AIC+BRN

AICBRN Discussions on the Working Group Themes Introduced by the National Economic & Social Council's Report: *Collaboration on Climate and Biodiversity: Shared Island as a Catalyst for Renewed Ambition & Action*

On Wednesday 28th September 2022, the All Island Climate & Biodiversity Research Network (AICBRN) gathered for an in person meeting to discuss the contents of the National Economic & Social Council (NESC) 2021 report (National Economic and Social Council, 2021) on a shared island approach to climate and biodiversity issues and to explore possible actions within its five key themes. The meeting began with a presentation from Jeanne Moore (Policy Analyst, NESC) outlining the NESC shared island work on climate and biodiversity and highlighting key messages from the report. This was followed by helpful input from Eoghan Duffy from the Department of the Taoiseach (Shared Island Unit), and a brief Q&A session. AICBRN member representatives formed five separate discussion groups, corresponding with the five key themes outlined in the NESC report. They discussed how to advance and contribute existing and new initiatives within these areas, as well as a potential roadmap for delivery.

The NESC report demonstrates that there is a real ambition to collaborate across the island to deal with climate and biodiversity in an integrated, positive, and imaginative manner. The AICBRN and NESC share the belief that climate change and biodiversity loss are integrated, urgent and shared challenges. AICBRN works collaboratively on these issues, bringing together researchers from a wide range of disciplines across the island of Ireland who are undertaking research in biodiversity and climate. AICBRN's ambition is to provide a robust evidence base for biodiversity and climate trends and action.

The following represents a summary of discussions by AICBRN member representatives on the five key themes set out in the NESC report, namely:

1. Sustainable Agriculture: Expanding Shared Areas of Interest
2. All-Island Opportunities from a Circular Economy and Bio-economy
3. Collaborations on Renewable Energy
4. Valuing Networks for Nature
5. Marine and Coastal Climate Adaptation and Impact

1. Sustainable Agriculture: Expanding Shared Areas of Interest

The Working Group (WG) identified a need to build on current climate and biodiversity activities. For example, mapping and identifying gaps and opportunities for synergies, fragmentation, and data

sharing. There is also a need to leverage existing resources and facilities e.g., the National Agriculture Carbon Observatory. There is a gap in knowledge in the social sciences, and the need to learn from across Europe and tap into examples of good practice. Teagasc focuses a great deal on climate issues and less on biodiversity issues.

Dissemination in this area has had mixed success: farming stakeholders are confused, and there have been demonstrations against Signpost Farms. The public is not well informed in relation to agricultural management in the environmental, social, and economic spheres.

Key Challenges and Opportunities

The key challenges identified within this theme were mapping the current activities and resources in the areas across institutes and identifying gaps. Biodiversity and climate are often dealt with separately in this area, but there is an important opportunity for a multidisciplinary approach.

Actions

The following actions were recommended within this area:

1. Influence schools, agricultural colleges, and universities to provide better education in this area.
2. Set up a national agricultural research facility, where existing facilities could be linked into a virtual network.
3. Integrate biodiversity with climate studies and vice versa.
4. Ensure consistent messages to landowners on sustainable land management.
5. Utilise Teagasc Signpost Farms for knowledge transfer.
6. Map current research and resources in the climate biodiversity area and identify gaps north and south.
7. Identify and communicate biodiversity and climate messages to stakeholders.
8. Introduce sustainable agricultural living laboratories.
9. Create a network of demonstration farms e.g., Signpost Farms; EIPs, and integrate with other disciplines.
10. Set up a conference to bring the biodiversity and climate research programmes together. Enviro is not currently meeting this need. A one-page policy brief could be produced at the end of the conference. The conference could be timed with the launch of the National Land Use Strategy.
11. Establish working group secretaries (several volunteers to lead each WG).

2. All-Island Opportunities from a Circular Economy and Bio-economy

The WG identified that elements of circular economy (CE) research occur beyond the AICBRN in areas such as manufacturing and materials innovation. Examples can be seen in the work of the Rediscovery Centre (RDC) and the Circuleire project in the south of Ireland. The Environmental Protection Agency's (EPA) Green Enterprise: Innovation for a Circular Economy is an annual funding call to support innovators in Ireland to develop, demonstrate and implement CE approaches in their business models.

The WG felt it was missing input from the Northern Irish perspective. However, there is an opportunity for the AICBRN to make circular food systems, nature-based solutions research and wider bioeconomy issues a focus, given its expertise within and beyond work conducted in BiOrbic and Teagasc.

The Rediscovery Centre has a funded mandate (via the EPA) to work on the issue of raising awareness of CE amongst the public. It was noted that we should not duplicate effort but see where added value can be created particularly in terms of how the issue is linked with just transitions. Issues of sustainable production and consumption that would underpin sustainable lifestyles is a topic that could be explored on all island level, building on previous conducted work funded by the EPA.

Key Challenges and Opportunities

Some of the key challenges identified in this area were a lack of conceptual detail and rigour as well as limited adoption of circular approaches. An evidence base is emerging, and Ireland currently ranks second lowest in the EU for circular material use rate, so this is a space that demands more attention across the board. There is an opportunity to scrutinise and challenge assumptions within current CE approaches and policies, and to prevent greenwashing. Demand management and adaptation of current production and consumption systems will play a large part in implementing CE policies. Policies and their implementation should be subject to regular monitoring and evaluative assessments to identify whether they are having the desired impact.

Actions

1. Develop links with engineering, manufacturing, and business management.
2. Explore activities in other initiatives and research centres e.g., Circuleire, The Rediscovery Centre, AMBER.
3. Identify core themes in CE relating directly to climate and biodiversity.
4. Identify barriers to activating CE system change e.g., political, economic, and social.
5. Focus more on "designing" in circularity upstream as defined in the Government's Circular Economy Strategy (Government of Ireland, 2021), Ireland's first national circular economy strategy.
6. Explore opportunities in agriculture to lower discharges and nutrient loops.
7. Develop a case for fundamental research into CE beyond innovation and enterprise.
8. Explore the Northern Irish dimension of research into CE issues, as well as the political nuances around the EU Circular Economy Action Plan (European Commission, 2020) vs the UK Government's Circular Economy Package policy (Department for Environment, Food and Rural Affairs (Defra), the Department of Agriculture, Environment and Rural Affairs (DAERA), the Welsh Government and the Scottish Government, 2020).
9. Identify relevant core areas and issues in current CE plans with a north/south element.
10. Conduct fundamental and critical research about the CE itself e.g., concerns about lack of attention to biophysical limits, the lack of attention to demand management and the assumption of eternal growth leading to greenwashing.

In consideration of the AICBRN choosing to progress a conference as part of a series of all island conferences, the WG identified two possible conference titles within this area:

1. *Critical perspectives on all-island CE action for biodiversity and climate change.*
2. *What does the CE mean for biodiversity and climate change research in an all-island context?*

In the short term, the WG believed that reaching out to CE researchers beyond the AICBRN would be beneficial, as well as conducting a desk study on climate change and bio elements of CE plans and policies. In the medium term, a decision should be made on whether CE is a useful working group for the AICBRN on its own, or if it could permeate another WG. Longer term actions could be confirmed after considering the above.

3. COLLABORATIONS ON RENEWABLE ENERGY

BIORBIC, ICRAG and MaREI were named as key groups working in this area. A need was identified for some coordination and added expertise and in particular on biodiversity and physical impacts e.g., on coastal erosion impacts. Questions were asked around who has funded this area in the past as well as whether there has been any north south agency work on this. It was noted that the social sciences are missing from these discussions. Some institutions are missing in these activities but have insights that could add value. There was an overall feeling that existing groups are examining parts of the elephant but there do not seem to be any groups studying the elephant as a whole.

Key Challenges and Opportunities

Managing renewable energy infrastructure to minimise damage and maximise biodiversity benefits was identified as a challenge within this area. For example, there are many wind farms on peat bogs, and the biodiversity impacts of this need to be considered. It was noted that 'renewable' does not necessarily equal 'circular' unless systems are well designed. A comprehensive mapping of the whole lifecycle of renewable energies impact is missing. What to do with decommissioned materials e.g., wind turbines and solar panels should be considered, as well as toxicology and a comprehensive lifecycle analysis. There is also a just transition component when discussing imports and international justice aspects.

The topic of energy justice was acknowledged as a hugely relevant topic in terms of access, affordability, and stability. Community acceptance was also identified as a considerable challenge. It is difficult to break the acceptability barrier and communicate community benefits including co-ownership and funding e.g., GAA refit, improved schools, reduced bills etc. The WG pointed to international best practices such as methods adopted in Denmark. It is important that benefits flow to communities in the context of a just transition.

It was noted that renewable energy transmission needs to be considered, and not just generation. Going from a few fixed points to many sources is intermittent – continuity of supply must be ensured. Further, the resilience of renewable energy systems must be ensured against climate extremes. There are opportunities to develop local networks with more geographically weighted development of renewable energy sources (near source with a local community benefit) to improve resilience.

A review of current renewable energy sources is needed in the light of the emerging climate and biodiversity crises. For example, hydrogen is a greenhouse gas, so we must consider how we can

assure against fugitive emissions in the future. There is a need for an integrated view, and a review of the impact of Anaerobic Digestion (AD) on the pressures on land use.

Actions

1. Advance initiatives through serendipitous sharing back of instrumented measurements to the research community to improve fundamental understanding and possibly future projections.
2. Work with the energy companies to ensure open access to the data collected and encourage their exploitation.
3. Increase opportunities for data sharing in this area.
4. Review the use of tidal systems. The major challenges for biodiversity and management should be addressed in this area e.g., the potential impact on coastal erosion.
5. Horizon scan: innovative opportunities could come out of this activity e.g., shallow geothermal in peat bogs either for electric or heating.
6. Coordinate and connect existing groups and small pot resources to do something more.
7. Involve a broader range of expertise to do lifecycle and distribution analysis properly e.g., social sciences, spatial, geological and energy modelling.
8. Engage with stakeholders to understand acceptability and gain buy-in. There could be an important regional focus.
9. Involve broader expertise within this area. This would considerably improve the initial discussion with just a few people.
10. Produce a focused white paper regarding bio sensors. Projects could be retrofitted to have such sensors.
11. Think about where in lowland areas we could restore or conserve in place of upland areas.

The WG agreed that the AICBRN could lead on the impacts on climate, biodiversity and just transition within this area. The biodiversity aspect has generally been underrepresented in the process to date, and there is a need to rebalance the focus on holistic costs and benefits environmentally. The Network could play a leading role in bringing people together with several existing key stakeholders. The WG recognised the substantial role that the existing SFI centres play. For example, existing work on the Dingle Peninsula is an example of good stakeholder engagement. Perhaps AICBRN brings a holistic view that others cannot, providing extra value over organisations such as MaREI, though MaREI clearly has a huge role to play in this area.

In consideration of the AICBRN choosing to progress a conference as part of a series of all island conferences, the WG felt there should be a focus on the full lifecycle and innovative solutions that are nature focused. Future discussions should consider:

1. Lifecycle;
2. Community buy in; and
3. Energy justice.

A possible conference title could be: *Identifying synergies and conflicts in renewable energy for biodiversity, climate action and energy justice.*

4. VALUING NETWORKS FOR NATURE

The AICBRN can play a pivotal role in Valuing Networks for Nature by horizon scanning, mapping physical infrastructure, building on existing capacity, signposting opportunities, securing divestment of funding, synthesising knowledge, and adding value. The current SFI Centre model has created accidental 'silos' with a university research centre point. A Network Research Hub like AICBRN has the potential to be a more successful model encompassing inter/transdisciplinary approaches, incorporating multiple institutions and traversing rural and urban geographies. A new landscape could see research being conducted more effectively by network working groups (WGs). NESC propose that the WG Valuing Networks for Nature will operate for a fixed period (e.g., 6 months), whereas the AICBRN Network will persist and contribute strategic academic perspectives.

Action: Currently AICBRN isn't an organisation that can receive funding. An SFI Centres/Research Hub model would enable the network to leverage funding

Action: The government departments being tasked for each NESC WG and key assistant secretaries in the South and permanent secretaries in the North need to be mapped.

Rural-Urban Challenges

The rural-urban divide is often a constraint for nature networks. Urbanization is one of the most dominant processes defining the current era of global environmental change and can overshadow rural perspectives. In contrast rural perspectives in Ireland are dominated by agricultural productivity imperatives. The divide means that sustainability projects can be piece-meal in both rural and urban settings and effective integration of nature networks and ecosystem services into everyday landscape planning, management and decision-making remains an ongoing challenge. The research community can act as a bridge between rural and urban perspectives and provide horizon scanning at research project scale.

Action: For successful change to occur at county level to occur it must be: 1. Embedded at policy level (pushed with Councillors) and, 2. Use guerrilla bottom-up tactics (with public, NGOs).

Action: In rural areas land ownership is primarily private and this must be recognised more effectively in climate and biodiversity aspirations

An Enabling Environment

An 'enabling environment' needs to be created for networks for nature. Co-creation of nature-based solutions work when people don't realise it is happening. The All-Ireland Pollinator Plan (National Biodiversity Data Centre, 2021) evolved as a bottom-up proposal with little know-how, and no funding, but it worked. It was initiated in a lengthy brainstorm, followed by the creation of guidelines, then these were widely communicated, which seeded and inspired action. We need to co-create an enabling environment for just transitions for nature with scientists identifying the aims, encouraging community buy-in, and bringing pieces of work together (e.g., horizon scanning, mapping infrastructure).

Recommended Action: Long term views for co-creation of an enabling environment are needed to ensure success. The successful Burren Programme was 20 years in the making.

Corporate Social Responsibility (CSR)

Corporate Social Responsibility has never been so relevant, and organisations are increasingly being required, encouraged, lobbied, or are genuinely interested in being sustainable. However, greenwashing is also prevalent whereby company marketing is just a façade to give the impression that their policies, practices, and products are environmentally friendly. AICBRN and/or an SFI Climate and Biodiversity Centre could help bridge the gap between the need for green funding and CSR.

Action: Meet with ARUP or Ernst & Young to discuss more effective CSR for Biodiversity and Climate.

Role of Universities

Universities should provide inspiration by inspiring and implementing best practices and creating more resources for SDGs, climate, and biodiversity in their regional settings. All universities need lead officers for Biodiversity/Climate/Sustainability. Universities should additionally be demonstrating the best of CSR for the environment to give a benchmark for other corporate players. Universities could help change the narrative and help call out or negate green washing. This would have a hugely positive educational feedback potential for undergraduate, postgraduate students, as well as staff.

Universities, like most other institutions, have carbon emissions which they need to own, offset, or reduce but either way they could also own these emissions more effectively. For example, QUB has carbon management information sheet. Instead of offsetting carbon emissions, offset funds could potentially be used to pay for more Biodiversity and Climate green infrastructure e.g., restore or create habitats locally. All Irish universities and colleges could apply corporate natural capital accounting (EFTEC, RSPB, PWC, 2015) and contribute collectively into a green fund, or each university could have a dedicated green fund. With 15 HEA institutions a significant annual budget could be generated.

Action: Irish universities could be part of the solution by promoting natural capital accounting and helping generate a green fund.

Action: Universities/colleges could be ranked terms of their Biodiversity/Climate/Sustainability successes.

Nature and Habitats

We can improve the science around nature biodiversity and habitat initiatives, but we also need visioning and fact checking and development in this space. We need big ideas, follow through, with checks and balances in place. Initiatives can be framed under three main topic areas:

- Knowledge Network (intellectual, nature, values)
- Enabling Network (Citizen Science (CS) Stakeholders, People)
- Action Network (Place, Nature)

Knowledge Network

EU Nature Network strategy is to legally protect at least 30% of the land, including inland waters, and 30% of the sea in the EU, of which at least one third (10% of land and 10% of sea) to be under strict protection. The latter is especially challenging in the absence of an integrated land use strategy or a Government Strategy on Networks for Nature. Little progress has been made in extending the protected area network (OECD, 2021).

Most people feel impotent when contemplating the climate and biodiversity challenges ahead and that individual actions alone will not make a lot of difference. Additionally, many people are not that interested in climate action. To ensure our survival as a species we need a new narrative around climate and biodiversity. Politics are crucial and voices for the environment need to be louder.

The NBDC invasive alien species (IAS) website, which disseminates data and information, has been a welcome development and has raised awareness. While Ireland has transposed EU IAS Regulation (in 2015) and is working on its implementation there is still a need for an invasive species policy. Additionally, efforts are required to adopt, resource, and implement an island-wide strategy. A collation of case studies of best practice would be an additional benefit.

Enabling Network

The role of education is vital and feedback on education is needed. University settings (with their multiple departments) are ideal settings to advance this narrative, so people understand the impact of climate and biodiversity issues. Universities could lead on a change of language around carbon offsetting and greenwashing.

Human health depends on our natural systems. Invariably, health services compete with environment for public financing. While major successes have been achieved in improving health in recent decades, threats from environmental degradation may undermine these gains. The use of natural features and processes in Nature-based solutions and the impact of green and blue space play a vital role influencing physical and mental health. Promotion of the concept of Common Goods for Health including both environmental health and the protection of ecosystem services creates an enabling environment.

LIFE programmes/projects (e.g., Wild Atlantic Nature, Waters of Life) don't include primary research. This is clearly an area for potential integration with AICBRN network scientific research. Additionally, end of LIFE projects often leave behind disbanded groups and individuals and mapping and these projects, and recruiting these stakeholders and local community groups is an obvious pathway.

Discussions and workshops are need on a National Citizen Science Framework. An enabling framework that accommodates the dynamic nature of CS Data and strengthens the base of volunteer-derived data, are necessary to maximise the reach and impact. Key players and key projects north and south need collation, sharing and synthesis for maximum effect.

Action Network

Due to the lack of progress made in extending the protected area network (OECD 2021) it is imperative that a gap analysis be conducted for the different habitat areas (hedgerows, riparian, woodland,

saltmarsh, peatland, agriculture meadows). A blueprint list of 'Nature recovery sites' could be created with university links.

Flood alleviation is a crux issue in rural-urban contexts and tree and scrub removal is a contentious issue. There is a real need to marry the Integrated Catchment Management (ICM) approach with the National Biodiversity Strategy to protect trees and riparian scrub. Plans for setback must happen at local authority level.

In urban planning projects mature and tolerant urban trees are often repositioned elsewhere and replaced with saplings who don't survive. In a competition between a tree and a parking spot the tree always loses. It has become easier to deploy planting in school grounds than in local authority spaces due to the multiple demands on public spaces.

Grazing swards could be easily optimised as a multi-species sward with minimal effort. While this is a measure in Agri-schemes, one size fits all is not appropriate. Multi-species swards are already at 50% in some cross-border regions. Networks for Nature advocate a Retain, Restore, Create approach which recognises good work already in place.

The success of nature solutions needs to be monitored. The Cambridge Conservation Evidence database is a useful potential model which gathers, organizes, and summarizes studies that quantify the effects of conservation interventions. Additionally, there are well developed nature-based farming metrics.

Nature Network Conference Suggestions

1. Thematic cities (smart cities, city catchments)

2. Showcase Habitat areas (Riparian, Hedgerows, woodland, saltmarsh, peatland, agriculture meadows)

3. Member representatives' meetings to examine the outcomes of the different WGs thematic areas (to include expert contributions, best practise presentations and discussion groups)

4. All Island Conference on Nature, People and Place

5. Marine and Coastal Climate Adaptation and Impact

The core statutory monitoring in Marine and Coastal monitoring is largely delivered by EU Directives (Marine Strategy Framework Directive/Water Framework Directive) and their analogues in the UK (UK Marine Science Strategy (Department for Environment, Food & Rural Affairs, 2019).

Both are broadly aligned with the OSPAR Quality Status Reports which serves to ensure some common ground in terms of data provision and quality: Quality Status Report 2023 | OSPAR Commission.

The EU INTERREG Va Programme had provided the opportunity for several joined up marine projects covering such areas as bioacoustics, hydrodynamic modelling, marine instrumentation and

transboundary management plans. There were developing examples of integrated coastal catchment modelling.

However, it was clear from the discussions that there remained a lack of comprehensive map of how various agencies interrelated and their respective responsibilities in both jurisdictions. This was deemed to be critical in unlocking future partnerships and ensuring that funding bids were targeted

Action 1: Agency Route Map

Clearly there are areas of strong collaboration such as around fisheries management but is generally felt that some form of transboundary or cross border (virtual) Coastal Research centre would be worth exploring. This could serve to ensure that coastal observation networks such as water quality instrumentation and wave rider buoys are full integrated and allowing for the developing of an all island data network (it's all about the Data!)

Action 2: All Ireland Coastal Observatory

This could serve to ensure interoperability between assets and should explore the possibility of general marine equipment pools similar to the NERC Pool in UK. While the Coastal Observatory as described has a strong focus on the oceanographic and physical data, instrumented networks are also key observation platforms for marine bioacoustics and cetacean monitoring. Overall, this would provide a consistent regional approach to coastal process monitoring, providing information of the development of strategic shoreline management plans, coastal defence strategies and operational management of coastal protection and flood defence.

A strong virtual centre has the potential to provide a hub for providing support to citizen science initiatives and provide support for data management and quality assurance. Key Localities could be flagged as targets for more focussed ecosystem studies including but not exclusive transboundary area such as Carlingford Lough and Lough Foyle. This could be developed as part of a risk-based approach mapping datasets across the island accompanied by a gap analysis. Linking with Citizen Science and Community groups was identified as essential here and the need to involve social science as part of this process was flagged. Local authority engagement was identified particularly when dealing with sea level rise and coastal erosion. Also note that much of climate change science is about the Greenhouse Gas Inventory and the wider goal needs to be kept in mind when restoration projects i.e., salt marsh are assessed.

Action 3: Map the Gaps

It was recognised that many of the areas above particularly the concept of an all Island Coastal Observatory would require the presence of a strong champion.

The coastal and Marine groups were supportive of a conference covering many of the areas listed above perhaps entitled:

An All Island Coastal Observatory Managing Change

Topics or themes would cover:

- Instrumentation
- Ecosystem Modelling
- Data Management
- Standardised Monitoring
- Coastal Management Plans

COMMON THEMES AND FURTHER WORK TO BE DONE

In AICBRN's considerations of the challenges and opportunities within each of the five distinct working groups and a potential roadmap for delivery, several common themes emerged:

1. Horizon scanning, Gap Analysis and Expertise Mapping

Each of the five key areas could benefit from horizon scanning exercises, as well as mapping AICBRN's existing research and expertise within the areas. A gap analysis could be conducted, resulting in reaching out to and engaging with experts in relevant fields, ensuring representation of both jurisdictions on the island.

2. Multi and Interdisciplinary Collaboration

Connected to expertise mapping is the importance of multidisciplinary collaboration, perhaps the most common theme amongst the working groups. AICBRN acknowledges the need for a multidisciplinary approach to these shared climate and biodiversity challenges. In particular, the absence of social science expertise was noted within several working groups and could be a priority area for AICBRN when expanding its membership.

3. Integration of Biodiversity with Climate Studies

Within all five areas, biodiversity and climate are often dealt with and communicated about separately. However, AICBRN feels it is important to acknowledge that these are interlinked crises. The importance of a joined-up approach should be communicated and joined up solutions should be sought wherever possible.

4. Engagement and Education of General Public

Communication with the public was also acknowledged as important for progress. The public is still not well informed in relation to many aspects of the five themes, and there is a need for engagement and education within the environmental, social, and economic spheres. The role of universities was seen as vital, and opportunities were identified for leading by example over the five key themes.

5. A Possible Series of All Island Conferences

All five working groups considered the idea of a series of all island conferences, and suggested conference titles related to their key theme. The possibility of a future series of all island conferences is something AICBRN could consider as a means of exploring these five important topics further.

CONTRIBUTORS

Working Group 1: Sustainable Agriculture: Expanding Shared Areas of Interest

Ken Byrne
Associate Professor, University of Limerick
ken.byrne@ul.ie

Maeve Henchion
Head of Spatial Analysis, Food and Agri Innovation Department, Teagasc
Maeve.henchion@teagasc.ie

Niall O'Brolchain
Research Associate, Insight SFI Research Centre for Data Analytics
niall.obrolchain@insight-centre.org

Helen Shaw
Assistant Professor, Maynooth University
helen.shaw@mu.ie

Working Group 2: All-Island Opportunities from a Circular Economy and Bio-economy

Patrick Brereton
Professor, School of Communications, Dublin City University
patrick.brereton@dcu.ie

Anna Davies
Professor, Geography, Trinity College Dublin
daviesa@tcd.ie

Diarmuid Torney
Associate Professor, School of Law and Government, Dublin City University
diarmuid.torney@dcu.ie

Working Group 3: Collaborations on Renewable Energy

Yvonne Buckley
Professor, Zoology, Trinity College Dublin
Co-Director, Nature Plus
buckleyy@tcd.ie

Jennifer McKinley
Professor, School of Natural and Built Environment, Research Centre in Sustainable Energy, Queens University Belfast
j.mckinley@qub.ac.uk

Tom Reed
Senior Lecturer, School of Biological, Earth and Environmental Sciences, University College Cork
treed@ucc.ie

Peter Thorne
Professor, Physical Geography (Climate Science), Maynooth University
Centre Director, ICARUS
peter.thorne@mu.ie

Working Group 4: Valuing Networks for Nature

Catherine Dalton
Lecturer, Physical Geography, Mary Immaculate College
Catherine.Dalton@mic.ul.ie

Mark Emmerson
Professor, School of Biological Sciences, Queens University Belfast
m.emmerson@qub.ac.uk

James Moran
Senior Lecturer, Ecology, Atlantic Technological University
James.Moran@atu.ie

Francesco Pilla
Professor, School of Architecture, Planning and Environmental Policy, University College Dublin
francesco.pilla@ucd.ie

Jane Stout
Professor, Botany, Trinity College Dublin
VP for Biodiversity & Climate Action, Provost's Office
jane.stout@tcd.ie

Working Group 5: Marine and Coastal Climate Adaptation and Impact

Gillian Bruton
Centre Manager, MaREI
g.bruton@ucc.ie

Murray Hitzman
Director, iCRAG
murray.hitzman@icrag-centre.org

Alastair McKinstry
Environmental Programme Manager, ICHEC

alastair.mckinstry@ichec.ie

Matthew Service
Programme Leader, AFBI
Matt.Service@afbini.gov.uk

References

Department for Environment, Food & Rural Affairs, 2019. Marine strategy part one: UK updated assessment and Good Environmental Status [WWW Document]. URL https://www.gov.uk/government/publications/marine-strategy-part-one-uk-updated-assessment-and-good-environmental-status (accessed 9.8.22).

Department for Environment, Food and Rural Affairs (Defra), the Department of Agriculture, Environment and Rural Affairs (DAERA), the Welsh Government and the Scottish Government, 2020. Circular Economy Package policy statement [WWW Document]. URL https://www.gov.uk/government/publications/circular-economy-package-policy-statement/circular-economy-package-policy-statement (accessed 9.10.22).

EFTEC, RSPB, PWC, 2015. Developing Corporate Natural Capital Accounts: Final Report for the Natural Capital Committee [WWW Document]. URL https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/516968/ncc-research-cnca-final-report.pdf (accessed 1.1.22).

European Commission, 2020. EU Circular Economy Action Plan [WWW Document]. URL https://ec.europa.eu/environment/circular-economy/pdf/new_circular_economy_action_plan.pdf (accessed 9.9.22).

Government of Ireland, 2021. Whole of Government Circular Economy Strategy 2022 - 2023 [WWW Document]. URL https://www.gov.ie/pdf/?file=https://assets.gov.ie/207622/bd90130d-494e-4d32-8757-46d36c77b912.pdf#page=null (accessed 9.1.22).

National Biodiversity Data Centre, 2021. All-Ireland Pollinator Plan 2021-2025 [WWW Document]. URL https://pollinators.ie/wp-content/uploads/2021/03/All-Ireland-Pollinator-Plan-2021-2025-WEB.pdf (accessed 9.8.22).

National Economic and Social Council, 2021. Collaboration on Climate and Biodiversity: Shared Island as a Catalyst for Renewed Ambition & Action [WWW Document]. URL http://files.nesc.ie/nesc_reports/en/156_shared_island_cbd.pdf (accessed 9.10.22).

OECD, 2021. OECD Environmental Performance Reviews: Ireland 2021 [WWW Document]. URL https://www.oecd.org/environment/country-reviews/oecd-environmental-performance-reviews-ireland-2021-9ef10b4f-en.htm (accessed 9.7.22).