock. Plymouth: Marine Biological Association of the United Kingdom. [Online] Available at: <https://www.marlin.ac.uk/species/detail/1534>.

Reid, J. B., Evans, P. G. H., & Northridge, S. P. (2001). *Atlas of Cetacean distribution in north-west European waters*. Peterborough, UK: JNCC. [Online] Available at: <https://data.jncc.gov.uk/data/a5a51895-50a1-4cd8-8f9d-8e2512345adf/atlas-cetacean-distribution-web.pdf>.

Reid, N., Hayden, B., Lundy, M. G., Pietravalle, S., McDonald, R. A., & Montgomery, W. I. (2013). National otter survey of Ireland 2010/12. Irish Wildlife Manuals No. 76. Dublin, Ireland: Queen's University Belfast for the National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

- Renouf, D. (1991). Sensory reception and processing in Phocidae and Otariidae. In Behaviour in Pinnipeds, edited by D. Renouf. Cambridge: University Press.
- Reubens, J. T., Degraer, S., & Vincx, M. (2014). The ecology of benthopelagic fishes at offshore wind farms: a synthesis of 4 years of research. *Hydrobiologia*, 727, 121-136.
- Risch, D., Clark, C. W., Dugan, P. J., Popescu, M., Siebert, U., & Van Parijs, S. M. (2013). Minke whale acoustic behavior and multi-year seasonal and diel vocalization patterns in Massachusetts Bay, USA. *Marine Ecology Progress Series*, 489, 279-295.
- Risch, D., Castellote, M., Clark, C. W., Davis, G. E., Dugan, P. J., Hodge, L. E. W., & Van Parijs, S. M. (2014). Seasonal migrations of North Atlantic minke whales: novel insights from large-scale passive acoustic monitoring networks. *Movement Ecology*, 2, 24.
- Risch, D., Wilson, S. C., Hoogerwerf, M., van Geel, N. C. F., Edwards, E. W. J., & Brookes, K. L. (2019). Seasonal and diel acoustic presence of North Atlantic minke whales in the North Sea. *Scientific Reports*, 9, 3571.
- Risch, D., Favill, G., Marmo, B., van Geel, N., Benjamins, S., Thompson, P., Wittich, A., & Wilson, B. (2023). Characterisation of underwater operational noise of two types of floating offshore wind turbines. Report for SuperGen Offshore Renewable Energy Hub. Scottish Association for Marine Science (SAMS).
- Rogan, E., Breen, P., Mackey, M., Cañadas, A., Scheidat, M., Geelhoed, S., & Jessopp, M. (2018a). Aerial surveys of cetaceans and seabirds in Irish waters: Occurrence, distribution and abundance in 2015-2017. Dublin, Ireland: Department of Communications, Climate Action & Environment and National Parks and Wildlife Service (NPWS), Department of Culture, Heritage and the Gaeltacht.
- Rogan, E., Garagouni, M., Nykänen, M., Whitaker, A., & Ingram, S. (2018b). Bottlenose dolphin survey in the Lower River Shannon SAC, 2018. Report to the National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht. University College Cork.
- Russell, D. J., Hastie, G. D., Thompson, D., Janik, V. M., Hammond, P. S., Scott-Hayward, L. A., Matthiopoulos, J., Jones, E. L., & McConnell, B. J. (2016). Avoidance of wind farms by harbour seals is limited to pile driving activities. *Journal of Applied Ecology*, 53(6), 1642-1652.
- Russell, D. J., Brasseur, S. M., Thompson, D., Hastie, G. D., Janik, V. M., Aarts, G., McClintock, B. T., Matthiopoulos, J., Moss, S. E., & McConnell, B. (2014). Marine mammals trace anthropogenic structures at sea. *Current Biology*, 24(14), R638-R639.
- Russell, D. J. F., Jones, E. L., & Morris, C. D. (2017). Updated Seal Usage Maps: The Estimated at-sea Distribution of Grey and Harbour Seals. *Scottish Marine and Freshwater Science*, 8(25), 25.
- Santos, M. B., & Pierce, G. J. (2003). The diet of harbour porpoise (*Phocoena phocoena*) in the northeast Atlantic. *Oceanography and Marine Biology: an Annual Review*, 41, 355-390.
- Saunders, G., Bedford, G. S., Trendall, J. R., & Sotheran, I. (2011). Guidance on Survey and Monitoring in Relation to Marine Renewables Deployments in Scotland. Volume 5: Benthic Habitats. [Online] Available at: <https://tethys.pnnl.gov/sites/default/files/publications/SNH-2011-Volume-4.pdf> [Accessed 14 08 2023].
- Saunders, R., O'Donnell, C., Campbell, A., Lynch, D., Egan, A., Lyons, K., & Wall, D. (2010). Celtic Sea Herring Acoustic Survey Cruise Report 2010. Oranmore, Co. Galway: FSS Survey Series, Marine Institute.

Scheidat, M., Tougaard, J., Brasseur, S., Carstensen, J., van Polanen Petel, T., Teilmann, J., & Reijnders, P. (2011). Harbour porpoises (*Phocoena phocoena*) and wind farms: a case study in the Dutch North Sea. *Environmental Research Letters*, 6, 025102.

Schoeman, R. P., Patterson-Abrolat, C., & Plön, S. (2020). A global review of vessel collisions with marine animals. *Frontiers in Marine Science*, 7, 292.

Schofield, G., Dickson, L. C., Westover, L., Dujon, A. M., & Katselidis, K. A. (2021). COVID-19 disruption reveals mass-tourism pressure on nearshore sea turtle distributions and access to optimal breeding habitat. *Evolutionary Applications*, 14(10), 2516-2526.

SCOS (2020). Scientific Advice on Matters Related to the Management of Seal Populations: 2020. Sea Mammal Research Unit, St. Andrews University. [Online] Available at: <http://www.smru.st-andrews.ac.uk/files/2021/06/SCOS-2020.pdf>.

SCOS (2021). Scientific Advice on Matters Related to the Management of Seal Populations: 2021. Sea Mammal Research Unit, St. Andrews University.

SCOS (2023). Scientific Advice on Matters Related to the Management of Seal Populations: 2022. [Online] Available at: <http://www.smru.st-andrews.ac.uk/files/2023/09/SCOS-2022.pdf> [Accessed 05 01 2024].

Seuront, L. (2011). Hydrocarbon Contamination Decreases Mating Success in a Marine Planktonic Copepod. *PLOS One*, 6(10), e26283.

Shannon Foynes Port Company (2021). Port Information Guide: Shannon Estuary March 2021.

Sinclair, R. R., Kazer, S., Ryder, M., New, P., & Verfuss, U. K. (2023). Review and recommendations on assessment of noise disturbance for marine mammals. NRW Evidence Report No. 529. Natural Resources Wales.

Southall, B. L., Finneran, J. J., Reichmuth, C., Nachtigall, P. E., Ketten, D. R., Bowles, A. E., Ellison, W. T., Nowacek, D. P., & Tyack, P. L. (2019). Marine mammal noise exposure criteria: Updated scientific recommendations for residual hearing effects. *Aquatic Mammals*, 45(2), 125-232.

Southall, B. L., Finneran, J. J., Reichmuth, C., Nachtigall, P. E., Ketten, D. R., Bowles, A. E., Ellison, W. T., Nowacek, D. P., & Tyack, P. L. (2014). Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals*, 45(2), 125-232. [Online] Available at: [https://sea-inc.net/wp-content/uploads/2019/10/Southall-et-al\\_2019\\_MM-Noise-criteria-update-with-errata\\_Aq-Mammals.pdf](https://sea-inc.net/wp-content/uploads/2019/10/Southall-et-al_2019_MM-Noise-criteria-update-with-errata_Aq-Mammals.pdf).

Subacoustech (2024). Sceirde Rocks Offshore Windfarm: Underwater Noise Modelling and Assessment.

Taormina, B., Bald, J., Want, A., Thouzeau, G., Lejart, M., Desroy, N., & Carlier, A. (2018). A review of potential impacts of submarine power cables on the marine environment: Knowledge gaps, recommendations and future directions. *Renewable and Sustainable Energy Reviews*, 96, 380-391.

Teilmann, J., & Carstensen, J. (2012). Negative long term effects on harbour porpoises from a large scale offshore wind farm in the Baltic—evidence of slow recovery. *Environmental Research Letters*, 7, 045101.

Thompson, P. M., Miller, D., Cooper, R., & Hammond, P. S. (1994). Changes in the distribution and activity of female harbour seals during the breeding season: Implications for their lactation strategy and mating patterns. *Journal of Animal Ecology*, 63(1), 24-30.

Thomsen, F., McCully, S., Wood, D., Pace, F., & White, P. (2009). A generic investigation into noise profiles of marine dredging in relation to the acoustic sensitivity of the marine fauna in UK waters: PHASE 1 Scoping and review of key issues. Marine Aggregate Levy Sustainability Fund (MALSF).

Todd, V. L. G., Todd, I. B., Gardiner, J. C., Morrin, E. C. N., MacPherson, N. A., DiMarzio, N. A., & Thomsen, F. (2015). A review of impacts of marine dredging activities on marine mammals. ICES Journal of Marine Science, 72(2), 328-340.

Todd, V. L. G., Todd, I. B., Gardiner, J. C., Morrin, E. C. N., MacPherson, N. A., DiMarzio, N. A., & Thomsen, F. (2014). A review of impacts of marine dredging activities on marine mammals. ICES Journal of Marine Science, 72(2), 328-340.

Tollit, D. J., Black, A. D., Thompson, P. M., Mackay, A., Corpe, H. M., Wilson, B., Van Parijs, S. M., Grellier, K., & Parlane, S. (1998). Variations in harbour seal *Phoca vitulina* diet and dive-depths in relation to foraging habitat. *J. Zool.*, Lond, 244, 209-222.

Tougaard, J., Hermannsen, L., & Madsen, P. T. (2020). How loud is the underwater noise from operating offshore wind turbines? *The Journal of the Acoustical Society of America*, 148(5), 2885-2893.

Tricas, T., & Gill, A. B. (2011). Effects of EMFs from undersea power cables on elasmobranchs and other marine species.

UK Government, 2022. Marine environment: unexploded ordnance clearance joint interim position statement. Available at: <https://www.gov.uk/government/publications/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement/marine-environment-unexploded-ordnance-clearance-joint-interim-position-statement> [Accessed 22 Nov. 2024].

Vallejo, G. C., Grellier, K., Nelson, E. J., McGregor, R. M., Canning, S. J., Caryl, F. M., & McLean, N. (2017). Responses of two marine top predators to an offshore wind farm. *Ecology and Evolution*, 7(21), 8698-8708.

van Deurs, M., van Hal, R., Tomczak, M. T., Jónasdóttir, S. H., & Dolmer, P. (2009). Recruitment of lesser sandeel *Ammodytes marinus* in relation to density dependence and zooplankton composition. *Marine Ecology Progress Series*, 381, 249-258.

Van Parijs, S. M., Hastie, G. D., & Thompson, P. M. (2000). Individual and geographical variation in display behaviour of male harbour seals in Scotland. *Animal Behaviour*, 59(3), 559-568.

von Benda-Beckmann, A. M., Aarts, G., Sertlek, H. Ö., Lucke, K., Verboom, W. C., Kastlein, R. A., Ketten, D. R., et al. (2015). Assessing the impact of underwater clearance of unexploded ordnance on harbour porpoises (*Phocoena phocoena*) in the Southern North Sea. *Aquatic Mammals*, 41(4), 503.

Wall, D., O'Brien, C., Murray, J., Kavanagh, L., Wilson, C., Ryan, C., Glanville, B., Williams, D., et al. (2013). Atlas of the distribution and relative abundance of marine mammals in Irish offshore waters: 2005 – 2011. Kilrush, Co. Clare: Irish Whale and Dolphin Group.

Wall, D., O'Brien, J., Meade, J., & Allen, B. M. (2006). Summer distribution and relative abundance of cetaceans off the west coast of Ireland. *Biology & Environment Proceedings of the Royal Irish Academy*, 106B(2), 135-142.

Wallace, B. P., Zolkewitz, M., & James, M. C. (2015). Fine-scale foraging ecology of leatherback turtles. *Sec. Behavioral and Evolutionary Ecology*, 3.

Wallace, B. P., Tiwari, M., & Girondot, M. (2013). Leatherback Turtle. [Online] Available at: <https://www.iucnredlist.org/species/6494/43526147> [Accessed 09 08 2023].

Wells, R. S., Natoli, A., & Braulik, G. (2018). Common Bottlenose Dolphin. The IUCN Red List of Threatened Species 2019. [Online] Available at: <https://www.iucnredlist.org/species/22563/156932432> [Accessed 08 01, 2023].

Wilson, B., Hammond, P. S., & Thompson, P. M. (1999). Estimating size and assessing trends in a coastal bottlenose dolphin population. *Ecol. Appl.*, 9, 288-300.

Wilson, C. M., Tyler-Walters, H., & Wilding, C. M. (2020). *Cetorhinus maximus* Basking shark. In Marine Life Information Network: Biology and Sensitivity Key Information Reviews, edited by H. Tyler-Walters. Plymouth: Marine Biological Association of the United Kingdom. [Online] Available at: <https://www.marlin.ac.uk/species/detail/1438> [Accessed 08 09, 2023].

Wisniewska, D. M., Johnson, J. M., Teilmann, U., Siebert, A., Galatius, R., Dietz, R., & Madsen, P. T. (2018). High rates of vessel noise disrupt foraging in wild harbour porpoises (*Phocoena phocoena*). *Proceedings of the Royal Society B: Biological Sciences*, 285, 20172314.

Wright, P., Pinnegar, J. K., & Fox, C. (2020). Impacts of climate change on fish, relevant to the coastal and marine environment around the UK. MCCIP.

## Chapter 13 Commercial Fisheries

Anatec (2022). Sceirde Rocks Vessel Traffic Survey Summer 2022. 10 November 2022. Document Reference: A4933-COR-VTS-1.

Anatec (2023). Sceirde Rocks Vessel Traffic Survey Winter 2022. 9 January 2023. Document Reference: A4933-COR-VTS-2.

Aristegui, M., Doyle, J., Ryan, G., Fitzgerald, R., White, J., O'Brien, S., Tully, D., and Sullivan, M. (2021). Aran, Galway Bay and Slyne Head *Nephrops* Grounds (FU17) 2021 UWTV Survey Report and catch scenarios for 2022. Marine Institute UWTV Survey report, Galway, Ireland. Available at: <https://oar.marine.ie/handle/10793/1721> [Accessed 15/08/2023].

Barange, M., Bahri, T., Beveridge, M., Cochrane, K., Funge-Smith, S., and Poulain, F. (2018). Impacts of Climate Change on Fisheries and Aquaculture. Synthesis of Current Knowledge, Adaptation, and Mitigation Options. Food and Agriculture Organization of the United Nations. FAO Fisheries and Aquaculture Technical Paper 627. Available at: [https://www.researchgate.net/publication/325871167\\_Impacts\\_of\\_Climate\\_Change\\_on\\_Fisheries\\_and\\_Aquaculture\\_Synthesis\\_of\\_Current\\_Knowledge\\_Adaptation\\_and\\_Mitigation\\_Options](https://www.researchgate.net/publication/325871167_Impacts_of_Climate_Change_on_Fisheries_and_Aquaculture_Synthesis_of_Current_Knowledge_Adaptation_and_Mitigation_Options) [Accessed 18/10/2023].

Barnes M.D. (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. Report for the Environmental Working Group of the Offshore Renewable Energy Steering Group and the Department of Communications, Climate Action and Environment, Dublin: Department of Communications, Climate Action and Environment (DCCAE) (now DECC). Available at: <https://www.dropbox.com/s/l678i4hyq7lzuuh6/Guidance%20on%20EIS%20and%20NIS%20Preparation%20for%20ORE%20Projects.pdf?dl=0> [Accessed 07/08/2023].

Department of Communications, Energy and Natural Resources (now DECC) (2014). Offshore Renewable Energy Development Plan: A Framework for the Sustainable Development of Ireland's Offshore Renewable Energy Resource. February 2014. Available at: <https://assets.gov.ie/27215/2bc3cb73b6474bebbe810e88f49d1d4.pdf> [Accessed 07/08/2023].

Department of Housing, Local Government and Heritage (DHLGH) (2019). Marine Planning Policy Statement. Available at: <https://www.gov.ie/en/publication/3e262-marine-planning-policy-statement/> [Accessed 07/08/2023].

Environmental Protection Agency (EPA) (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available at: <file:///xodus.local/aurora/Assignments/L100725/S01/Working%20Files/EIAMethodology/EPA%20-%20EIAR%20Guidelines%202022.pdf> [Accessed 25/03/2024].

Fishing Liaison Officer (FLO) (2023). AIS fishing effort data obtained from the FLO.

Fishing Liaison with the Offshore Wind and Wet Renewables Group (FLOWW) (2014). FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison. January 2014. Available at: <https://maritime-spatial-planning.ec.europa.eu/media/12393> [Accessed 07/08/2023].

FLOWW (2015). FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds. August 2015. Available at: <https://www.thecrownestate.co.uk/media/1776/floww-best-practice-guidance-disruption-settlements-and-community-funds.pdf> [Accessed 07/08/2023].

International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) (2021). Recommendation G1162 The Marking of Offshore Man-Made Structures. Available at: <https://www.iala-aism.org/product/g1162/> [Accessed 18/10/2023].

International Council for the Exploration of the Sea (ICES) (2022). Norway lobster (*Nephrops norvegicus*) in Division 7.b, Functional Unit 17 (west of Ireland, Aran grounds). In Report of the ICES Advisory Committee, 2022. ICES Advice 2022, nep.fu.17. <https://doi.org/10.17895/ices.advice.19772413>.

Irish Defence Forces (2023). Data obtained through a Freedom of Information (FOI) request. [foi@defenceforces.ie](mailto:foi@defenceforces.ie).

Marine Institute (2000). Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment. Available at:  
<https://oar.marine.ie/bitstream/handle/10793/579/Assessment%20of%20Impact%20of%20Offshore%20Wind%20Energy%20Structures.pdf?sequence=1> [Accessed 02/04/2024].

Marine Institute (2013). A Risk Assessment Framework for Fisheries in Natura 2000 Sites in Ireland: with Case study assessments. Available at:  
[http://www.fishingnet.ie/media/fishingnet/content/fisheriesinnaturaareas/siteassessments/proceduresandmethodology/Marine%20Institute\\_RA\\_Framework\\_v1%202.pdf](http://www.fishingnet.ie/media/fishingnet/content/fisheriesinnaturaareas/siteassessments/proceduresandmethodology/Marine%20Institute_RA_Framework_v1%202.pdf) [Accessed 21/11/2023].

Marine Institute (2014). Inshore Fishing. Available at:  
[https://www.isde.ie/geonetwork/srv/eng/catalog.search#/search?resultType=details&sortBy=relevance&from=1&to=20&fast=index&content\\_type=json&any=inshore%20fishing](https://www.isde.ie/geonetwork/srv/eng/catalog.search#/search?resultType=details&sortBy=relevance&from=1&to=20&fast=index&content_type=json&any=inshore%20fishing) [Accessed 07/08/2023].

Marine Institute (2019a). Offshore Fishery Effort by Gear Type. Available at:  
<http://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.3994> [Accessed 07/08/2023].

Marine Institute (2019b). Offshore Landings Distribution by Gear Type. Available at:  
<https://data.marine.ie/geonetwork/srv/eng/catalog.search#/metadata/ie.marine.data:dataset.4791> [Accessed 07/08/2023].

Poseidon Aquatic Resource Management Ltd (2012). UK Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments – Guidelines Based on Outputs from a Technical Workshop organised by the UK Fisheries Economic Network. Available at:  
<https://www.seafish.org/document/?id=AA0CB236-1E2A-4D2A-9F86-49CEB2B6DD5E> [Accessed 02/04/2024].

Roach, M., Cohen, M., Forster, R., Revill, A. S., and Johnson, M. (2018). The effects of temporary exclusion of activity due to wind farm construction on a lobster (*Homarus gammarus*) fishery suggests a potential management approach. ICES Journal of Marine Science, 75: 1416–1426.

Roach, M., Cohen, M., Forster, R., Revill, A. S., and Johnson, M. (2022). Co-existence in practice: a collaborative study of the effects of the Westernmost Rough offshore wind development on the size distribution and catch rates of a commercially important lobster (*Homarus gammarus*) population. ICES Journal of Marine Science, 79: 1175 – 1186.

Scottish Government (2022). Good Practice Guidance for assessing fisheries displacement by other licensed marine activities. Prepared by Xodus (A303088-S00-REPT-002-A02). Available at:  
<https://www.gov.scot/publications/good-practice-guidance-assessing-fisheries-displacement-licensed-marine-activities/documents/> [Accessed 07/08/2023].

Scottish Fishermen's Federation (SFF) (2020). Environmental Policy Statement. Available at  
<https://www.sff.co.uk/wp-content/uploads/2020/10/Environmental-Policy-Statement-Website.pdf> [Accessed 18/10/2023].

## Chapter 14 Shipping and Navigation

DCCAЕ (2017). Guidance on Environmental Impact Statements (EIS) and Natura Impact Statements (NIS) Preparation for Offshore Renewable Energy Projects.

Department of Communications, Energy and Natural Resources (2014). Offshore Renewable Energy Development Plan.

Department of Housing, Local Government and Heritage (2021). National Marine Planning Framework.

Government of Ireland (2019). National Search and Rescue Plan.

Government of Ireland (2020). National Maritime Oil/HNS Spill Contingency Plan.

IALA (2021a). IALA Guideline G1162 on The Marking of Man-Made Offshore Structures.

IALA (2021b). IALA Recommendation O-139 on the Marking of Man-Made Offshore Structures.

IMO (1972/77). Convention on the International Regulations for Preventing Collisions at Sea (COLREGs).

IMO (1974). International Convention for the Safety of Life at Sea (SOLAS).

MAIB (2001). Report on the Investigation of the Grounding and Total Loss of the United Kingdom-registered Fishing Vessel Arosa (M321) on Doonguddle Rock Off the West Coast of Ireland with the Loss of 12 Crew Members.

MCA (2008). MGN 371 (Merchant and Fishing) Offshore Renewable Energy Installations (OREIs): Guidance on UK Navigational Practice, Safety and Emergency Response Issues.

MCA (2021). MGN 654 (Merchant and Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response.

MCA (2022). MGN 372 Amendment 1 (M+F) Guidance to mariners operating in vicinity of UK OREIs.

MCIB (2024). MCIB Incident Reports. Available at <https://www.mcib.ie/reports.7.html> (accessed May 2024).

Port of Galway (2024a). Galway Harbour Extension. Galway, Ireland. Available at: <http://www.galwayharbourexextension.com/> (accessed May 2024).

Port of Galway (2024b). General Information. Galway, Ireland. Available at: <https://theportofgalway.ie/port-of-galway-general-information/> (accessed May 2024).

RYA (2019). The RYA's Position on Offshore Renewable Energy Developments: Paper 1 (of 4) – Wind Energy.

United Nations (1982). United Nations Convention on the Law of the Sea.

## Chapter 15 Civil and Military Aviation

Department of Communications, Energy and Natural Resources (2014) Offshore Renewable Energy Development Plan. <https://tethys.pnnl.gov/sites/default/files/publications/DCENR-2014.pdf> [Accessed 19/01/2024].

Department of Housing, Planning and Local Government (DHPLG) (2021) National Marine Planning Framework. [139100\\_f0984c45-5d63-4378-ab65-d7e8c3c34016\\_\(2\).pdf](https://www.dhplg.ie/sites/default/files/139100_f0984c45-5d63-4378-ab65-d7e8c3c34016_(2).pdf) [Accessed 19/01/2024].

EPA (2022) Guidelines on the information to be contained in environmental impact assessment reports, (2022) [Guidelines on the information to be contained in Environmental Impact Assessment Reports \(EIAR\)](#) [Accessed 17/10/2024].

EU Regulation 923 (2012) Standardized European Rules of the Air. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0923> [Accessed 28/10/2023].

IAA Aeronautical Services Advisory Memorandum (ASAM) No: 023, Issue 2 (2015b) Guidance Material for Obstruction Surveys. [https://www.iaa.ie/docs/default-source/publications/advisory-memoranda/aeronautical-services-advisory-memoranda-\(asam\)/guidance-material-on-specification-for-obstruction-surveys.pdf?sfvrsn=12ad0df3\\_6](https://www.iaa.ie/docs/default-source/publications/advisory-memoranda/aeronautical-services-advisory-memoranda-(asam)/guidance-material-on-specification-for-obstruction-surveys.pdf?sfvrsn=12ad0df3_6) [Accessed 19/01/2024].

IAA ASAM No: 018, Issue 2 (2015a) Guidance Material on Off-Shore Wind Farms. [https://www.iaa.ie/docs/default-source/publications/advisory-memoranda/aeronautical-services-advisory-memoranda-\(asam\)/guidance-material-on-off-shore-wind-farms.pdf?sfvrsn=5aad0df3\\_6](https://www.iaa.ie/docs/default-source/publications/advisory-memoranda/aeronautical-services-advisory-memoranda-(asam)/guidance-material-on-off-shore-wind-farms.pdf?sfvrsn=5aad0df3_6) [Accessed 19/01/2024].

IAA Order (1999) En-Route Obstacles to Air Navigation. [https://www.iaa.ie/docs/default-source/publications/legislation/statutory-instruments-\(orders\)/irish-aviation-authority-\(en-route-obstacles-to-air-navigation\)-order-1999.pdf?sfvrsn=cb60df3\\_4](https://www.iaa.ie/docs/default-source/publications/legislation/statutory-instruments-(orders)/irish-aviation-authority-(en-route-obstacles-to-air-navigation)-order-1999.pdf?sfvrsn=cb60df3_4) [Accessed 19/01/2024].

IAA Order (2005) Obstacles to Aircraft in Flight. [https://www.iaa.ie/docs/default-source/publications/legislation/statutory-instruments-\(orders\)/irish-aviation-authority-\(obstacles-to-aircraft-in-flight\)-order.pdf?sfvrsn=fcb70df3\\_4](https://www.iaa.ie/docs/default-source/publications/legislation/statutory-instruments-(orders)/irish-aviation-authority-(obstacles-to-aircraft-in-flight)-order.pdf?sfvrsn=fcb70df3_4) [Accessed 19/01/2024].

IAA Visual Flights Rules Aviation Chart 1:500,000 (2024). [Aeronautical Charts \(iaa.ie\)](#) (Accessed 19/01/2024).

ICAO Document 8168 (2018) Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS). <https://store.icao.int/en/procedures-for-air-navigation-services-pans-aircraft-operations-volume-iii-aircraft-operating-procedures-doc-8168> [Accessed 19/01/2024].

International Civil Aviation Organization (ICAO) Annex 14 (2021) Aerodromes. <https://store.icao.int/en/annex-14-aerodromes> [Accessed 19/01/2024].

Ireland Integrated Aeronautical Information Publication (2024). [AirNav - IAIP Package](#) (Accessed 19/01/2024).

MCA (2021) Offshore Renewable Energy Installations: Requirements, Guidance and Operational Considerations for Search and Rescue and Emergency Response. [Offshore Renewable Energy Installations: Requirements, Guidelines and Operational Considerations for SAR and Emergency Response \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/Offshore-Renewable-Energy-Installations-Requirements-Guidelines-and-Operational-Considerations-for-SAR-and-Emergency-Response) (Accessed 19/01/2024).

## Chapter 16 Seascapes, Landscape and Visual Impact Assessment

The Marine Institute (2020), Regional Seascapes Character Assessment for Ireland

Clare County Development Plan (2023-2029)

Department of the Environment, Heritage and Local Government (DEHLG), Wind Energy Development Guidelines (2006 / 2019 Draft Revised).

DHLGH (2021). Project Ireland 2040 National Marine Planning Framework. Available at:  
<https://www.gov.ie/en/publication/60e57-national-marine-planning-framework/>

Environmental Protection Agency (EPA) publication ‘Guidelines on the Information to be contained in Environmental Impact Assessment Reports’ (2022)

Failte Ireland, (2011). EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects

Galway County Development Plan 2022 – 2028 (including Appendix 1 Renewable Energy Strategy and Appendix 4 Landscape Character Assessment)

Institute of Environmental Management and Assessment (IEMA) (3rd edition 2013). Guidelines for Landscape and Visual Assessment

Landscape Institute and the Institute of Environmental Management and Assessment, Guidelines of Landscape and Visual Impact Assessment: Third Edition (2013) (GLVIA3)

Mayo County Development Plan (2022-2028)

Northern Ireland Environment Agency, Wind Energy Development in Northern Ireland’s Landscapes: Supplementary Planning Guidance to Accompany Planning Policy Statement 18 'Renewable Energy' (2010)

Scottish Natural Heritage (SNH) (now known as NatureScot), Offshore Renewables – Guidance on assessing the impact on coastal landscape and seascapes, Guidance for Scoping an Environmental Statement (SNH, 2012)

SNH (NatureScot), NatureScot (2021) Guidance - Assessing the cumulative landscape and visual impact of onshore wind energy developments (also identified as applicable to the cumulative effects of offshore wind energy developments);

SNH (NatureScot), Siting and Designing Wind Farms in the Landscape (SNH, 2017b)

SNH (NatureScot), Visual Representation of Wind Farms Guidance, Version 2.2 (SNH, 2017a)

## Chapter 17 Marine Archaeology and Cultural Heritage

ADCO. (2023) Sceirde Rocks Offshore Wind Farm Marine Geophysical Survey Archaeological Interpretation 22R0105

ADCO. (2024) Sceirde Rocks OWF Marine Geotech and Geophysical Survey 2023 and 2024, 23R0366ext 23D0088ext Archaeological Interpretation

Amgueddfa Cymru. Roman pottery jar <https://museum.wales/collections/online/object/2a5ef15d-d91a-3ac2-b888-c4a084a60113/Roman-pottery-jar/> [Accessed November 2024].

aranislands.ie a The Seven Churches <https://www.aranislands.ie/inis-mor-inishmore-island/inis-mor-island-churches-celtic-sites/na-seacht-dteampaill-the-seven-churches> [Accessed November 2024].

aranislands.ie b Early Christian Aran Islands <https://www.aranislands.ie/aran-islands/aran-islands-culture-history/early-christian-aran-islands#:~:text=One%20of%20the%20earliest%20monasteries,its%20name%20from%20the%20monastery> [Accessed November 2024].

Brady, K. (2014) Secrets of the lake: The Lough Corrib Logboats. Archaeology Ireland, no. 110, p. 34-38.

Brook, A., Bradley, S., Edwards, R. and Goodwyn, N. (2012) 'The palaeogeography of Northwest Europe during the last 20,000 years', Journal of Maps 7.1, pp 573–587

Chiverrell, R.C., Thrasher, I.M., Thomas, G.S., Lang, A., Scourse, J.D., van Landeghem, K.J., Mccarroll, D., Clark, C.D., Cofaigh, C.Ó., Evans, D.J., Ballantyne, C.K. (2013) Bayesian modelling the retreat of the Irish Sea Ice Stream. Journal of Quaternary Science, Volume 28, Issue 2, p. 200-209.

Clark, C.D., Hughes, A.L., Greenwood, S.L., Jordan, C., Sejrup, H.P. (2012) Pattern and timing of retreat of the last British-Irish Ice Sheet. Quaternary Science Reviews, Volume 44, p. 112-146.

Collins, T. (1994) The Galway Line in Context: A Contribution to Galway Maritime History (Part I). Journal of the Galway Archaeological and Historical Society, Volume 46, p. 17-42.

Cotter, C. (2013) The Western Stone Forts Project: Excavations at Dún Aonghasa and Dún Eoghanachta. The Discovery Programme. York, Archaeology Data Service.

Douglas, K. (2009) The Downfall of the Spanish Armada in Ireland: The Grand Armada Lost on the Irish Coast in 1588. Dublin, Gill Books

Dowd, M. and Carden, R.F. (2016) First Evidence of a Late Upper Palaeolithic human presence in Ireland. Quaternary Science Reviews, Volume 139, p. 158-163.

EGS International Ltd. (2023) Fuinneamh Sceirde Teoranta Sceirde Rocks Owf Preliminary Geophysical Survey 2022. Operations Report. Bordon, United Kingdom.

elpais.com. (2014) The Spanish Armada's losses. [https://english.elpais.com/elpais/2014/09/09/media/1410273735\\_475795.html](https://english.elpais.com/elpais/2014/09/09/media/1410273735_475795.html) [Accessed November 2024]

excavations.ie (1991) 1991:056 - IORRAS BEAG THIAR, Port na Feadoige (Dogs Bay), Galway [Accessed November 2024]

Foreman, A.C., Bromley, G.R.M., Hall, B.L. and Jackson, M.S. (2022) A <sup>10</sup>Be-dated record of glacial retreat in Connemara, Ireland, following the Last Glacial Maximum and implications for regional climate. Palaeogeography, Palaeoclimatology, Palaeoecology, Volume 592.

Green Rebel Ltd. (2024) 24G04 Sceirde Rocks Processing and Interpretation Report. Doc No. IRE-GRE-SIT-GS-RP-0002

Green, Wm. S. (1906) The Wrecks of the Spanish Armada on the Coast of Ireland. The Geographical Journal, Vol. 27, No. 5 (May 1906), pp. 429-448

Hilts. C. (2014) The logboats in the lake. Current Archaeology 292. <https://archaeology.co.uk/articles/features/the-logboats-in-the-lake.htm> [Accessed November 2024]

irisharchaeology.ie. (2014) The Lurgan Canoe, an Early Bronze Age boat from Galway <http://irisharchaeology.ie/2014/10/the-lurgan-canoe-an-early-bronze-age-boat-from-galway/#comments> [Accessed November 2024]

irishtimes.com. (2014a) Hunting axe up to 5,000 years old thrown up by storms <https://wwwirishtimescom/news/ireland/irish-news/hunting-axe-up-to-5-000-years-old-thrown-up-by-storms-1.1660966> [Accessed November 2024]

irishtimes.com. (2014b) Ancient oak track on Galway coast dated to 1700 BC <https://wwwirishtimescom/news/environment/ancient-oak-track-on-galway-coast-dated-to-1700-bc-1.1887271> [Accessed November 2024]

irishtourism.com Galway. Available at: <https://wwwirishtourismcom/galway>

James Scourse, Margot Saher, Katrien JJ. Van Landeghem, Edward Lockhart, Catriona Purcell, Louise Callard, Zoe Roseby, Ben Allinson, Anna J. Pieńkowski, Colm O'Cofaigh, Daniel Praeg, Sophie Ward, Richard Chiverrell, Steve Moreton, Derek Fabel, Chris D. Clark. (2019) Advance and retreat of the marine-terminating Irish Sea Ice Stream into the Celtic Sea during the Last Glacial: Timing and maximum extent. Marine Geology, Volume 412, p. 53-68.

Kieran. E. (2011) Underwater Archaeological & Cultural Heritage Impact Assessment Cable Route Selection Survey. Moore Marine Services. <https://www.google.com/url?sa=i&url=https%3A%2F%2Fassets.gov.ie%2F82827%2Fa3c55658-10d8-4533-9ca17-01102c1ab4f9.pdf&psig=AOvVaw0ai44cr9eassBpozrKScn-&ust=1732971510469000&source=images&cd=vfe&opi=89978449&ved=0CAQOn5wMahcKEwjonNei0oGKAxAAAAAHQAAAAAQBA> [Accessed November 2024]

Marine Accident Investigation Branch. (2001). Report on the investigation of the grounding and total loss of the United Kingdom-registered fishing vessel Arosa (M321) on Doonguddle rock off the west coast of Ireland with the loss of 12 crew members 3 October 2000. Report No 41/2001.

McCarron, S., Praeg, D., Cofaigh, C.Ó., Monteys, X., Thébaudeau, B., Craven, K., Saqab, M.M. and Cova, A. (2018) A Plio-Pleistocene sediment wedge on the continental shelf west of central Ireland: The Connemara Fan. Marine Geology, Volume 399, p. 97-114.

McGrail, S. (2001) Boats of the World. Oxford, Oxford University Press.

Meehan R., Gallagher, V., Hennessy, R., Parkes, M. and Gatley, S (2019). Galway - County Geological Site Report - Aran Islands. [Galway - County Geological Site Report \(geodata.gov.ie\)](https://geodata.gov.ie/) [Accessed March 2024].

Monaghan, N.T. (2017) Irish Quaternary Vertebrates, in Coxon, P., McCarron S. and Mitchell F. (eds.) Advances in Irish Quaternary Studies, Advances in Quaternary Science, Volume 1. Paris, Atlantis Press. p. 255-291.

O'Cofaigh, C., Callard, S.L., Roberts, D., Chiverrell, R., Evans, D., Saher, M., Van Landeghem, K., Smedley, R., Benetti, S., Burke, M., Clark, C., Duller, G., Livingstone, S., McCarron, S., Medialdea, A.,

Moreton, S. and Sachetti F. (2021) Timing and pace of ice-sheet withdrawal across the marine-terrestrial transition west of Ireland during the last glaciation. *Journal of Quaternary Science*, Volume 36, Issue 5, p. 805-832.

O'Connell, M. and Molloy K (2017), 'Mid- and late-Holocene environmental change in western Ireland: New evidence from coastal peats and fossil timbers with particular reference to relative sea-level change', *The Holocene* 27.12, 1825-1845.

O'Connell, M. and Molloy, K. (2019) Aran Islands, western Ireland: farming history and environmental change reconstructed from field surveys, historical sources, and pollen analyses. *Journal of the North Atlantic*, Volume 38, p. 1-27.

O'Sullivan, A. and Breen, C. (2007) Maritime Ireland: An Archaeology of Coastal Communities. Great Britain, Tempus Publishing Limited.

Quinn, T. (2017) Britain's Best Historic Sites From Prehistory to the Industrial Revolution. Oxford, Fox Chapel Publishing.

Peters J.L., Benetti S., Dunlop P. and O'Cofaigh C. (2015) Maximum extent and dynamic behaviour of the last British Irish ice sheet west of Ireland. *Quaternary Science Reviews*, Volume 128, p. 48-68.

Robinson, M.E., Shimwell, D.W. and Cribbin, G. (1999) Reassessing the logboat from Lurgan Townland, Co. Galway, Ireland. *Antiquity*, Volume 73, Issue 282, p. 903-908.

The Crown Estate (2014), 'Protocol for Archaeological Discoveries: Offshore Renewables Project', Wessex Archaeology.

The Crown Estate (2021), 'Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects', Wessex Archaeology.

visitgalway.ie a ST. MACDARA'S ISLAND MONASTERY [https://www.visitgalway.ie/a/explore/religious-and-spiritual/religious-architecture/st-macdaras-island-monastery/#google\\_vignette](https://www.visitgalway.ie/a/explore/religious-and-spiritual/religious-architecture/st-macdaras-island-monastery/#google_vignette) [Accessed November 2024].

visitgalway.ie b MÁM ÉAN <https://www.visitgalway.ie/explore/religious-and-spiritual/religious-architecture/mam-ean/> [Accessed November 2024].

Waddell, J. (1998) The prehistoric archaeology of Ireland. Galway, Galway University Press.

Waddington, C. and Wicks, K. (2017) Resilience or wipe out? Evaluating the convergent impacts of the 8.2 ka event and Storegga tsunami on the Mesolithic of northeast Britain. *Journal of Archaeological Science: Reports*, Volume 14, p. 692-714.

## Chapter 18 Other Sea Users

Blue Flag. 2023. Blue Flag Beaches Ireland. Available at: <https://beachawards.ie/blue-flag/> [Accessed on 16/11/2023].

Custom Market Insights. 2023. [Latest] Global Submarine Cable Market Size/Share Worth USD 35 Billion by 2030 at a 10% CAGR: Custom Market Insights (Analysis, Outlook, Leaders, Report, Trend, Forecast, Segmentation, Growth, Growth Rate, Value). Available at: <https://www.globenewswire.com/en/news-release/2023/03/14/2627150/0/en/Latest-Global-Submarine-Cable-Market-Size-Share-Worth-USD-35-Billion-by-2030-at-a-10-CAGR-Custom-Market-Insights-Analysis-Outlook-Leaders-Report-Trend-Forecast-Segmentation-Growth-.html> [Accessed on 16/11/2023].

Data Centre. 2021. Inside the future of Ireland's subsea cable landscape. Available at: <https://datacentremagazine.com/automation/inside-future-irelands-subsea-cable-landscape> [Accessed on 16/11/2023].

DCCAE (2017). Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. Available at: <https://www.gov.ie/en/publication/3d6efb-guidance-documents-for-offshore-renewable-energy-developers/> [Accessed on 13/10/2023].

Department of Communications, Energy and Natural Resources. 2014. Offshore Renewable Energy Development Plan: A framework for the sustainable development of Ireland's offshore renewable energy resource. Available at: <https://assets.gov.ie/27215/2bc3cb73b6474beebbe810e88f49d1d4.pdf> [Accessed on 16/11/2023].

DECC. 2021. Ireland's National Energy and Climate Plan 2021-2030. Available at: <https://www.gov.ie/en/publication/0015c-irelands-national-energy-climate-plan-2021-2030/> [Accessed on 21/11/2023].

DECC. 2023. Oil and Gas Exploration and Production. Available at: <https://www.gov.ie/en/policy-information/bf1b50-oil-and-gas-exploration-and-production/> [Accessed on 16/11/2023].

DECC. 2024. Future Framework for Offshore Renewable Energy. Available at: <https://www.gov.ie/en/publication/0566b-future-framework-for-offshore-renewable-energy/> [Accessed on 10/09/2024].

DHLGH (2021). Project Ireland 2040 National Marine Planning Framework. Available at: <https://www.gov.ie/en/publication/60e57-national-marine-planning-framework/> [Accessed on 13/10/2023].

EC. 2023a. EU Aquaculture Assistance Mechanism: Ireland. available at: <https://aquaculture.ec.europa.eu/country-information/ireland> [Accessed on 13/10/2023].

EC. 2023b. Multi-annual National Strategic Plans for the Development of sustainable Aquaculture for the period 20201 to 2023. Available at: [https://aquaculture.ec.europa.eu/system/files/2023-03/AAM\\_MNSP\\_IRELAND\\_1.pdf](https://aquaculture.ec.europa.eu/system/files/2023-03/AAM_MNSP_IRELAND_1.pdf) [Accessed on 13/10/2023].

EMODnet. 2023. EMODnet Map Viewer. Available at: <https://emodnet.ec.europa.eu/geoviewer/> [Accessed on 13/10/2023].

EPA (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available at: [https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR\\_Guidelines\\_2022\\_Web.pdf](https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR_Guidelines_2022_Web.pdf) [Accessed on 13/10/2023].

ESCA (2016). Proximity of Offshore Renewable Energy Installations and Submarine Cable Infrastructure in UK waters (European Subsea Cables Association). Available at: <https://www.escaeau.org/guidelines/> [Accessed on 13/10/2023].

Galway Tourism. 2023. Féile an tSrutháin (Carraroe) Sailing Regatta 2024. Available at: <https://www.galwaytourism.ie/event/feile-an-tsruthain-carraroe-co-galway/> [Accessed on 08/11/2023].

Google Maps. 2023. Available at: <https://www.google.co.uk/maps/@52.9566753,-9.6690966,178279m/data=!3m1!1e3?entry=ttu> [Accessed on 13/10/2023].

ICPC (2021). Available at: <https://www.iscpc.org/publications/recommendations/> [Accessed on 13/10/2023].

Marine Institute (2023). Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment. Available at: <https://oar.marine.ie/bitstream/handle/10793/579/Assessment%20of%20Impact%20of%20Offshore%20Wind%20Energy%20Structures.pdf;jsessionid=F0255B4DE75A8F1E2932BA5A251A9CC2?sequence=1> [Accessed on 13/10/2023]

Marine Institute. 2023. Ireland's Marine Atlas. Available at: <https://atlas.marine.ie/#?c=53.2352:-9.6693:10> [Accessed on 13/10/2023].

Norton, D., Hynes, S., Boyd, J. 2018. Research 239: Valuing Ireland's Coastal, Marine and Estuarine Ecosystem Services. Available at: <https://www.epa.ie/publications/research/water/research-239.php> [Accessed on 16/11/2023].

Norton, D., Hynes, S., Lancer, M., O'Leary, J., O'Donoghue, C., Tsakiridis, A. 2022. Ireland's Ocean Economy 2022. SEMRU. University of Galway and Marine Institute. Available at: <https://oar.marine.ie/handle/10793/1807> [Accessed on 16/11/2023].

OSPAR (2008). The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) Guidance on Environmental Considerations for Offshore Wind Farm Development. Available at: <https://www.ospar.org/work-areas/eoha/offshore-renewables> [Accessed on 13/10/2023].

Renewables UK (2013). Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farm. Available at: <https://tethys.pnnl.gov/sites/default/files/publications/Cumulative-Impact-Assessment-Guidelines.pdf> [Accessed on 13/10/2023].

Submarine Cable Networks. 2023. IRIS. Available at: <https://www.submarinenetworks.com/en/systems/intra-europe/iris> [Accessed on 07/11/2023].

UK Department of Business Energy and Industrial Strategy (2019). Decommissioning of Offshore Renewable Energy Installations Guidance Notes for Industry. Available at: <https://www.gov.uk/government/publications/decommissioning-offshore-renewable-energy-installations> [Accessed on 13/10/2023].

Zentacle. 2023. Top Snorkelling and Scuba Diving in County Clare. Available at: <https://www.zentacle.com/loc/ie/ce> [Accessed on 13/10/2023].

## Chapter 19 Offshore Air Quality and Airborne Noise

Deltas (2022). Skerd Rocks offshore wind farm metocean study.

Department of Housing, Local Government and Heritage (DHLGH) (2019) Draft Revised Wind Energy Development Guidelines December 2019. [Online] Available at: <https://www.gov.ie/en/publication/9d0f66-draft-revised-wind-energy-development-guidelines-december-2019/> [Accessed 17/07/2024].

Department of Housing, Local Government and Heritage (DHLGH) (2020) Wind Energy Development Guidelines (2006). [Online] Available at: <https://www.gov.ie/en/publication/f449e-wind-energy-development-guidelines-2006/> [Accessed 17/07/2024].

DEHLG (2021) National Marine Planning Framework. Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/139100/f0984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null> [Accessed 22/07/2024].

Environmental Protection Agency (2023) Air quality in Ireland report 2022. [Online] Available at: <https://www.epa.ie/publications/monitoring-assessment/air/air-quality-in-ireland-2022.php> [Accessed 08/01/2024].

Environmental Protection Agency (2023) Air quality in Ireland Air Quality Maps [Online] Available at: <https://airquality.ie/> [Accessed 22/11/2024].

Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

Government of Ireland (2022) Climate Action Plan 2023. [Online] Available at: <https://www.gov.ie/en/publication/7bd8c-climate-action-plan-2023/> [Accessed 08/01/2024].

Government of Ireland (2022) Clean Air Strategy for Ireland. [Online] Available at: <https://assets.gov.ie/255392/efe212df-d9a7-4831-a887-bea2703e2c64.pdf> [Accessed 25/11/2024]

Hoare Lea (2024). Sceirde Rocks operational airborne turbine noise assessment, Hoare Lea report reference REP-1015058-MMC-20240711-2.

IAQM (2011) Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance. Available at: [https://iaqm.co.uk/text/guidance/construction\\_guidance\\_2011.pdf](https://iaqm.co.uk/text/guidance/construction_guidance_2011.pdf) [Accessed 06/11/2024]

Jennings, S. G., Kleefeld, C., O'Dowd, C. D., Junker, C., Spain, T. G., O'Brien, P., Roddy, A. F. & O'Connor, T. C. (2003) Mace Head Atmospheric Research Station – characterization of aerosol radiative parameters. Boreal Env. Res. 8: 303–314. ISSN 1239-6095

Met Éireann (2023) Historical data, Mace Head – 2022. [Online] Available at: <https://www.met.ie/climate/available-data/historical-data> [Accessed 08/01/2024].

O'Dowd, C., Ovadnevaite, J., Martin, D., Spain, G., Pitt, J., Young, D., and O'Doherty, S. (2024) On the Potential Impact of the Off-Shore Sceirde Rocks Wind Farm upon the Credibility of Baseline Monitoring Status: Mace Head Atmospheric Research Station.

Preißler, J. and O'Dowd, C (2020) Remote Sensing of Aerosols, Clouds and Wind at Mace Head Atmospheric Research Station. EPA Research Report No. 319

Scottish Government (2011) Assessment of noise: Technical advice note. Available at: <https://www.gov.scot/publications/technical-advice-note-assessment-noise/pages/2/> [Accessed 06/11/2024]

Tougaard, J., Hermannsen, L. and Madsen, P.T., (2020). How loud is the underwater noise from operating offshore wind turbines?. *The Journal of the Acoustical Society of America*, 148(5), pp.2885-2893.

McCauley, R.D., (2015) Offshore Irish noise logger program (March to September 2014): Analysis of cetacean presence, and ambient and anthropogenic noise sources. Centre for Marine Science and Technology (CMST), Curtin University For RPS MetOcean/Woodside Energy (Ireland) Pty Ltd.

NOAA. (2023) How far does sound travel in the ocean? Available at: <https://oceanservice.noaa.gov/facts/sound.html> [Accessed 08/01/2024].

United Nations Framework Convention on Climate Change (2016) The Paris Agreement. [Online] Available at: [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf) [Accessed 08/01/2024].

Working Group on Noise from Wind Turbines (WGNWT) (1996) ETSU R 97, the Assessment and Rating of Noise from Wind Farms, Final Report for the Department of Trade & Industry, September 1996. [Online] Available at: [https://assets.publishing.service.gov.uk/media/5a798b42ed915d07d35b655a/ETSU\\_Full\\_copy\\_Searchable\\_.pdf](https://assets.publishing.service.gov.uk/media/5a798b42ed915d07d35b655a/ETSU_Full_copy_Searchable_.pdf) [Accessed 17/07/2024].

World Health Organization (WHO) (2021). What are the WHO Air quality guidelines? Improving health by reducing air pollution. [Online] Available at: <https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines> [Accessed 22/11/2024].

## Chapter 20 Biodiversity – Flora and Fauna

CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

Collins, J. (ed) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

Commission of the European Communities (2013) Interpretation manual of European Union habitats. Eur 27. European Commission DG Environment.

Department of Housing, Local Government and Heritage (2024). Ireland's 4th National Biodiversity Action Plan 2023-2030.

EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Environmental Protection Agency.

EU Habitats Directive (Directive 92/43/EEC). [https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive\\_en](https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en)

EU Bird Directive (Directive 79/409/EEC). [https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive\\_en](https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive_en)

European Communities (Environmental Impact Assessment) Regulations, 1989 to 2001.

European Communities (Natural Habitats) Regulations, SI 94/1997, SI 233/1998 & SI 378/2005 – <http://www.irishstatutebook.ie>

European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024)  
<http://www.irishstatutebook.ie>

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. Dublin: The Heritage Council.

Lawton C., Hanniffy, R., Molloy, V., Guilfoyle, C., Stinson, M. & Reilly, E. (2020). All-Ireland Squirrel and Pine Marten Survey 2019. Irish Wildlife Manuals, No. 121. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018). The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Marnell, F., Kingston, N. & Looney, D. (2009). Ireland Red List No. 3: Terrestrial Mammals, National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

NPWS & VWT (2022). Lesser Horseshoe Bat Species Action Plan 2022- 2026. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

NRA (2009a). Guidelines for Assessment of Ecological Impacts of National Road Schemes. Rev 2, June 2009.

NRA (2009b). Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes.

O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013). The Irish semi-natural grasslands survey 2007-2012. Irish Wildlife Manuals, No. 78. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.

Perrin et al. (2018). Irish Vegetation Classification (IVC) – An Overview of Concepts, Structure and Tools. In Practice, CIEEM. December 2018, pp 15-19.

Smith, P.G. (2000). Habitat preference, range use and roosting ecology of Natterer's bats (*Myotis nattereri*) in a grassland-woodland landscape. Thesis submitted for PhD. University of Aberdeen. 297 pages.

M. O'Brien & K. W. Smith (1992) Changes in the status of waders breeding on wet lowland grasslands in England and Wales between 1982 and 1989, Bird Study, 39:3, 165-176, DOI: 10.1080/00063659209477115

SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs), Scottish natural Heritage.

Stace, C. (2010). New Flora of the British Isles (3rd Edition). Cambridge: Cambridge University Press

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

Collins, J. (4th ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

Commission of the European Communities (2013) Interpretation manual of European Union habitats. Eur 27. European Commission DG Environment.

Department of Housing, Local Government and Heritage (2024). Ireland's 4th National Biodiversity Action Plan 2023-2030.

EPA 2022, Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Environmental Protection Agency

European Communities (Environmental Impact Assessment) Regulations, 1989 to 2001.

European Communities (Natural Habitats) Regulations, SI 94/1997, SI 233/1998 & SI 378/2005 – <http://www.irishstatutebook.ie>.

European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024)

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. Dublin: The Heritage Council.

Habitats Directive (92/43/EEC).

Lawton C., Hanniffy, R., Molloy, V., Guilfoyle, C., Stinson, M. & Reilly, E. (2020) All-Ireland Squirrel and Pine Marten Survey 2019. Irish Wildlife Manuals, No. 121. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018), The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Marnell, F., Kingston, N. & Looney, D. (2009) Ireland Red List No. 3: Terrestrial Mammals, National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill

NRA (2006). Guidelines for the treatment of badgers prior to the construction of National Road Schemes.

NRA (2009a). Guidelines for Assessment of Ecological Impacts of National Road Schemes. Rev 2, June 2009.

NRA (2009b). Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes.

O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013), The Irish semi-natural grasslands survey 2007-2012. Irish Wildlife Manuals, No. 78. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.

Perrin et al., (2018). Irish Vegetation Classification (IVC) – An Overview of Concepts, Structure and Tools. In Practice, CIEEM. December 2018, pp 15-19.

Smith, P.G. 2000. Habitat preference, range use and roosting ecology of Natterer's bats (*Myotis nattereri*) in a grassland-woodland landscape. Thesis submitted for PhD. University of Aberdeen. 297 pages.

Stace, C. (2010). New Flora of the British Isles (3rd Edition). Cambridge: Cambridge University Press

## Chapter 21 Biodiversity – Terrestrial Ornithology

National Biodiversity Data Centre (2024). Biodiversity maps Available at:  
<https://maps.biodiversityireland.ie>

Balmer, D. E., Gillings, S., Caffrey, B. J., Swann, R. L., Downie, I. S., & Fuller, R. J. (2013). Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland. Thetford: BTO.  
<http://www.seabirdgroup.org.uk/journals/seabird-27/seabird-27-112.pdf>

Bibby, C.J., Burgess, N.D., Hillis, D.M., Hill, D.A. and Mustoe S. (2000). Bird Survey Techniques. Massachusetts, United States: Academic Press.

BirdWatch Ireland (2021) I-WEBS Counter Manual. BirdWatch Ireland, Kilcoole, Ireland. Available at:  
<https://birdwatchireland.ie/publications/i-webs-counter-manual/>

British Trust for Ornithology (2021). Breeding Bird Survey. British Trust for Ornithology, Thetford, UK. Available at: <https://www.bto.org/our-science/projects/bbs>

Burke, B., Lewis, L. J., Fitzgerald, N., Frost, T., Austin, G., & Tierney, T. D. (2018). Estimates of waterbird numbers wintering in Ireland, 2011/12–2015/16. Irish Birds, 11, 1-12.  
[https://www.researchgate.net/profile/Brian-Burke-5/publication/337089291\\_Estimates\\_of\\_waterbird\\_numbers\\_wintering\\_in\\_Ireland\\_201112-201516/links/5dc46981299bf1a47b1f7bcb/Estimates-of-waterbird-numbers-wintering-in-Ireland-2011-12-2015-16.pdf](https://www.researchgate.net/profile/Brian-Burke-5/publication/337089291_Estimates_of_waterbird_numbers_wintering_in_Ireland_201112-201516/links/5dc46981299bf1a47b1f7bcb/Estimates-of-waterbird-numbers-wintering-in-Ireland-2011-12-2015-16.pdf)

Burke, B., McElwaine, J. G., Fitzgerald, N., Kelly, S. B. A., McCulloch, N., Walsh, A. J., & Lewis, L. J. (2021). Population size, breeding success and habitat use of Whooper Swan Cygnus cygnus and Bewick's Swan Cygnus columbianus bewickii in Ireland: results of the 2020 International Swan Census. Irish Birds, 43, 57-70. [https://www.researchgate.net/profile/Brian-Burke-5/publication/350856681\\_Population\\_size\\_breeding\\_success\\_and\\_habitat\\_use\\_of\\_Whooper\\_Swan\\_Cygnus\\_cygnus\\_and\\_Bewicks\\_Swan\\_Cygnus\\_columbianus\\_bewickii\\_in\\_Ireland\\_results\\_of\\_the\\_2020\\_International\\_Swan\\_Census/links/616fce7cc891c4663aaace06/Population-size-breeding-success-and-habitat-use-of-Whooper-Swan-Cygnus-cygnus-and-Bewicks-Swan-Cygnus-columbianus-bewickii-in-Ireland-results-of-the-2020-International-Swan-Census.pdf](https://www.researchgate.net/profile/Brian-Burke-5/publication/350856681_Population_size_breeding_success_and_habitat_use_of_Whooper_Swan_Cygnus_cygnus_and_Bewicks_Swan_Cygnus_columbianus_bewickii_in_Ireland_results_of_the_2020_International_Swan_Census/links/616fce7cc891c4663aaace06/Population-size-breeding-success-and-habitat-use-of-Whooper-Swan-Cygnus-cygnus-and-Bewicks-Swan-Cygnus-columbianus-bewickii-in-Ireland-results-of-the-2020-International-Swan-Census.pdf)

Calladine, J., Garner, G., Wernham, C., & Thiel, A. (2009). The influence of survey frequency on population estimates of moorland breeding birds. Bird Study, 56(3), 381-388.  
<https://doi.org/10.1080/00063650902984604>

CIEEM (2019). Guidelines for Ecological Impact Assessment in the UK and Ireland. Chartered Institute of Ecology and Environmental Management, Romsey, UK. Available at:  
<https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/>

Colhoun, K., Flannelly, F., O'Neill, J., Phelan, E., Servignat, H., O'Donoghue, B., & Kelly, S. (2022). Status and distribution of breeding Eurasian Curlew in Ireland 2021. Irish Wildlife Manuals, (138).<https://www.npws.ie/sites/default/files/publications/pdf/TWM138.pdf>

Council Directive 92/43/EEC 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

Council Directive 2009/147/EC 30 November 2009 on the conservation of wild birds. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147>

Council Directive 2014/52/EU 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&rid=1>

Crowe, O., McElwaine, J. G., Boland, H., & Enlander, I. J. (2015). Whooper Cygnus cygnus and Bewick's C. columbianus bewickii Swans in Ireland: results of the International Swan Census, January 2015. Irish Birds, 10(2), 151-158. <https://birdwatchireland.ie/app/uploads/2019/11/Crowe-et-al-2015-International-Migratory-Swan-Census-2015.pdf>

Crowe, O., Musgrove, A. J., & O'Halloran, J. (2014). Generating population estimates for common and widespread breeding birds in Ireland. Bird Study, 61(1), 82-90.

<https://doi.org/10.1080/00063657.2013.868401>

DoHPLG (2018). Guidelines for planning authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. Department of Housing, Planning and Local Government, Government of Ireland, Dublin. Available at: <https://www.gov.ie/en/publication/53aee9-guidelines-for-planning-authorities-and-an-bord-pleanala-on-carrying/>

EPA (2022). Guidelines on the information to be contained in Environmental Impact Statement reports. Environmental Protection Agency, Johnstown Castle Estate, Wexford. Available at: [https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR\\_Guidelines\\_2022\\_Web.pdf](https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR_Guidelines_2022_Web.pdf)

European Commission (2002). Assessment of plans and projects significantly affecting Natura 2000 sites. Publications Office of the European Union, Luxembourg.

[https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura\\_2000\\_assess\\_en.pdf](https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf)

European Union (2022) Article 12 web tool. Available at: <https://nature-art12.eionet.europa.eu/article12/>

European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001, No. 632/2001. Dublin: Stationary Office. Available at: <https://www.irishstatutebook.ie/eli/2001/si/632/made/en/print>

Evans, P. R., & Pienkowski, M. W. (1984). Population dynamics of shorebirds. In Shorebirds: Breeding behavior and populations (pp. 83-123). Boston, MA: Springer US.  
[https://link.springer.com/chapter/10.1007/978-1-4684-4691-3\\_3](https://link.springer.com/chapter/10.1007/978-1-4684-4691-3_3)

Fossitt, J.A. (2000). A guide to habitats in Ireland. Heritage.

Gilbert, G., Gibbons, D.W. and Evans, J. (1998) Bird monitoring methods. Bedfordshire, England: Pelagic Publishing, Royal Society for the protection of Birds.

Gilbert, G., Stanbury, A., & Lewis, L. (2021). Birds of conservation concern in Ireland 4: 2020–2026. Irish Birds, 43, 1-22. Available at: <https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/>

Goodship, N. M., & Furness, R. W. (2022). NatureScot Research Report 1283-Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. Available at: <https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance>

International Convention on Wetlands of International Importance. (1975). United Nations Treaty Series 996, entered into force 21 December 1975. Available at:

<https://treaties.un.org/doc/Publication/UNTS/Volume%20996/volume-996-I-14583-English.pdf>

Clare County Council (2023). Clare County Development Plan 2023-2029

European Commission (2017). Environmental Impacts Assessment of Projects. Guidance on the preparation of the Environmental Impact Assessment Report.

CIEEM (2017) Guideline for Ecological Report Writing

Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal (CIEEM, 2018)

EirGrid (2012). Ecology guidelines for electricity transmission projects. A standard approach to ecological impact assessment of high voltage transmission projects.

National Roads Authority (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes., Ireland.

Gilbert, G. Stanbury, A. and Lewis, L. (2021). Birds of Conservation Concern in Ireland 2020-2026

Department of Housing, Planning and Local Government (2018). Guidelines for planning authorities and An Bord Pleanála on carrying out Environmental Impact Assessment., Government of Ireland, Dublin.

Ireland 4th National Biodiversity Action plan 2023-2030

Environmental Protection Agency (2022). Guidelines on the information to be contained in Environmental Impact Statement reports, Johnstown Castle Estate, Wexford

Lack, P. (2010). The atlas of wintering birds in Britain and Ireland. A&C Black..  
[https://books.google.ie/books?hl=en&lr=&id=blWiD\\_QEYkMC&oi=fnd&pg=PA1&dq=%E2%80%A2%09Lack,+P.C.+\(1986\).+The+atlas+of+wintering+birds+in+Britain+and+Ireland.+London:+T+%26+AD+Poyser.&ots=tAHI-ASuAG&sig=HwdEy69\\_KD8G-TP5KdHb3KVMoKI&redir\\_esc=y#v=onepage&q&f=false](https://books.google.ie/books?hl=en&lr=&id=blWiD_QEYkMC&oi=fnd&pg=PA1&dq=%E2%80%A2%09Lack,+P.C.+(1986).+The+atlas+of+wintering+birds+in+Britain+and+Ireland.+London:+T+%26+AD+Poyser.&ots=tAHI-ASuAG&sig=HwdEy69_KD8G-TP5KdHb3KVMoKI&redir_esc=y#v=onepage&q&f=false)

Lewis, L. J., Burke, B., Fitzgerald, N., Tierney, T. D., & Kelly, S. (2019b). Irish wetland bird survey: waterbird status and distribution 2009 (Vol. 16). 10–2015.

Lewis, L., Coombes, D., Burke, B., O'Halloran, J., Walsh, A., Tierney, T. D., & Cummins, S. (2019a). Countryside bird survey: status and trends of common and widespread breeding birds 1998–2016. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland, Dublin, Ireland. Available at: <https://www.npws.ie/sites/default/files/publications/pdf/IWM115.pdf>

McGuinness, S., Muldoon, C., Tierney, N., Cummins, S., Murray, A., Egan, S., & Crowe, O. (2015). Bird sensitivity mapping for wind energy developments and associated infrastructure in the Republic of Ireland. BirdWatch Ireland, Kilcoole, Wicklow. Available at:  
[https://birdwatchireland.ie/app/uploads/2019/09/BWI-Bird-Wind-Energy-devt-Sensitivity-Mapping-Guidance\\_document.pdf](https://birdwatchireland.ie/app/uploads/2019/09/BWI-Bird-Wind-Energy-devt-Sensitivity-Mapping-Guidance_document.pdf)

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) (Birds Directive) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011).

Ruddock, M., Mee, A., Lusby, J., Nagle, A., O'Neill, S. and O'Toole, L. (2016). The 2015 National Survey of Breeding Hen Harrier in Ireland. Irish Wildlife Manuals, No. 93. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland. Available at:  
<https://www.npws.ie/sites/default/files/publications/pdf/IWM93.pdf>

Sharrock, J. T. R. (2010). The atlas of breeding birds in Britain and Ireland. A&C Black. Available at:  
[https://books.google.ie/books?hl=en&lr=&id=jcfBAEPzioAC&oi=fnd&pg=PP1&dq=%E2%80%A2%09Sharrock,+J.T.R.+\(1976\).+The+Atlas+of+Breeding+Birds+in+Britain+and+Ireland.+London:+T.%26+A.+D.+Poyser.&ots=FkJ5sQPNzv&sig=pX3po4Etj0GX-Nup5sDqMFTHozk&redir\\_esc=y#v=onepage&q=%E2%80%A2%09Sharrock%2C%20J.T.R.%20\(1976\).%20The%20Atlas%20of%20Breeding%20Birds%20in%20Britain%20and%20Ireland.%20London%3A%20T.%20%26%20A.%20D.%20Poyser.&f=false](https://books.google.ie/books?hl=en&lr=&id=jcfBAEPzioAC&oi=fnd&pg=PP1&dq=%E2%80%A2%09Sharrock,+J.T.R.+(1976).+The+Atlas+of+Breeding+Birds+in+Britain+and+Ireland.+London:+T.%26+A.+D.+Poyser.&ots=FkJ5sQPNzv&sig=pX3po4Etj0GX-Nup5sDqMFTHozk&redir_esc=y#v=onepage&q=%E2%80%A2%09Sharrock%2C%20J.T.R.%20(1976).%20The%20Atlas%20of%20Breeding%20Birds%20in%20Britain%20and%20Ireland.%20London%3A%20T.%20%26%20A.%20D.%20Poyser.&f=false)

SNH (2016). Assessing connectivity with Special Protection Areas (SPAs). Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf>

Wildlife Act 1976, No. 39/1976, Dublin: Stationary Office. Available at:  
<http://www.irishstatutebook.ie/eli/1976/act/39/enacted/en/html?q=wildlife+act>

Wilson, M., Irwin, S., O'Donoghue, B., Kelly, T., & O'Halloran, J. (2010). The use of forested landscapes by Hen Harriers in Ireland. COFORD: Dublin, Ireland. Available at:  
<http://coford.ie/media/coford/content/publications/projectreports/cofordconnects/env10.pdf>

## Chapter 22 Land, Soils and Geology

British Standards Institution (BSI). (2015) BS5930 - Code of Practice for Site Investigations.

Department of Housing, Planning and local Government, 2018: Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.

Environmental Protection Agency (2022): Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

European Union, 2017: Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU).

Geological Survey of Ireland (GSI). (2005) Geology of Galway - Offaly, 1:100,000 scale Bedrock Geology Series, Sheet 17.

Irish Drilling Limited (IDL) (2024): Sceirde Rocks 220kV GSI Substation: Site Investigation Factual Report.

Irish Drilling Limited (IDL) (2023): Sceirde Rocks Landfall: Factual Report.

Irish Drilling Limited (IDL) (2024): Sceirde Rocks Cable Route: Site Investigation Factual Report.

Irish Drilling Limited (IDL) (2024): Sceirde Rocks Cable Route Phase 2: Site Investigation Factual Report.

Institute of Geologists Ireland (2013): Guidelines for Preparation of Soils, Geology & Hydrogeology Chapters in Environmental Impact Statements.

Malachy Walsh and Partners (MWP) (2024): Sceirde Rocks Grid Line: Outline Construction Methodologies Report.

Minerex Geophysics Limited (2024): Sceirde Rocks WF Cable Route, L20301, Doonmore, Co. Clare – Geophysical Report.

National Roads Authority (2008): Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.

Scottish Natural Heritage report (SNH) Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms (SNH, 2013).

## Chapter 23 Water

CIRIA, 2006: Guidance on 'Control of Water Pollution from Linear Construction Projects' (CIRIA Report No. C648, 2006).

CIRIA, 2006: Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors. CIRIA C532. London, 2006.

DoHLG, 2006: Wind Farm Development Guidelines for Planning Authorities.

DOE/NIEA (2015): Wind Farms and Groundwater Impacts – A guide to EIA and Planning Considerations

EPA (2022): Guidelines on the Information to be contained in Environmental Impact Assessment Reports.

EPA (2021): 3<sup>rd</sup> Cycle Mal Bay Catchment Report.

EPA (2021): 3<sup>rd</sup> Cycle Shannon Estuary North Catchment Report.

GSI (2003): Miltown Malbay GWB: Summary of Initial Characterisation.

GSI (2003): Kilrush GWB: Summary of Initial Characterisation.

IFI, 2016: Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters, Inland Fisheries Ireland (2016).

IGI, 2013: Guidelines for Preparation of Soils, Geology & Hydrogeology Chapters in Environmental Impact Statements, (Institute of Geologists Ireland, 2013).

NRA, 2008: Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes, (National Roads Authority, NRA, 2008).

PPG1 - General Guide to Prevention of Pollution (UK Guidance Note).

PPG5 – Works or Maintenance in or Near Watercourses (UK Guidance Note).

SNH, 2010: Scottish Natural Heritage report (SNH): Good Practice During Wind Farm Construction.

SNH, 2013: Scottish Natural Heritage report (SNH): Research and Guidance on Restoration and Decommissioning of Onshore Wind Farm

## Chapter 24 Onshore Cultural Heritage

Aalen, F.H.A. et al., 1997, *Atlas of the Irish Rural Landscape*. Cork University Press, Cork.

Architectural Heritage Guidelines for Planning Authorities (2011)

Clare County Development Plan 2023-2029.

Department of Arts, Heritage, Gaeltacht and the Islands, 1999, Framework and Principles for the Protection of the Archaeological Heritage, 1999.

Guidelines on the information to be contained in Environmental Impact Statements, EPA 2022.

Guidance on Setting and the Historic Environment, Historic Environment Division, February 2018.

### Other Sources

Sites and Monuments Record, Co. Clare

Sites and Monuments Record, Co. Limerick

Record of Monuments and Places, Co. Clare

Record of Monuments and Places, Co. Limerick

1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Edition 6 inch OS maps

[www.heritagemaps.ie](http://www.heritagemaps.ie)

[www.heritagedata.maps.arcgis.com](http://www.heritagedata.maps.arcgis.com)

[www.excavations.ie](http://www.excavations.ie)

[www.buildingsofireland.ie](http://www.buildingsofireland.ie)

[www.logainm.ie](http://www.logainm.ie)

## Chapter 25 Onshore Air Quality

Council of the European Union (1999) Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air. Official Journal of the European Union No. L163/41

Council of the European Union (2000) Council Directive 2000/69/EC relating to limit values for benzene and carbon monoxide in ambient air. Official Journal of the European Union No. L313.

Council of the European Union (2002) Council Directive (2002/3/EC) relating to ozone in ambient air. Official Journal of the European Union No. L67/14.

Council of the European Union (2004) Council Directive (2004/107/EC) relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. Official Journal of the European Union No. L23/3.

Council of the European Union (2008) Council Directive 2008/50/EC on ambient air quality and cleaner air for Europe. Official Journal of the European Union No. L152.

Department of Environment, Climate and Communications (2022). Climate Action Plan 2023.

Department of Environment, Climate and Communications (2023) Climate Action Plan 2024.

Department of the Environment, Heritage and Local Government (2004) Quarries and Ancillary Activities, Guidelines for Planning Authorities. Stationery Office, Dublin.

Electricity Supply Board (2024). Moneypoint Power Station. Available at: <https://esb.ie/media-centre-news/ask-esb/moneypoint-power-station>

Environmental Protection Agency & Office of Environmental Enforcement (2019). Air Dispersion Modelling from Industrial Installations Guidance Note (AG4). Available at: [https://www.epa.ie/publications/compliance-enforcement/air/air-guidance-notes/EPA-Air-Dispersion-Modelling-Guidance-Note-\(AG4\)-2020.pdf](https://www.epa.ie/publications/compliance-enforcement/air/air-guidance-notes/EPA-Air-Dispersion-Modelling-Guidance-Note-(AG4)-2020.pdf)

Environmental Protection Agency (2018). Ireland's Greenhouse Gas Emissions Projections 2017 – 2035. EPA, Wexford.

Environmental Protection Agency (2020) Greenhouse Gas Emissions 1990 – 2020 (provisional figures)

Environmental Protection Agency (2021). Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects.

Environmental Protection Agency (2022): Guidelines on the Information to be contained in Environmental Impact Assessment Reports.

Environmental Protection Agency (2023) Air Quality in Ireland 2022. EPA, Ireland.

Environmental Protection Agency (2023) Air Quality Standards <https://airquality.ie/information/air-quality-standards>

Environmental Protection Agency (2024) Air Quality in Ireland 2023. EPA, Ireland.

European Commission (2017). Guidance on the Preparation of the Environmental Impact Assessment Report.

- European Commission (2022), Revision of the Ambient Air Quality Directives.  
[https://environment.ec.europa.eu/topics/air/air-quality/revision-ambient-air-quality-directives\\_en](https://environment.ec.europa.eu/topics/air/air-quality/revision-ambient-air-quality-directives_en)
- European Commission (2019) COP25 Climate Change Conference. Available at:  
[https://ec.europa.eu/clima/events/cop25-climate-change-conference\\_en](https://ec.europa.eu/clima/events/cop25-climate-change-conference_en)
- European Commission (2021) COP26 Climate Change Conference. Available at: <https://ukcop26.org/>
- European Commission (2022) COP27 Climate Change Conference. Available at: <https://cop27.eg/#/>
- European Environment Agency (2022) Air Quality in Europe - 2022 Report. EEA.
- European Union (1996). Directive 1996/62/EC. European Parliament and European Council.
- Government of Ireland (1999) Ambient Air Quality Assessment and Management Regulations 1999 (S.I. No. 33 of 1999).
- Government of Ireland (1999) Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999.
- Government of Ireland (2002) Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002).
- Government of Ireland (2004) Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004).
- Government of Ireland (2011) Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) as amended by the Air Quality Standards (Amendments).
- Government of Ireland (2016) Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations, 2016 (S.I. 659 2016).
- Mott McDonald (2024). Moneypoint Security of Supply Environmental Impact Assessment Report. Available at: <https://www.leanala.ie/publicaccess/EIAR-NIS/319080/EIAR%20Volume%202%20-%20EIAR%20-%20Moneypoint%20Security%20of%20Supply.pdf?r=297664>
- Holman et al (2014). IAQM Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management, London. [www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf](http://www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf).
- Intergovernmental Panel on Climate Change (IPCC) (2021) Sixth Assessment Report - Climate Change 2021: The Physical Science Basis. [www.ipcc.ch](http://www.ipcc.ch)
- Met Éireann [www.met.ie](http://www.met.ie)
- National Road Authority (NRA) (2011) Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes
- Oosterhuis and Skinner (2004) The Fourth Air Quality Daughter Directive: Impacts and Consequences of Mandatory Limit Values. IEEP Brief number 03/2000.
- Rialtas na Eireann (2023) Clean Air Strategy for Ireland <https://www.gov.ie/en/publication/927e0-clean-air-strategy/#:~:text=The%20Clean%20Air%20Strategy%20provides,delivering%20on%20wider%20national%20objectives>

The Institute of Air Quality Management (2024) Guidance on the assessment of dust from demolition and construction. <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>

Transport Infrastructure Ireland (2009) Guidelines for Assessment of Ecological Impacts of National Roads Schemes

Transport Infrastructure Ireland (2011) Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes.

Transport Infrastructure Ireland (2022) Air Quality Assessment of Proposed National Roads – Standard PE-ENV-01107.

Transport Infrastructure Ireland (2022) Air Quality Assessment of Specified Infrastructure Projects – Overarching Technical Documentation PE-ENV-01106.

UK Department of Environment Food and Rural Affairs (DEFRA) (2016) Part IV of the Environment Act 1995: Local Air Quality Management Technical Guidance (TG16)

UK Highways Agency (UKHA) (2019) Design Manual for Roads and Bridges (DMRB) – LA 105 Air Quality

World Health Organization (WHO) (2005) Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulfur Dioxide Global Update 2005

## Chapter 26 Onshore Noise and Vibration

British Standard Institute (BSI) British Standard (BS) 5228 (2009 +A1 2014) Code of Practice for noise and vibration control of construction and open sites - Part 1: Noise (hereafter referred to as BS 5228 – 1) (BSI 2009 +A1 2014a);

BS 5228 (2009 +A1 2014) Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration (hereafter referred to as BS 5228 – 2) (BSI 2009 +A1 2014b);

BS 7385 (1993) Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration (hereafter referred to as BS 7385 – 2). (BSI 1993);

BS 6472 (2008) Guide to Evaluation of human exposure to vibration in buildings, Part 1 Vibration sources other than blasting (hereafter referred to as BS 6472 – 1). (BSI 2008);

BS 8233:2014 Sound Insulation and Noise Reduction for Buildings (hereafter referred to as BS 8233 (BSI 2014);

UK Highways Agency (UKHE) Design Manual for Roads and Bridges (DMRB) LA 111 Sustainability & Environmental Appraisal. Noise and Vibration Rev 2, (hereafter referred to as DMRB Noise and Vibration) (UKHE 2020);

Environmental Protection Agency (EPA), Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) (hereafter referred to as EPA NG4) (EPA, 2016);

Institute of Environmental Management and Assessment (IEMA) Guidelines for environmental noise impact assessment (IEMA, 2014);

International Organization for Standardization (ISO) 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors - Part 2: General method of calculation (hereafter referred to as ISO 9613 – 2) (ISO 1996);

ISO 1996-1:2016 Acoustics - Description, measurement and assessment of environmental noise. Part 1: Basic quantities and assessment procedures (hereafter referred to as ISO 1996 – 1) (ISO 2016);

ISO 1996-2:2017 - Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels (hereafter referred to as ISO 1996 – 2) (ISO 2017);

Transport Infrastructure Ireland (TII) Guidelines for the Treatment of Noise and Vibration in National Road Schemes, Revision 1 (hereafter referred to as the TII Noise Guidelines 2004) (TII 2004).

## Chapter 27 Landscape and Visual Impact Assessment

Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2022)

Landscape Institute and the Institute of Environmental Management and Assessment, Guidelines of Landscape and Visual Impact Assessment: Third Edition (2013) (GLVIA3)

Clare County Development Plan (2023-2029)

Department of the Environment, Heritage and Local Government (DEHLG), Wind Energy Development Guidelines (2006 / 2019 Draft Revised).

Failte Ireland, EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects

Institute of Environmental Management and Assessment (IEMA) (3rd edition 2013). Guidelines for Landscape and Visual Assessment

## Chapter 28 Material Assets

Department of Housing, Planning and Local Government (August 2018) Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. DHPLG, Dublin.

Department of Housing, Planning and Local Government (December 2019) Draft Revised Wind Energy Development Guidelines. DHPLG, Dublin.

Department of Housing, Planning and Local Government (June 2017) Review of the Wind Energy Development Guidelines 2006 – Preferred Draft Approach. DHPLG, Dublin.

Department of the Environment, Community and Local Government (2013). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. DoEHLG, Dublin.

Department of the Environment, Heritage and Local Government (2006). Wind Energy Development Guidelines for Planning Authorities. DoEHLG, Dublin.

European Commission (2017): *Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report;*

Environmental Protection Agency (EPA) (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports.

Environmental Protection Agency (EPA) (2021) Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects.

Environmental Protection Agency. Corine Land Cover Maps.

ESB Networks (2019) Code of Practice for Avoiding Danger from Overhead Electricity Lines.

ESB (2017) EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland

Irish Rail Industry 2020 Irish Railway Standard IRS-203-B: EMC Co-ordination

Irish Wind Energy Association (2012) Best Practice Guidelines for the Irish Wind Energy Industry.

Clare County Council (2022) Clare County Development Plan 2022-2028

## Chapter 29 Traffic and Transportation

Department of Housing, Planning and Local Government (August 2018) Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. DHPLG, Dublin.

Department of Housing, Planning and Local Government (December 2019) Draft Revised Wind Energy Development Guidelines. DHPLG, Dublin.

Department of Housing, Planning and Local Government (June 2017) Review of the Wind Energy Development Guidelines 2006 – Preferred Draft Approach. DHPLG, Dublin.

Department of the Environment, Community and Local Government (2013). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. DoEHLG, Dublin.

Department of the Environment, Heritage and Local Government (2006). Wind Energy Development Guidelines for Planning Authorities. DoEHLG, Dublin.

Department of Transport, Tourism and Sport. (2019). Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works

Department of Transport, Tourism and Sport (2010) Guidance for the Control and Management of Traffic at Roadworks.

European Commission (2017): *Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report;*

Environmental Protection Agency (EPA) (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports.

Environmental Protection Agency (EPA) (2021) Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects.

Environmental Protection Agency. Corine Land Cover Maps.

ESB Networks (2019) Code of Practice for Avoiding Danger from Overhead Electricity Lines.

Irish Rail Industry 2020 Irish Railway Standard IRS-203-B: EMC Co-ordination

Irish Rail (2018) CCE Department Technical Guidance Document CCE-TMS-310 Guidance on Third Party Works

Irish Rail (2009) CCE Departmental and Multidisciplinary Standard I-DEP-0121 Third Party Works: Additional Details of Railway Safety Requirements.

National Roads Authority (2007). Traffic and Transport Assessment Guidelines. NRA, Dublin.

National Roads Authority (2011) NRA TD 41-42/11 Geometric Design of Major/Minor Priority Junctions and Vehicular Access to National Roads. NRA, Dublin.

National Roads Authority (2011) Project Appraisal Guidelines, Unit 5.5 Link Based Traffic Growth Forecasting. NRA, Dublin.

TII (October 2021). Planning and Evaluation PE-PAG-02017 Project appraisal guidelines for national roads unit 5.3 - travel demand projections

TII (May 2019) Project Appraisal Guidelines, Unit 5.3, Travel Demand Projections PE-PAG-02017. Transport Infrastructure Ireland.

TII (April 2017) DN-GEO-03060, Geometric Design of junctions. Transport Infrastructure Ireland.

TII (April 2017) DN-GEO-03031, Rural Road Link Design. Transport Infrastructure Ireland.

TII (2013) The Design Manual for Roads and Bridges ('DMRB'), Transport Infrastructure Ireland.

TII (May 2014) Traffic and Transport Assessment Guidelines PE-PDV-02045. Transport Infrastructure Ireland.

TII Automatic Traffic Count Data (on the M6)

## Chapter 30 Climate

Ahmad, S., Liu, H., Günther, A., Couwenberg, J., & Lennartz, B. (2020). Long-term rewetting of degraded peatlands restores hydrological buffer function. *Science of the Total Environment*, 749, 14157. <https://doi.org/10.1016/j.scitotenv.2020.141571>

Allekotte, L., & Garrett, P. (2024). Life Cycle Assessment of Electricity Production from an offshore V236-15 MW Wind Plant. Vestas Wind Systems A/S.

Bain, C., Bonn, A., Stoneman, R., Bruneau, P., Chapman, S., Coupar, A., Evans, M., Geary, B., Howat, M., Joosten, H., Keenleyside, C., Lindsay, R., Labadz, J., Littlewood, N., Lunt, P., Miller, C., Moxey, A., Orr, H., Reed, M. S., Shepherd, M., Smith, P., Swales, V., Thompson, D. B. A., Van de Noort, R., Wilson, J.D., Worrall, F. (2011) Commission of Inquiry on UK Peatlands. IUCN UK Peatland Programme, Edinburgh.

Bonn, Aletta & Allott, Tim & Evans, Martin & Joosten, Hans & Stoneman, Rob. (2016). Peatland restoration for ecosystem services. 10.1017/CBO9781139177788.002.

BSI (2019) BS EN ISO 14064-1:2019. Greenhouse gases. Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.

Burden, A., Smeaton, C., Angus, S., Garbutt, A., Jones, L., Lewis H. D. and Rees. S.M. (2020) Impacts of climate change on coastal habitats relevant to the coastal and marine environment around the UK. MCCIP Science Review 2020, 228–255.

Burrows, M.T., Hughes, D.J., Austin, W.E.N., Smeaton, C., Hicks, N., Howe, J.A., Allen, C., Taylor, P. and Vare, L.L. (2017). Assessment of Blue Carbon Resources in Scotland's Inshore Marine Protected Area Network. Scottish Natural Heritage Commissioned Report No. 957.

Burrows, M.T., O'Dell, A., Tillin, H., Grundy, S., Sugden, H., Moore, P., Fitzsimmons, C., Austin, W., Smeaton, C. 2024. The United Kingdom's Blue Carbon Inventory: Assessment of Marine Carbon Storage and Sequestration Potential in UK Seas (Including Within Marine Protected Areas). A Report to The Wildlife Trusts, WWF and the RSPB. Scottish Association for Marine Science, Oban

Burton, N.H.K., Daunt, F., Kober, K., Humphreys, E.M. and Frost, T.M. (2023) Impacts of Climate Change on Seabirds and Waterbirds in the UK and Ireland. MCCIP Science Review 2023, 26pp.

Calculating carbon savings from wind farms on Scottish peat lands: a new approach. 27 June 2008 Directorate Environment and Forestry Directorate, Energy and Climate Change Directorate; Part of Environment and climate change. ISBN: 9780755971473.

Carbon Trust (2024). Offshore wind industry product carbon footprinting guidance. Available at: <https://www.carbontrust.com/our-work-and-impact/guides-reports-and-tools/standardising-offshore-wind-carbon-footprinting> [Accessed 03/10/2024].

Cámaro García, W.C.D. and Dwyer. N. 2020. Status of Ireland's Climate2020., Available at: <https://www.epa.ie/publications/research/climate-change/research-386-the-status-of-irelands-climate-2020.php> [Accessed 02/10/2024].

Clare County Council (2024) Clare Climate Action Plan 2024-2029

Clare Noone, Deirdre McClean, Danielle Gallagher, Jennifer McElwain and Peter Thorne, 2023, IRELAND'S CLIMATE CHANGE ASSESSMENT Volume 1: Climate Science – Ireland in a Changing World, Environmental Protection Agency, Ireland, 228 pp,

Climate Change Advisory Council (2021) Carbon Budget Technical Report  
<https://www.climatecouncil.ie/media/climatechangeadvisorycouncil/Technical%20report%20on%20carbon%20budgets%202025.10.2021.pdf>

Climate Change Advisory Council (2023) Annual Review. Available at:  
[<https://www.climatecouncil.ie/councilpublications/annualreviewandreport/CCAC-AR-2023-FINAL%20Compressed%20web.pdf>](https://www.climatecouncil.ie/councilpublications/annualreviewandreport/CCAC-AR-2023-FINAL%20Compressed%20web.pdf)

Climate Change Performance Index (CCPI) (2023) Climate Change Performance Index 2024.  
Available at: <https://ccpi.org/download/climate-change-performance-index-2024/>

Climate Change Performance Index (CCPI) (2022) 2023 Results: Climate Mitigation Efforts of 57 Countries plus the EU. Covering 90% of the Global Greenhouse Gas Emissions. [www.ccpi.org](http://www.ccpi.org)

Collins M., M. Sutherland, L. Bouwer, S.-M. Cheong, T. Frölicher, H. Jacot Des Combes, M. Koll Roxy, I. Losada, K. McInnes, B. Ratter, E. Rivera-Arriaga, R.D. Susanto, D. Swingedouw, and L. Tibig, 2019: Extremes, Abrupt Changes and Managing Risk. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 589–655. <https://doi.org/10.1017/9781009157964.008>.

Community Climate Change Consortium for Ireland (June 2008) Ireland in a Warmer World.  
Available at: [<https://maths.ucd.ie/~plynn/Publications/Ireland\\_in\\_a\\_Warmer\\_World.pdf>](https://maths.ucd.ie/~plynn/Publications/Ireland_in_a_Warmer_World.pdf)

Cornes, R.C., Tinker, J., Hermanson, L., Oltmanns, M., Hunter, W.R., Lloyd Hartley, H., Kent, E.C., Rabe, B. and Renshaw, R. Climate change impacts on temperature around the UK and Ireland. MCCIP Science Review 2023, 18pp.

Cott, G. M., Beca-Carretero, P. and Stengel, D. B. (2021). Blue Carbon and Marine Carbon Sequestration in Irish Waters and Coastal Habitats. Marine Institute, Ireland.

Cottier-Cook, E., Beveridge, C., Bishop, J.D., Brodie, J., Clark, P.F., Epstein, G., Jenkins, S.R., Johns, D.G., Loxton, J., Macleod, A. and Maggs, C. (2017). MCCIP Science Review 2017: Non-Native Species. In Marine Climate Change Impacts Partnership: Science Review (pp. 47-61).

Curley, M., Coonan, B., Ruth, C.E. and Ryan, C. 2024. Ireland's Climate Averages 1991-2020. Summary Report. Met Éireann, Ireland.

Cunningham, C. and Hunt, C. (2023). Scottish Blue Carbon - a literature review of the current evidence for Scotland's blue carbon habitats. NatureScot Research Report 1326.

Deltas (2022). Skerd Rocks offshore wind farm metocean study.

Department of Communications, Climate Action and Environment (2021). Climate Action and Low Carbon Development (Amendment) Act 2021.

Department of Communications, Climate Action and Environment (2021) Climate Action Plan (CAP).

Department of Communications, Climate Action and Environment (2018). Sustainable Development Goals National Implementation Plan 2018-2020.

Department of Communications, Climate Action and Environment (2015). Climate Action and Low Carbon Development Act 2015.

Department of Environment, Climate and Communications (2023) Climate Action Plan 2024.

Department of Environment, Climate and Communications (2022). Climate Action Plan 2023.

Department of Environment, Climate and Communications (May 2022). Draft of the Second National Implementation Plan for the SDG Goals 2022-2024.

Department for Environment, Food and Rural Affairs (DEFRA) (2023). Calculate the carbon dioxide equivalent quantity of an F gas. Available at: <https://www.gov.uk/guidance/calculate-the-carbon-dioxide-equivalent-quantity-of-an-f-gas>. [Accessed 28/07/2023].

Department of the Environment, Heritage and Local Government (2007) National Climate Change Strategy 2007 – 2012. Stationery Office, Dublin.

Department of the Environment, Heritage and Local Government (2006). Wind Energy Development Guidelines for Planning Authorities (Revised). Stationery Office, Dublin.

Department of Climate Change, Action & Environment. Renewable Energy Action Plan (NREA) Submitted under Article 4 of Directive 2009/28/EC.

Department of Climate Change, Action & Environment National Energy Efficiency Action Plan (NEEAP).

Department of the Taoiseach (2020). Programme for Government: Our Shared Future.

De Grave, S., Fazakerley, H., Kelly, L., Guiry, M.D., Ryan, M. and Walshe, J. (2000). A study of selected maërl beds in Irish waters and their potential for sustainable extraction. Marine Resource Series, No. 10. Marine Institute, Dublin.

Diesing, M., Kröger, S., Parker, R., Jenkins, C., Mason, C. and Weston, K. (2017). Predicting the standing stock of organic carbon in surface sediments of the North-West European continental shelf. Biogeochemistry, 135, pp.183-200.

Doddy Clarke, E, Sweeney, C, McDermott, F, et al. Climate change impacts on wind energy generation in Ireland. Wind Energy. 2021; 1- 13. DOI: 10.1002/we.2673.

Dye, S., Berx, B., Opher, J., Tinker, J.P. and Renshaw, R. (2020) Climate change and salinity of the coastal and marine environment around the UK. Marine Climate Change Impacts Partnership Science Review 2020, 76–102. Available at: [https://www.mccip.org.uk/sites/default/files/2021-07/04\\_salinity.pdf](https://www.mccip.org.uk/sites/default/files/2021-07/04_salinity.pdf)

Eaton, J.M., McGoff, N.M., Byrne, K.A., Leahy, P. and Kiely, G. 2008 Land cover change and soil organic carbon stocks in the Republic of Ireland 1851-2000. *Clim Change*. 91, 917-334

EirGrid, Enduring Connection Policy 2.3 Constraints Report for Area H2 Solar and Wind (December 2022). Available at: <<https://cms.eirgrid.ie/sites/default/files/publications/ECP-2.3-Solar-and-Wind-Constraints-Report-Results-for-Area-H2-v1.0.pdf>>

EirGrid, Enduring Connection Policy 2.3 Constraints Report for Offshore West (April 2024) Available at: <https://cms.eirgrid.ie/sites/default/files/publications/ECP-2.3-Solar-and-Wind-Constraints-Report-Assumptions-and-Methodology-v1.1.pdf>

EMODnet (2021). EMODnet Geology Mapper. Available at: <https://www.emodnet-geology.eu/map-viewer/>

Environmental Protection Agency (2005) Climate Change Regional Climate Model Predictions for Ireland. Available at: <https://www.epa.ie/publications/research/climate-change/climate-change-regional-climate-model-predictions-for-ireland-.php>

Environmental Protection Agency (2009) SoilC – Measuring and Modelling of Soil Carbon Stocks and Stock Changes in Irish Soil Available at: [https://www.epa.ie/publications/research/land-use-soils-and-transport/STRIVE\\_35\\_Kiely\\_SoilOrganicC\\_syn\\_web.pdf](https://www.epa.ie/publications/research/land-use-soils-and-transport/STRIVE_35_Kiely_SoilOrganicC_syn_web.pdf)

Environmental Protection Agency (2012) Winners and Losers: Climate Change Impacts on Biodiversity in Ireland Climate Change Impacts on Biodiversity in Ireland: Projecting Changes and Informing Adaptation Measures. EPA Climate Change Research Programme 2007–2013 Report Series No. 19. Environmental Protection Agency. Available at: [https://www.epa.ie/pubs/reports/research/climate/CCRP\\_19.pdf](https://www.epa.ie/pubs/reports/research/climate/CCRP_19.pdf)

European Protection Agency (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available at: [https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR\\_Guidelines\\_2022\\_Web.pdf](https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR_Guidelines_2022_Web.pdf) [Accessed 04/10/2024].

Environmental Protection Agency (2022) Ireland's Greenhouse Gas Emissions Projections 2022-2040.

Environmental Protection Agency (2022) Soil Organic Carbon and Land-Use Mapping. Available at: <[https://www.epa.ie/publications/research/climate-change/Research\\_Report\\_422.pdf](https://www.epa.ie/publications/research/climate-change/Research_Report_422.pdf)>

Environmental Protection Agency (2022) Peatland Properties Influencing Greenhouse Gas Emissions and Removal. Available at: <[https://www.epa.ie/publications/research/climate-change/Research\\_Report\\_401.pdf](https://www.epa.ie/publications/research/climate-change/Research_Report_401.pdf)>

Environmental Protection Agency (2024) Ireland's National Inventory Report 2023 - Greenhouse Gas Emissions 1990-2021

Environmental Protection Agency (2024) Ireland's Greenhouse Gas Emissions Projections 2023-2050. EPA, Ireland.

EPA Research (2020) High-resolution Climate Projections for Ireland – A Multimodel Ensemble Approach. Available at: [https://www.epa.ie/publications/research/climate-change/Research\\_Report\\_339\\_Part1.pdf/](https://www.epa.ie/publications/research/climate-change/Research_Report_339_Part1.pdf/)

European Commission (2023) COP28 Climate Change Conference. Available at: <https://www.cop28.com/en/>

European Commission (2022) COP27 Climate Change Conference. Available at: <https://cop27.eg/#/>

European Commission (2021). EC Technical Guidance on Climate Proofing of Infrastructure. Available at: <https://ec.europa.eu/newsroom/cipr/items/722278/> [Accessed 25/03/2024].

European Commission (2019) COP25 Climate Change Conference. Available at: [https://ec.europa.eu/clima/events/cop25-climate-change-conference\\_en](https://ec.europa.eu/clima/events/cop25-climate-change-conference_en)

European Commission (2019) European Green Deal – European Climate Law, 2021.

European Commission (2015). COP21 Paris Agreement. Available at: [https://ec.europa.eu/clima/policies/international/negotiations/paris\\_en](https://ec.europa.eu/clima/policies/international/negotiations/paris_en)

European Commission, Directorate-General for Environment, *Guidance on integrating climate change and biodiversity into environmental impact assessment* – Publications Office, 2013, <https://data.europa.eu/doi/10.2779/11735>

European Commission (2010) Europe 2020 Strategy A European strategy for smart, sustainable and inclusive growth. Brussels.

European Environment Agency (EEA) (2024) Greenhouse gas emission intensity of electricity generation in Europe. Available at: <https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emission-intensity-of-1?activeAccordion=546a7c35-9188-4d23-94ee-005d97c26f2b>

European Union (2014). Directive 2014/52/EU of 16 April 2014 on the assessment of the effects of certain public and private projects on the environment.

European Union (2014) 2030 Climate and Energy Policy Framework.

Findlay, H.S., Artoli, Y., Birchenough, S.N.R., Hartman, S., León, P. and Stiasny, M. (2022) Climate change impacts on ocean acidification relevant to the UK and Ireland. Marine Climate Change Impacts Partnership Science Review, 2022 24pp.

Fox, C.J., Marshall, C., Stiasny, M.H. & Trifonova, N. Climate Change Impacts on Fish of Relevance to the UK and Ireland. MCCIP Science Review 2023, 17pp.

Frolking, Steve & Talbot, Julie & Jones, Miriam & Treat, Claire & Kauffman, John & Tuittila, Eeva-Stiina & Roulet, Nigel. (2011). Peatlands in the Earth's 21st century climate system. Environmental Reviews. 19. 371-396. 10.1139/a11-014.

Frontiers in Energy Research (2022) Climate Change Impact on the Offshore Wind Energy Over the North Sea and the Irish Sea. Available at: <https://www.frontiersin.org/journals/energy-research/articles/10.3389/fenrg.2022.881146/full>.

Gorham, Eville. "Northern Peatlands: Role in the Carbon Cycle and Probable Responses to Climatic Warming." Ecological Applications, vol. 1, no. 2, 1991, pp. 182–95. JSTOR, <https://doi.org/10.2307/1941811>

Government of Ireland (2019) Irelands Biodiversity Sectoral Climate Change Adaptation Plan Available at: [https://www.npws.ie/sites/default/files/files/32631\\_NPWS\\_Climate%20Change%20Reirish%20flora%20port\\_15Feb\(1\).pdf](https://www.npws.ie/sites/default/files/files/32631_NPWS_Climate%20Change%20Reirish%20flora%20port_15Feb(1).pdf)

Hall-Spencer, J.M. Kelly, J. and Maggs, C.A. (2008). Assessment of maerl beds in the OSPAR area and the development of a monitoring program. Available at: [https://www.npws.ie/sites/default/files/publications/pdf/Hall-Spencer\\_et\\_al\\_2008\\_OSPAR\\_maerl.pdf](https://www.npws.ie/sites/default/files/publications/pdf/Hall-Spencer_et_al_2008_OSPAR_maerl.pdf) [Accessed 04/10/2024].

Horsburgh, K., Rennie, A. and Palmer, M. (2020). Impacts of climate change on sea-level rise relevant to the coastal and marine environment around the UK. Marine Climate Change Impacts Partnership Science Review 2020, 116–131.

Hübler, C. and Rolfs, R. (2021). Analysis of the influence of climate change on the fatigue lifetime of offshore wind turbines using imprecise probabilities. Wind Energy, 24(3), pp.275-289.

IEA (2024), Renewables 2023, IEA, Paris

IEMA (2020). Environmental Impact Assessment Guide to Climate Change Resilience and Adaption. Available at: <https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020> [Accessed 22/03/2024].

IEMA (2022). Assessing Greenhouse Gas Emissions and Evaluating their Significant, 2nd Edition. Available at: <https://www.iema.net/resources/blog/2022/02/28/launch-of-the-updated-eia-guidance-on-assessing-ghg-emissions> [Accessed 19/04/2023].

Irish Data Buoy Network (2023). Available at:  
<http://vis.marine.ie/dashboards/#/dashboards/weather?buoy=M1&measurement=SeaTemperature> [Accessed August 2023].

Irish Peatland Conservation Council. Extent & Utilisation of Irish Peatlands. Available at:  
<https://www.ipcc.ie/a-to-z-peatlands/irelands-peatland-conservation-action-plan/peatland-action-plan/extent-utilisation-of-irish-peatlands/> [Accessed on 28/08/2024]

International Maritime Organisation (IMO) (2023). 2023 IMO (2023) 2023 IMO Strategy on Reduction of Greenhouse Gas Emissions from Ships. Accessed July 23, 2024.

IPCC (2006) chapter 7 Wetlands, Volume 4. Available at: <[https://www.ipcc-ssip.iges.or.jp/public/2006gl/pdf/4\\_Volume4/V4\\_07\\_Ch7\\_Wetlands.pdf](https://www.ipcc-ssip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_07_Ch7_Wetlands.pdf)>

IPCC, 2010. Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties. Available at:  
[https://www.ipcc.ch/site/assets/uploads/2017/08/AR5\\_Uncertainty\\_Guidance\\_Note.pdf](https://www.ipcc.ch/site/assets/uploads/2017/08/AR5_Uncertainty_Guidance_Note.pdf) – Accessed April 2021

IPCC (2021). Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

IPCC (2021). Weather and Climate Extreme Events in a Changing Climate. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

IRENA (2023), IRENA's energy transition support to strengthen climate action: Insight to impact 2023, International Renewable Energy Agency, Abu Dhabi.

James, M., Haldar, S., Varghese, R., Bhattacharya, S. and Pakrashi, V. (2023). Climate change effects on offshore wind turbines. In Wind Energy Engineering (pp. 413-422). Academic Press.

Jones, H.P., Hole, D.G. & Zavaleta, E.S. (2012) Harnessing nature to help people adapt to climate change Nature Climate Change 2, 504–509 doi:10.1038/nclimate1463

Küpper, F.C. and Kamenos, N.A. (2017). The future of marine biodiversity and marine ecosystem functioning in UK coastal and territorial waters (including UK Overseas Territories. Foresight Future of the Sea project. Available at:  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/663897/Future\\_of\\_the\\_Sea\\_-\\_Marine\\_Biodiversity\\_Final.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/663897/Future_of_the_Sea_-_Marine_Biodiversity_Final.pdf) [Accessed 23/01/2023]

Limpens, J., Berendse, F., Blodau, C., Canadell, J. G., Freeman, C., Holden, J., Roulet, N., Rydin, H., and Schaepman-Strub, G.: Peatlands and the carbon cycle: from local processes to global implications – a synthesis, Biogeosciences, 5, 1475–1491, <https://doi.org/10.5194/bg-5-1475-2008>, 2008.

Liu, H., Price, J., Rezanezhad, F., Lennartz, B., 2020a. Centennial-scale shifts in hydrophysical properties of peat induced by drainage. Water Resour. Res. 56 (10), e2020WR027538.

Luisetti, T., Turner, R.K., Andrews, J.E., Jickells, T.D., Kröger, S., Diesing, M., Paltriguera, L., Johnson, M.T., Parker, E.R., Bakker, D.C. and Weston, K (2019). Quantifying and valuing carbon flows and stores in coastal and shelf ecosystems in the UK. *Ecosystem Services*, 35, 67-76.

Martin, E., Banga, R. and Taylor, N.L. Climate change impacts on marine mammals around the UK and Ireland. MCCIP Science Review 2023, 22pp.

Met Éireann [www.met.ie](http://www.met.ie)

Moore, P.J. and Smale, D.A. (2020) Impacts of climate change on shallow and shelf subtidal habitats relevant to the coastal and marine environment around the UK. MCCIP Science Review 2020, 272–292.

Moradian, S., Olbert, A.I., Gharbia, S. and Iglesias, G. (2023). Copula-based projections of wind power: Ireland as a case study. Renewable and Sustainable Energy Reviews, 175, p.113147.

Masselink, G., Russell, P., Rennie, A., Brooks, S. and Spencer, T. (2020) Impacts of climate change on coastal geomorphology and coastal erosion relevant to the coastal and marine environment around the UK. MCCIP Science Review 2020, 158–189.

Mieszkowska, N., Burrows, M. and Sugden, H. (2020) Impacts of climate change on intertidal habitats relevant to the coastal and marine environment around the UK. MCCIP Science Review 2020, 256–271.

Nolan, P., and J. Flanagan, 2020: High-Resolution Climate Projections for Ireland – a Multi-model Ensemble Approach. Environmental Protection Agency. Available at:  
[<https://www.epa.ie/publications/research/climate-change/Research\\_Report\\_339\\_Part1.pdf>](https://www.epa.ie/publications/research/climate-change/Research_Report_339_Part1.pdf)

Nolan, P. 2015. EPA Report: Ensemble of Regional Climate Model Projections for Ireland. EPA climate change research report no. 159. EPA: Wexford.

Nolan, G., Cusack, C., & Fitzhenry, D. (Eds.) (2023). Irish Ocean Climate & Ecosystem Status Report. Marine Institute, Galway, Ireland.

Norton, D., Hynes, S., and Boyd, J. (2018). Valuing Ireland's Blue Ecosystem Services. Available at: [https://www.universityofgalway.ie/media/researchsites/semru/files/marine\\_ecosystem\\_service\\_non\\_technical\\_report\\_final.pdf](https://www.universityofgalway.ie/media/researchsites/semru/files/marine_ecosystem_service_non_technical_report_final.pdf) [Accessed 04/10/2023].

New York State Energy Research and Development Authority (2021) Offshore Wind Climate Adaptation and Resilience Study. Available at: [https://www.nyserda.ny.gov/\\_media/Project/Nyserda/Files/Programs/Offshore-Wind/Offshore-Wind-Climate-Adaptation-and-Resilience-Study.pdf](https://www.nyserda.ny.gov/_media/Project/Nyserda/Files/Programs/Offshore-Wind/Offshore-Wind-Climate-Adaptation-and-Resilience-Study.pdf).

O'Sullivan, J., Sweeney, C., Nolan, P. and Gleeson, E., 2015. A high-resolution, multi-model analysis of Irish temperatures for the mid-21st century. International Journal of Climatology. doi: 10.1002/joc.4419.

Riahi, K., Rao, S., Krey, V. et al. RCP 8.5—A scenario of comparatively high greenhouse gas emissions. Climatic Change 109, 33 (2011). <https://doi.org/10.1007/s10584-011-0149-y>

Payne, M.R., Kudahl, M., Engelhard, G.H., Peck, M.A. and Pinnegar, J.K. (2021). Climate-risk to European fisheries and coastal communities. PNAS, 118(40), e201808611.

Porter, J. S., Austin, W. E. N., Burrows, M. T., Clarke, T., Davies, G., Kamenos, N., Riegel, S., Smeaton, C., Page, C., Want, A., (2020). Blue carbon audit of Orkney waters. Scottish Marine and Freshwater Science Vol 11 No 3, 96pp.

Schlömer S., T. Bruckner, L. Fulton, E. Hertwich, A. McKinnon, D. Perczyk, J. Roy, R. Schaeffer, R. Sims, P. Smith, and R. Wiser (2014). Annex III: Technology-specific cost and performance parameters. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B.

Sharples, J., Holt, J., Wakelin, S. and Palmer, M.R. Climate change impacts on stratification relevant to the UK and Ireland. MCCIP Science Review 2022, 11pp.

Smeaton, C., Austin, W. and Turrell, W.R. (2020). Re-Evaluating Scotland's Sedimentary Carbon Stocks. Scottish Marine and Freshwater Science Vol 11 No 2, 16pp.

Kriemann, J. Savolainen, S. Schröder, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Scottish Government (2008). Calculating Carbon Savings from Wind Farms on Scottish Peat Lands

Somers, J. (2022). Technologies to decarbonise the EU steel industry, EUR 30982 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-47147-9.

Spyroudi, A. (2021). Carbon footprint of offshore wind farm components. Available at: [https://ore.catapult.org.uk/wp-content/uploads/2021/04/Carbon-footprint-of-offshore-wind-farm-components\\_FINAL\\_AS-3.pdf](https://ore.catapult.org.uk/wp-content/uploads/2021/04/Carbon-footprint-of-offshore-wind-farm-components_FINAL_AS-3.pdf) [Accessed 19/04/2023].

Susini, S., Menendez, M., Eguia, P. and Blanco, J.M. (2022). Climate change impact on the offshore wind energy over the North Sea and the Irish Sea. *Frontiers in Energy Research*, 10.

Sustainable Energy Authority Ireland (SEAI) Energy in Ireland 2022 Report. December 2022. Available at: <<https://www.seai.ie/publications/Energy-in-Ireland-2022.pdf>>

Thomson, R.C. and Harrison, G.P. (2015). Life Cycle Costs and Carbon Emissions of Offshore Wind Power. Available at: [https://www.climateexchange.org.uk/media/1461/main\\_report\\_-\\_life\\_cycle\\_costs\\_and\\_carbon\\_emissions\\_of\\_offshore\\_wind\\_power.pdf](https://www.climateexchange.org.uk/media/1461/main_report_-_life_cycle_costs_and_carbon_emissions_of_offshore_wind_power.pdf) [Accessed 19/04/2023].

TII Air Quality Assessment of Proposed National Roads – Standard PE-ENV-01107. December 2022. (TII 2022a) <<https://www.tiipublications.ie/library/PE-ENV-01107-01.pdf>>

TII Climate Assessment of Proposed National Roads – Standard PE-ENV-01105. December 2022 (TII 2022b) <<https://www.tiipublications.ie/library/PE-ENV-01105-01.pdf>>

TII Climate Guidance for National Roads, Light Rail, and Rural Cycleways (Offline & Greenways) - Overarching Technical Document – Overarching Technical Document PE-ENV-01104. December 2022 (TII 2022c) <<https://www.tiipublications.ie/library/PE-ENV-01104-01.pdf>>

TII Carbon Tool for Road and Light Rail Projects: User Guidance Document. GE-ENV-01106. December 2022. (TII, 2022d) <<https://www.tiipublications.ie/library/GE-ENV-01106-01.pdf>>

TII Carbon Tool for Road and Light Rail Projects: User Guidance Document. GE-ENV-01106. December 2022. <<https://www.tiipublications.ie/library/GE-ENV-01106-01.pdf>>

TII (2020) TII Carbon Assessment Tool (Version 2).

Tinker, J., Lowe, J., Pardaens, A., Holt, J. and Barciela, R. (2016). Uncertainty in climate projections for the 21st century northwest European shelf seas. *Progress in Oceanography*, 148, 56-73.

Tomlinson, R. 2005 Soil carbon stocks and changes in the Republic of Ireland. *J. Environ. Manage.* **76**, 77-93

Townhill, B.L., Couce, E., Tinker, J., Kay, S. and Pinnegar, J.K. (2023). Climate change projections of commercial fish distribution and suitable habitat around north-western Europe. *Fish and Fisheries*.

Townhill, B.L., Artioli, Y., Pinnegar, J.K. and Birchenough, S.N.R. (2022). Exposure of commercially exploited shellfish to changing pH levels: how to scale-up experimental evidence to regional impacts. *ICES Journal of Marine Science*, 79, 2362–2372.

Turunen, J., Tomppo, E., Tolonen, K., & Reinikainen, A. (2002). Estimating carbon accumulation rates of undrained mires in Finland—application to boreal and subarctic regions. *The Holocene*, 12(1), 69–80. <https://doi.org/10.1191/0959683602hl522rp>

Turunen, Jukka & Roulet, Nigel & Moore, Tim & Richard, Pierre. (2004). Nitrogen deposition and increased carbon accumulation in ombrotrophic peatlands in Eastern Canada. *Global Biogeochemical Cycles*. 18. 10.1029/2003GB002154.

UNECE (2021). Carbon Neutrality in the UNECE Region: Integrated Life-cycle Assessment of Electricity Sources. Available at: [https://unece.org/sites/default/files/2022-04/LCA\\_3\\_FINAL%20March%202022.pdf](https://unece.org/sites/default/files/2022-04/LCA_3_FINAL%20March%202022.pdf) [Accessed 19/04/2023].

UNFCCC (1997) Kyoto Protocol to the United Nations Framework Convention on Climate Change adopted at COP3 in Kyoto, Japan, on 11 December 1997

UNFCCC (2012) Doha Climate Change Conference United Nations Framework Convention on Climate Change

United Nations (2023). The Sustainable Development Goals Report 20223

United Nations (2015) Transforming our World: the 2030 Agenda for Sustainable Development. Available at: <https://sustainabledevelopment.un.org/sdgs>

United Nations (2012). Doha Amendment to the Kyoto Protocol. United Nations Framework Convention on Climate Change.

United Nations (1998). Kyoto Protocol to the United Nations Framework Convention on Climate Change. United Nations Framework Convention on Climate Change, Bonn.

Wakelin, S., Townhill, B., Engelhard, G., Holt, J. and Renshaw, R. (2021) Marine heatwaves and cold spells, and their impact on fisheries in the North Sea. *Journal of Operational Oceanography* (Copernicus Marine Service Ocean State Report, 5), s91

Weisenfeld, N., Bix, B., Fried, M., Moran, G., Phillips, C., and Whiting, M. (2021). NYSERDA: Offshore Wind Climate Adaptation and Resiliency Study.

Wilson, D., 2021. Opening Statement for the Public Session of the Joint Committee on Agriculture and the Marine on the Subject of Rewetting of Peatlands and the Impact on Drainage for Surrounding Farmland. accessed February, 2023. Available at: [https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint\\_committee\\_on\\_agriculture\\_and\\_the\\_marine/submissions/2021/2021-03-02\\_opening-statement-dr-david-wilson-earth\\_y-matters-environmental-consultants\\_en.pdf](https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_agriculture_and_the_marine/submissions/2021/2021-03-02_opening-statement-dr-david-wilson-earth_y-matters-environmental-consultants_en.pdf).

Wind Energy Engineering (2023) Climate Change Effects on Offshore Wind Turbines. Available at: <https://openresearch.surrey.ac.uk/esploro/outputs/bookChapter/Chapter-28---Climate-change-effects/99778742102346>.

Wiser, R., Z. Yang, M. Hand, O. Hohmeyer, D. Infield, P. H. Jensen, V. Nikolaev, M. O’Malley, G. Sinden, A. Zervos, 2011: Wind Energy. In IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

World Meteorological Organisation (2024) State of the Global Climate 2023

## Chapter 31 Major Accidents and Natural Disasters

Central Statistics Office Ireland. Census of Ireland.

Clare County Council (2023). Clare County Development Plan 2023-2029

Clare County Council (2018). Clare County Major Emergency Response Plan

Clare County Council (2024) Clare County Council Local Authority Climate Action Plan 2024-2029.

Available at: <https://www.clarecoco.ie/services/climate/publications/clare-climate-action-plan-2024-2029-55368.pdf>

Department of Defence (2020). A National Risk Assessment for Ireland.

Department of Environment, Heritage and Local Government (2010). A Guide to Risk Assessment in Major Emergency Management.

Department of Transport (2010). Guidance for the Control and Management of Traffic at Roadworks – Second Edition.

MCA (2021). MGN 654 (Merchant and Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response.

Environmental Protection Agency (2014). Guidance on Assessing and Costing Environmental Liabilities.

Environmental Protection Agency (May 2022): Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. EPA, Wexford.

ESB 2017 EMF and You: Information about Electric & Magnetic Fields and the electricity network in Ireland. Available at: <https://esb.ie/docs/default-source/default-document-library/emf-public-information-booklet-v9.pdf?sfvrsn=0>

European Commission (2017). Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report.

European Union (2011). Directive 2011/92/EU. European Parliament and European Council.

European Union (2014). Directive 2014/52/EU. European Parliament and European Council.

Failte Ireland <https://www.failteireland.ie/>

Galway County Council (2022) Galway County Development Plan (2022-2028)

Galway County Council Major Emergency Plan Revised (2021)

Galway County Council (2024). Galway County Council Local Authority Climate Action Plan 2024-2029. Available at: <https://consult.galway.ie/en/consultation/galway-county-council-local-authority-climate-action-plan-2024-2029#:~:text=Galway%20County%20Council%20is%20delighted,climate%20neutral%20economy%20by%202050>

Gas Networks Ireland Code of Practice (2021) <https://www.gasnetswks.ie/docs/business/safety-in-the-business/GNI-Code-of-Practice-for-Working-in-Vicinity-of-Tx-Network-2021.pdf>

Government of Ireland (2021), Project Ireland 2040 – National Marine Planning Framework

Health & Safety Authority (2013) Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013

Health Service Authority advice for Health and Safety in the Renewable Sector  
[https://www.hsa.ie/eng/your\\_industry/renewable\\_energy/](https://www.hsa.ie/eng/your_industry/renewable_energy/)

HSE Emergency Management Area 2 Crisis Management Team Major Emergency Plan (Covering Geographical Areas of Counties Galway, Mayo and Roscommon) July 2023

HSE Emergency Management Area 3 Crisis Management Team Major Emergency Plan (Covering Geographical Areas of Counties Clare, Limerick and North Tipperary) July 2023

Irish National Seismic Network. Available at <https://www.insn.ie/>

Irish Statute Book (1996). Dumping At Sea Act, 1996 (S.I. No. 14 of 1996)

Irish Statute Book (2000). The European Communities Control of Major Accident Hazards Involving Dangerous Substance Regulations. (S.I. No. 476 of 2000).

Irish Statute Book (2005). Safety, Health and Welfare at Work Act 2005 (S.I. No. 10 of 2005).

Irish Statute Book (2015). Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015)

Mid-West Regional Planning Guidelines 2010-2022

Mid-West Regional Planning Guidelines 2010-2022.

North and Western Regional Assembly, 2020. Regional and Spatial Economic Strategy 2020-2032.

Regional Planning Guidelines for the West Region (2010 – 2022)

Rialtas na hÉireann 2021-2022 National Risk Assessment: Overview of Strategic Risks.  
<https://www.gov.ie/pdf/?file=https://assets.gov.ie/220847/1291534a-9b27-4c05-92ed-d3bd21adc89a.pdf#page=null>

Shannon Foynes Port Onshore Emergency Response Plan (2024)

Southern Regional Assembly, 2020, Regional Spatial & Economic Strategy 2020 – 2032

## Chapter 34 Nature Positive Aspects

ABPmer (2024). Biodiversity and Mitigation, A review and glossary of related terms and definitions relevant to offshore wind., ABPmer Report No. R.4432. A report produced by ABPmer for Offshore Wind Industry Council, May 2024. Available at: <https://www.owic.org.uk/media/mx3fzunn/biodiversity-and-mitigation-glossary-and-review-of-terms.pdf>

Degraer, S., D.A. Carey, J.W.P. Coolen, Z.L. Hutchison, F. Kerckhof, B. Rumes, and J. Vanaverbeke (2020). Offshore wind farm artificial reefs affect ecosystem structure and functioning: A synthesis. *Oceanography* 33(4):48–57, <https://doi.org/10.5670/oceanog.2020.405>.

Kenchington, R., Kaiser, M. and Boerder, K. (2018). MPAs, fishery closures and stock rebuilding. Rebuilding of marine fisheries part, 2, 182-216.

Langhamer, O. and Wilhelmsson, D. (2009). Colonisation of fish and crabs of wave energy foundations and the effects of manufactured holes – A field experiment. *Marine Environmental Research*, 68(4), pp.151-157.

Linley, E.A.S., Wilding, T.A., Black, K., Hawkins, A.J.S. and Mangi, S. (2007). Review of the reef effects of offshore wind farm structures and their potential for enhancement and mitigation. Report to the Department for Business, Enterprise and Regulatory Reform. RFCA/005/0029P.

Molen, J.v.d., García-García, L.M., Whomersley, P., Callaway, A., Posen, P.E., Hyder, K. (2018). Connectivity of larval stages of sedentary marine communities between hard substrates and offshore structures in the North Sea. *Sci Rep* 8, 14772. <https://doi.org/10.1038/s41598-018-32912-2>. Available at: <https://www.nature.com/articles/s41598-018-32912-2>

PrePARED (2024). PrePARED – The First Two Years. Report from the PrePARED Annual Knowledge Exchange Meeting 2024 (AKEM24). PrePARED Report No. 3, April 2024. Available at: <https://owecprepared.org/wp-content/uploads/2024/06/PrePARED-Report-No-3-AKEM24.pdf>

Raoux, A., Tecchio, S., Pezy, J-P., Lassalle, G., Degraer, S., Wilhelmsson, D., Cachera, M., Ernande, B., Le Guen, C., Haraldsson, M., Grangere, K., Le Loc'h, F., Dauvin, J-C. & Niquil, N. (2017). Benthic and fish aggregation inside an offshore wind farm: Which effects on the trophic web functioning. *Ecological Indicators*. 72, 33-46.

Roach M., Revill A., Johnson M. J. (2022). Co-existence in practice: a collaborative study of the effects of the Westermost Rough offshore wind development on the size distribution and catch rates of a commercially important lobster (*Homarus gammarus*) population. *ICES Journal of Marine Science*, Volume 79, Issue 4, May 2022, Pages 1175–1186, <https://doi.org/10.1093/icesjms/fac040>. Available at: <https://academic.oup.com/icesjms/article/79/4/1175/6547885>

Rouse S, Lacey NC, Hayes P and Wilding TA (2019). Benthic Conservation Features and Species Associated With Subsea Pipelines: Considerations for Decommissioning. *Front. Mar. Sci.* 6:200. doi: 10.3389/fmars.2019.00200. Available at: <https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2019.00200/full>

Russel, D.J.F., Brasseur, S.M.J.M., Thompson, D., Hastie, G.D., Janik, V.M., Aarts, G., McClintock, B.T., Matthiopoulos, J., Moss, S.E.W., McConnell, B. (2014). Marine mammals trace anthropogenic structures at sea. *Current Biology*, Volume 24, Issue 14, Pages 638-639. Available at: <https://www.cell.com/current-biology/fulltext/S0960-98221400749-0>

Russell, D.J.F., Hastie, G.D., Thompson, D., Janik, V.M., Hammond, P.S., Scott-Hayward, L.A.S., Matthiopoulos, J., Jones, E.L. and McConnell, B.J. (2016). Avoidance of wind farms by harbour seals is limited to pile driving activities. *J Appl Ecol*, 53: 1642-1652. <https://doi.org/10.1111/1365-2664.12678>. Available at: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.12678>

Scheidat, M., Tougaard, J., Brasseur, S., Carstensen, J., van Polanen Petel, T., Teilmann, J., and Reijnders, P. (2011) Harbour porpoises (*Phocoena phocoena*) and wind farms: A case study in the Dutch North Sea, Environmental Research Letters, 6(2), p. 025102. doi:10.1088/1748-9326/6/2/025102. Available at: <https://iopscience.iop.org/article/10.1088/1748-9326/6/2/025102>

Scottish Government (2023). Benthic Species ScotMER Receptor Group - Evidence map (updated January 2023). Available at: <https://www.gov.scot/publications/benthic-species-specialist-receptor-group/>

Ter Hofstede, R., Driessen, F.M.F., Elzinga, P.J., Van Koningsveld, M., and Schutter, M. (2022). Offshore wind farms contribute to epibenthic biodiversity in the North Sea. Journal of Sea Research, Vol 185, July 2022. Available at: <https://www.sciencedirect.com/science/article/pii/S1385110122000673>

Vallejo G.C., Grellier K., Nelson E.J., McGregor R.M., Canning, S.J., Caryl, F.M, and McLean, N. (2017). Responses of two marine top predators to an offshore wind farm. *Ecol Evol*; 7: 8698–8708. <https://doi.org/10.1002/ece3.3389>. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1002/ece3.3389?msqid=0a4d739e1550667803e466b1148d67f8>

Wilber D.H., Brown L., Griffin M., DeCelles G.R., Carey D.A. (2022). Offshore wind farm effects on flounder and gadid dietary habits and condition on the northeastern US coast. *Mar Ecol Prog Ser* 683:123-138. <https://doi.org/10.3354/meps13957>. Available at: [https://www.int-res.com/articles/meps\\_oa/m683p123.pdf](https://www.int-res.com/articles/meps_oa/m683p123.pdf)

Wilhelmsson, D., Malm, T. and Öhman, M. (2006). The influence of offshore windpower on demersal fish. *ICES Journal of Marine Science*, 63(5), pp.775-784.

Wilson, Jennifer C., Mike Elliott, Nick D. Cutts, Lucas Mander, Vera Mendão, Rafael Perez-Dominguez, and Anna Phelps (2010). Coastal and Offshore Wind Energy Generation: Is It Environmentally Benign? *Energies* 3, no. 7: 1383-1422. <https://doi.org/10.3390/en3071383>. Available at: <https://www.mdpi.com/1996-1073/3/7/1383>

Wright S. R., Lynam C. P., Righton D. A., Metcalfe J., Hunter E., Riley A., Garcia L., Posen P., Hyder K. (2018). Structure in a sea of sand: fish abundance in relation to man-made structures in the North Sea. *ICES Journal of Marine Science*, Volume 77, Issue 3, May-June 2020, Pages 1206–1218, <https://doi.org/10.1093/icesjms/fsy142>. Available at: <https://academic.oup.com/icesjms/article/77/3/1206/5145713>