

Sustainably Financing Ireland's Marine Protected Area Network

FAIR SEAS



Kilfarrasy Beach,
Co. Waterford

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Acknowledgements

This report was produced by Fair Seas with support from the Blue Nature Alliance and partners. The authors would like to acknowledge and thank the following organisations and individuals for their help in the preparation of this report: Aoife O' Mahony, (Fair Seas Campaign Manager), Dr Donal Griffin (Fair Seas Policy Officer), Jack O' Donovan Trá (Fair Seas Communications Officer), Grace Carr (Policy Officer, Irish Wildlife Trust), Sinéad Loughran (Policy Officer, BirdWatch Ireland), and the Fair Seas Steering Committee and partners including Sarah Elsaid (Regional Officer, Blue Nature Alliance) and Mike Walker (Consultant to Oceans 5).

International reviews of the report were undertaken by Dr Rashid Sumaila, Professor of Ocean and Fisheries Economics at the University of British Columbia; Dr Valerie Hickey, Global Director for Environment, Natural Resources and Blue Economy at the World Bank; Dr Sarah Ryan Enright, Ocean Law and Governance Researcher, Charles Darwin Foundation; Belinda Bramley, Blue Economy consultant (independent); Liz Gavin, Founder, Eur Digital Village; and Irene Morell Rodríguez, Senior Expert, Environment and Climate Change at ENI CBC Med Programme.

The Fair Seas campaign is funded by Oceans 5, Becht Foundation, the Blue Nature Alliance and the Wyss Foundation.

Thank you to all those who are passionately working across Ireland to protect our ocean through scientific research, public awareness and education.

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Foreword



We cannot have a world without poverty in a world without nature

Islands and coastal countries cannot have a world without poverty if their world has no marine biodiversity.

And yet the ocean is under threat, buffeted by overfishing, pollution, the destruction of coastal and deep sea habitats, and the death of marine wildlife. The good news is that solutions exist. We can rebuild fish stocks, protect critical natural habitats and reduce pollution levels. We can restore the power of the ocean to sink CO₂ emissions. These solutions start with integrating conservation and development in a mixed seascape of open access and marine protected areas; with meeting the commitments made under the Global Biodiversity Framework (GBF) to protect 30% of the ocean by 2030.

Our job at the World Bank is to end poverty by linking specific, site-based problems to fit-for-purpose expertise. We connect global lessons to local action, and finance innovation and catalytic action that in turn can crowd-in private capital to transform a degraded resource into a healthy ocean—one that alleviates poverty and boosts shared prosperity while turning down the heat on climate change and saving marine wildlife. For islands and coastal countries, this means showing them that ocean-based economic growth can diversify their economies, attract investment, grow their GDP, increase jobs, and end pockets of extreme poverty. It means sharing the lessons that Ireland learned when she no longer had her back turned to the ocean.

Ireland proves that strong ocean-based economies need a healthy ocean to unlock the power of the sustainable blue economy. That a healthy ocean cannot survive the boom and bust economic cycle underpinned by a foregone grow-now, clean-up-later organising framework that liquidates natural capital and leaves the ocean emptied and trashed. Ireland also shows that healthy economies cannot sacrifice growth on the altar of conservation. That's why Ireland is committed to navigating a path that balances conservation and sustainable use, building a blue, resilient and inclusive economy for tomorrow on a healthy ocean.

Restoring a healthy ocean surrounding Ireland, and meeting its commitment under the GBF, has meant two things: that more needs to be done; and that more money is needed to do it. Hence the importance of financing; of understanding the capital and operating costs of establishing new protected ocean areas and paying for existing marine parks; of quantifying the baseline spending to identify the financing gap; and of identifying the menu of potential options to fill that gap that taps domestic public resources, international public finance, and private capital.

Such is the promise of this Sustainable Finance Report; such is the leadership of Ireland's Fair Seas coalition. When partners come together to design an investment model to achieve 30x30 and unlock a blue, resilient and inclusive economy, the opportunities that emerge can resurrect a healthy ocean. And pave a path for other countries to follow. And end poverty.

Dr Valerie Hickey

Global Director of Environment, Natural Resources and the Blue Economy at the World Bank

Purpose

In light of Ireland's commitment to protect 30% of its marine space by 2030 ("30x30")¹, this report serves to:

(1) estimate the funding required for the establishment and management of marine protected areas (MPAs) in Ireland.

(2) assess potential sources of MPA funding relevant to Ireland.

In addition, this report provides introductory context to the global 30x30 movement, discusses the current state of protected areas in Ireland, and provides an overview of potential next steps to consider.

¹ Government of Ireland, Press release: Ireland announces major boost in marine environmental protection to coincide with COP15, December 2022

Executive Summary

In December 2022, at the Convention on Biological Diversity's (CBD) Fifteenth Conference of the Parties (COP15) in Montreal, over 190 countries committed to protecting or conserving at least 30% of the planet's land and ocean by 2030 (the 30x30 target). Marine protected areas (MPAs) are increasingly recognised as an important tool for conserving and restoring marine ecosystems and biodiversity under the 1982 United Nations Convention on the Law of the Sea², as well as a means of contributing to climate action. Coastal states can establish MPAs within their Exclusive Economic Zones (EEZs) to protect critical habitats and species and progress toward their 30x30 commitment.

The Government of Ireland committed to the 30x30 target in 2020 and has joined the High Ambition Coalition created to champion this goal.³ At the time, Ireland claimed that 2.3% of its EEZ was protected. In 2022, the Government more than tripled that claim to 8.3%, and has stated its ambition to reach 10% marine protection by the middle of 2023.⁴

CURRENT STATE OF IRELAND'S MPA NETWORK

Ireland's current MPA network, managed by the National Parks and Wildlife Service (NPWS), consists primarily of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), which are protected area designations defined under EU law. SACs and SPAs are limited by their focus on habitats and species determined to be vulnerable, rare and/or endemic at a pan-European scale, and thus potentially exclude significant unique aspects of the Irish marine environment (e.g., species and habitat types not listed in the EU Birds and Habitats Directives

but of importance to Ireland). Additionally, the management of SACs and SPAs has historically not been well implemented, largely due to a lack of funding.⁵ Ireland has other categories of protected area under national legislation (the Wildlife Act), but these are even more limited in scope and application in the marine environment.⁶ These shortcomings mean that the claimed 8.3% protected waters do not meet the international standards for any degree of effective protection.⁷

Given these shortfalls, the Government of Ireland has proposed new MPA legislation to parliament which is expected to be signed into law in 2023. This legislation presents a once-in-a-generation opportunity to transform the way Ireland conserves, protects and restores its seas and ocean.⁸ In the coming months, as the legislation is being agreed, the Government can focus on understanding the funding needed to establish and manage MPAs to meet Ireland's 30x30 commitment, and the financing mechanisms necessary to support this.

FINANCING GAP

Estimates suggest that Ireland may need to cumulatively spend ~€54.9 million (minimum €23.6M, maximum €124.8M)⁹ between 2024 and 2030 to achieve its commitment to 30x30.¹⁰ In 2024 specifically, Ireland may need to spend ~€7.0 million (€3.1-14.8M) in upfront establishment and management costs to achieve the 10% of EEZ protection that the Government has committed to.¹¹ Once the 30x30 network is implemented, Ireland may need to continually spend ~€9.6 million (€4.0-22.4M) per year on average on annual management costs to maintain the 30% of EEZ network beyond

² United Nations, [United Nations Convention on the Law of the Sea \(UNCLOS\)](#)

³ High Ambition Coalition, [30x30 High Ambition Coalition Ready to Deliver](#)

⁴ Government of Ireland, Press release: Ireland announces major boost in marine environmental protection to coincide with COP15, December 2022

⁵ Marine Protected Area Advisory Group for the Department of Housing, Local Government and Heritage, [Expanding Ireland's Marine Protected Area Network](#), October 2020

⁶ Fair Seas, [Expanding Ireland's Marine Protected Areas – A Legal Handbook](#), December 2022

⁷ Protected Planet, [The MPA Guide](#)

⁸ Fair Seas, [Expanding Ireland's Marine Protected Areas – A Legal Handbook](#), December 2022

⁹ Values are provided in the format of LIKELY (MIN, MAX). LIKELY represents the best and most realistic estimate, MAX represents the worst case (e.g., if need to heavily invest in new, long-range vessels instead of using existing vessels in Ireland), and MIN represents a low estimate, however, it may compromise on the quality of MPA management (e.g., using fewer staff to conduct the same surveillance tasks). Note: LIKELY is not necessarily the average or middle value of MAX and MIN.

¹⁰ See detailed methodology and assumptions in Section 3.

¹¹ Given that Ireland's current MPA network consists primarily of SPAs and SACs, and that these SPAs and SACs have historically not been well-managed due to lack of funding, for cost modelling purposes it is assumed that the cost of establishment is for the full 30% network, that is, from 0% to 30%, and not for the incremental amount starting from 8.3% (the SAC/SPA coverage in 2022) to 30%.

2030. Of the ~€54.9 million (€23.6-124.8M) cumulative total spend between 2024 and 2030, the major cost categories are staff salaries and related overhead costs (~55%), equipment use and maintenance (~14%), scientific studies (~9%), equipment purchases (~5%), and surveillance (~2%).

FINANCING MECHANISMS

The key purpose of this report is to identify potential mechanisms which the Government of Ireland could use to fill this financing gap and achieve its 30x30 goal by creating an effective network of MPAs by 2030. To provide this funding, a shortlist of 19 relevant potential financing mechanisms was identified from among 60+ instruments (Exhibit 4.2). These mechanisms were categorised by instrument type into grants, revenue generating mechanisms, and debt based instruments.

Grant based mechanisms include EU programmes (e.g., LIFE, EMFAF [EU Maritime, Fisheries, and Aquaculture Fund], Horizon Europe, Just Transition Fund, and PEACE PLUS Programme), institutional philanthropic grants, and private/individual donations. Revenue generating mechanisms include commercial activity based fees (e.g., offshore wind energy production), public/individual fees (e.g., recreational fishing, tourism), ecosystem value based mechanisms (e.g., blue carbon, nature credits), and potential reallocations of funding (e.g., through reduced subsidies to the fishing sector). Debt based mechanisms include issuing additional green bonds through the Irish Sovereign Green Bond (ISGB), introducing blue, sustainability, or sustainability-linked bonds, or seeking investments from the European Investment Bank

(EIB). In addition, the Government can consider various non-marine related fiscal policy changes (beyond the scope of this report) to generate additional funds for MPAs.

The mechanisms that are currently in the Government's direct control have the advantage of being able to provide funding for MPAs as soon as 2024. These include annual budget allocations from government revenues and funds from the ISGB. Other mechanisms (e.g., EU funding programmes, fees on offshore wind energy production) may take a year or more to develop as they require new legislation, a proposal application, or stakeholder buy-in. Finally, some mechanisms, given their current technical/scientific maturity, are considered long-term opportunities to monitor and develop (e.g., blue carbon, nature credits).

NEXT STEPS

There are several possible next steps for the Government of Ireland to consider. First, they can define and establish an MPA Authority and the financial framework under which it will operate (e.g., an existing state agency that receives government funding). Currently, there is a lack of clarity around which organisation is responsible for establishing and managing MPAs. Once the MPA Authority is clearly defined, the Government/MPA Authority can designate MPAs and outline the corresponding management activities for each individual MPA. Financing mechanisms can also be further detailed and explored with relevant stakeholders and interest groups.

Given the short timeline to 2030, it is imperative that the Government continues to act with great ambition and urgency.

Estimates suggest that Ireland may need to cumulatively spend ~€54.9M (min. €23.6M, max. €124.8M) between 2024 and 2030 to achieve its commitment to 30x30. In 2024 specifically, Ireland may need to spend ~€7.0M (€3.1-14.8M) in upfront establishment and management costs to achieve 10% of EEZ protection.

1 Introduction

1.1. BACKGROUND OF THE GLOBAL '30X30' INITIATIVE

At the Convention on Biological Diversity's (CBD) Fifteenth Conference of the Parties (COP15) in Montreal in December 2022, roughly 190 countries committed to protecting or conserving at least 30% of the planet's land and ocean by 2030 (the 30x30 target). This reflected the increasing momentum around the need to address the biodiversity crisis and growing recognition that biodiversity conservation is not just an environmental issue but also a social and economic issue.¹² Biodiversity continues to decline at an unprecedented rate worldwide, and governments have failed to meet the Aichi Targets set out in the Strategic Plan for Biodiversity 2011-2020. Ahead of COP15, it was clear that a new framework setting out a more ambitious approach to biodiversity conservation was needed.

During COP15, the Kunming-Montreal Global Biodiversity Framework (GBF) was adopted to succeed the Strategic Plan for Biodiversity 2011-2020.¹³ The goal of the GBF is to halt and reverse biodiversity loss by 2030. It lays out a suite of 23 environmental targets, including the most prominent, known as 30x30, which calls for at least 30% of the world's terrestrial, inland water, and coastal and marine areas to be effectively conserved and managed by 2030.¹⁴

The 30x30 target prioritises ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures (OECMs), while recognising indigenous and traditional territories and practices.¹⁵ OECMs bring in sites that would be difficult or impossible to designate as protected areas but which deliver effective and measurable conservation outcomes.¹⁶ Protected areas and OECMs are key tools in maintaining healthy, biodiverse seas, and thriving marine ecosystems that deliver a wide array of ecosystem services, including contributions to food and water security, health benefits, disaster risk reduction, climate change mitigation and adaptation, and many cultural services and benefits.¹⁷

1.2. MARINE PROTECTED AREAS AS A SOLUTION FOR OCEAN '30X30' COMMITMENTS

Marine protected areas (MPAs) are one of the fastest growing protected area types in the world in terms of spatial coverage.¹⁸ Some of the world's largest protected areas are marine¹⁹, such as Papahānaumokuākea in US marine waters (1,508,870km²).²⁰ MPAs are a key tool for achieving goals for biodiversity conservation, climate change mitigation and adaptation, and human well-being. Research demonstrates that MPAs are a simple and effective way to

12 Nature, [The United Nations must get its new biodiversity targets right](#), February 2020

13 Carbon Trust, ["Why the Kunming-Montreal Global Biodiversity Framework matters for Net Zero"](#), December 2022

14 Convention on Biological Diversity (CBD), [COP15: Final Text Of Kunming-Montreal Global Biodiversity Framework](#), December 2022

15 Conservation on Biological Diversity, ["COP15: Nations Adopt Four Goals, 23 Targets for 2030 in Landmark UN Biodiversity Agreement"](#), December 2022

16 A report for the UK Department for Environment, Food and Rural Affairs. From The Nature Conservancy, ["Best Practice in Delivering the 30x30 Target"](#), October 2022

17 The Nature Conservancy, ["Best Practice in Delivering the 30x30 Target"](#), October 2022

18 Protected Planet, [Marine Protected Areas](#)

19 IUCN, ["Large-scale marine protected areas : guidelines for design and management"](#), 2017

20 PSF, ["Nā Hulu Aloha—A Precious Remembering Origin stories of the Papahānaumokuākea Marine National Monument"](#), May 2022; NOAA, ["Papahānaumokuākea Marine National Monument"](#)

% of global marine space

Only **6.6%** of the global marine space has been protected as of Oct 2022

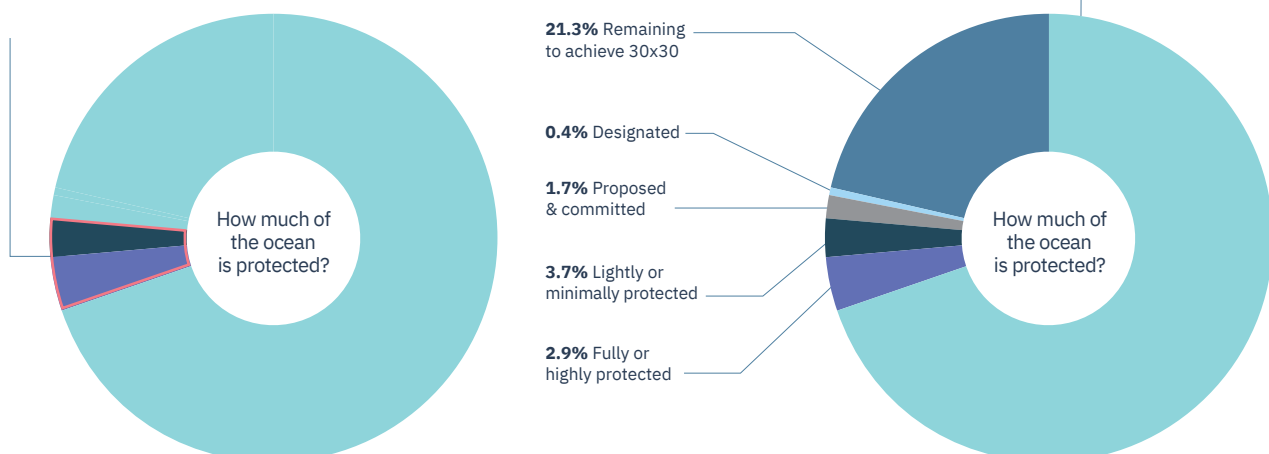


Exhibit 1.1: Only 6.6% of the global ocean has been protected as of October 2022

Source: Marine Conservation Institute, [“World Resoundingly Agrees to Protect 30% of the Planet By 2030, Now Comes the Hard Part: Building a Vast, Highly Protected Network of Effectively Managed MPAs By the End of This Decade”](#), December 2022

sustain marine biodiversity and build ecosystem resilience.²¹ Well-managed MPAs can reverse the effects of overfishing, strengthen fragile coral and seabed communities, and protect both ourselves and our neighbours – locally and globally – from rising sea levels and strengthening storm systems.²²

However, today there are not enough fully implemented, managed and enforced MPAs. As of October 2022, just over 6.6% of the world’s marine surface was protected under even the most minimal of regulations, and less than 3% of the global ocean was ‘fully/highly protected’ (Exhibit 1.1).

Recent research suggests that the majority of MPAs globally, potentially 70% or more, fall short of their conservation goals. While several factors may be responsible for inadequate protection, including a lack of resources and political will, it is clear that the lack of long-term, committed or in-place funding for MPAs is an impediment to their designation and effectiveness. This not only includes funding for establishing MPAs but also for their management. MPAs require investment for long-term operations, including staff salaries, equipment, and fuel, as well as for activities such as scientific monitoring, stakeholder engagement, and communications. A lack of financial support for operations, especially for staff salaries, has been linked to failures to reach conservation goals.²³

A large increase in MPA coverage is needed to address the current biodiversity crisis. If we are to protect 30% of the global ocean by 2030, the rate of MPA growth must increase dramatically over the rest of the decade (Exhibit 1.2). And not only does the area coverage of MPAs need to rapidly increase, but it is also necessary to ensure that they are effective.²⁴

Coastal countries that have signed up to the 30x30 commitment can establish MPAs within their Exclusive Economic Zones (EEZs) to protect critical habitats and species and progress toward their 30x30 goals. An EEZ is where coastal nations retain exclusive rights to exploration and use of natural resources. The United Nations Convention on the Law of the Sea (UNCLOS) defines an EEZ as “generally extending 200 nautical miles from shore, within which the coastal State has the right to explore and exploit, and the responsibility to conserve and manage, both living and non-living resources”.²⁵ While MPAs can sometimes contain both terrestrial and freshwater elements, most existing MPAs are coastal or nearshore, within national jurisdictions. However, protecting areas within EEZs alone will not be enough to reach 30% global ocean protection.

MPAs can also be established in international waters beyond EEZs, but progress has been much slower and harder to achieve on the High Seas.²⁶ About 61% of the global ocean is in areas beyond national jurisdictions, yet only

21 Conservation Letters, [“Effective Coverage Targets for Ocean Protection”](#), March 2016

22 Conservation Letters, [“Effective Coverage Targets for Ocean Protection”](#), March 2016

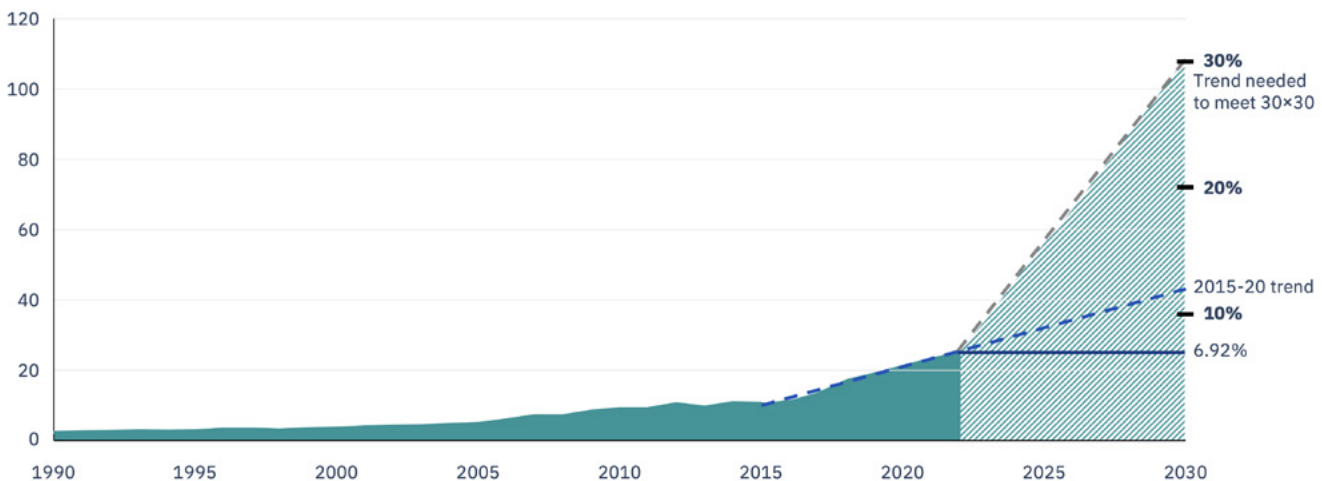
23 Frontiers, [“A New Tool to Evaluate, Improve, and Sustain Marine Protected Area Financing Built on a Comprehensive Review of Finance Sources and Instruments”](#), January 2022

24 Marine Conservation Institute, [“World Resoundingly Agrees to Protect 30% of the Planet By 2030, Now Comes the Hard Part: Building a Vast, Highly Protected Network of Effectively Managed MPAs By the End of This Decade”](#), December 2022

25 United Nations Convention on the Law of the Sea, NOAA Ocean Exploration, World Trade Organization

26 Pew Trust, [“A Path to Creating the First Generation of High Seas Protected Areas”](#), March 2020

Marine protected area coverage (millions of km²)



1.5% of that is currently protected in any form of MPA, with less than 1% fully or highly protected. That is why a robust High Seas Treaty is needed to achieve effective ocean conservation globally.²⁷

The High Seas Treaty agreed to by UN Member States on 4 March 2023 is crucial to the success of the global 30x30 campaign. Covering almost two-thirds of the ocean outside national boundaries, the Treaty will provide a legal framework for establishing MPAs to protect against the loss of wildlife and a mechanism for sharing benefits from the genetic resources of the High Seas. It will also establish a Conference of the Parties that will meet periodically and enable Member States to be held accountable on issues such as governance and biodiversity.²⁸

For a country to achieve its 30x30 target, MPA financing mechanisms need to be in place. However, MPAs can be seen as national natural assets to be invested in, rather than simply as expense items. Natural capital accounting (NCA) is an umbrella term covering efforts to use an accounting framework to provide a systematic way to measure and report on stocks and flows of natural capital. Its underlying premise is that, since the environment is important to society and the economy, it should be recognised as an asset that must be maintained and managed.²⁹ Natural capital is assessed by measuring the extent of an asset or ecosystem, establishing its health or condition, and calculating the monetary value

of both the asset and the ecosystem services and other benefits it provides.³⁰ For example, a 2018 report by Ireland's Environmental Protection Agency (EPA) valued the 'coastal defence' ecosystem service at €11.5 million per year, 'recreational services' of the ocean at €1.7 billion per year (based on 96 million marine recreation trips in Ireland), and 'waste services' at €317 million per year.³¹ In the UK, valuation has extended to the edge of its EEZ, which lies entirely within the continental shelf, with the UK's marine natural capital assets estimated to be worth GBP 211 billion as of 2021.³²

Some countries are starting to incorporate this natural capital approach by developing 'ocean accounts' (e.g., UK, Australia, Canada, Maldives and Mexico). Ocean accounts are integrated records of regularly compiled and comparable data concerning ocean environment assets (e.g., extent/condition of mangroves), economic activity (e.g., sale of fish) and social conditions (e.g., coastal employment).³³ These go further than measuring the usual economic outputs from activities like fishing and shipping, to provide additional quantitative and qualitative data on social benefits and impacts as well as marine natural capital and ecosystem services. Bringing social and environmental dimensions into decision-making in the blue economy and marine spatial planning provides political leaders with a more complete picture, enabling better informed trade-offs when planning activities at

Exhibit 1.2: A significant increase in the rate of protected area growth is needed over the rest of the decade if we are to protect 30% of the global ocean by 2030

Source: Marine Conservation Institute, ["World Resoundingly Agrees to Protect 30% of the Planet By 2030. Now Comes the Hard Part: Building a Vast, Highly Protected Network of Effectively Managed MPAs By the End of This Decade"](#), December 2022

²⁷ Pew Trust, ["A Path to Creating the First Generation of High Seas Protected Areas"](#), March 2020

²⁸ United Nations, [Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction](#); The Guardian, ["High seas treaty: historic deal to protect international waters finally reached at UN"](#), March 2023

²⁹ United Nations (UN), [Natural Capital and Ecosystem Services FAQ](#)

³⁰ Thomson Environmental Consultants, [Natural capital – valuing benthic ecosystems to aid the marine environment](#), April 2022

³¹ Environmental Protection Agency (EPA), [Valuing Ireland's Coastal, Marine and Estuarine Ecosystem Services](#), 2018

³² Thomson Environmental Consultants, [Natural capital – valuing benthic ecosystems to aid the marine environment](#), April 2022

³³ Global Ocean Accounts Partnership, ["What are ocean accounts?"](#), May 2022

sea, and helping to support the case for investing in maintaining natural assets. Embedding natural capital approaches in the marine environment, to reveal values and relationships that would otherwise remain invisible, has been called for by Natural Capital Ireland, because it can be “used continuously to monitor the full cost-benefit performance of any policy into the future”.³⁴

There are two broad cost categories related to MPAs:

#1 Cost to establish MPA. This includes the costs associated with efforts to determine where and how to establish MPAs (e.g., baseline studies to support designation, biodiversity impact, economic impact, legal implications, stakeholder engagement, impacts to existing and potential industrial activities, integration within marine spatial planning efforts for offshore activities), the cost of site preparation (e.g., purchasing and installing infrastructure and equipment), and the cost of establishing respective managing entities (e.g., recruiting staff, securing office space, etc.).

#2 Cost to effectively manage MPAs. This includes the costs associated with effective MPA management, which requires sustained annual funding to cover operations and management (e.g., permanent and seasonal staffing, monitoring and reporting, infrastructure/asset investments, etc.).

1.3. EXAMPLES OF COUNTRIES LEADING THE WAY ON MARINE '30X30' COMMITMENTS

The 30x30 goal is a task of global magnitude that calls for coordinated and ambitious global efforts. The process of developing the Kunming-Montreal Global Biodiversity Framework (GBF) adopted in December 2022 generated significant momentum amongst governments, NGOs, non-profits, and the private sector around the world. For example, the High Ambition Coalition (HAC) for Nature and People, an intergovernmental group of 116 countries, works to support the delivery of 30x30. HAC member countries together hold more than 58% of the world’s terrestrial biodiversity and more than 54% of the biodiversity conservation priorities that exist within marine EEZs.³⁵ The Bezos Earth Fund, Bloomberg Philanthropies and Rainforest Trust have pledged to support the implementation phase of the HAC to mobilise resources to achieve 30x30 around the world.³⁶

In addition, the Americas for the Protection of the Ocean coalition unites nine nations to collaborate on marine protected and conserved areas in the Pacific. The governments of Canada, Chile, Colombia, Costa Rica, Ecuador, Panama, Peru, Mexico and the United States signed the Americas for the Protection of the Ocean Declaration promoted by the Government of Chile. Together, they are building political support for new and strengthened ocean conservation measures to protect species and habitats, restore fisheries and build sustainable economies.³⁷

Natural capital accounting (NCA) is an umbrella term covering efforts to use an accounting framework to provide a systematic way to measure and report on stocks and flows of natural capital. Its underlying premise is that, since the environment is important to society and the economy, it should be recognised as an asset that must be maintained and managed.

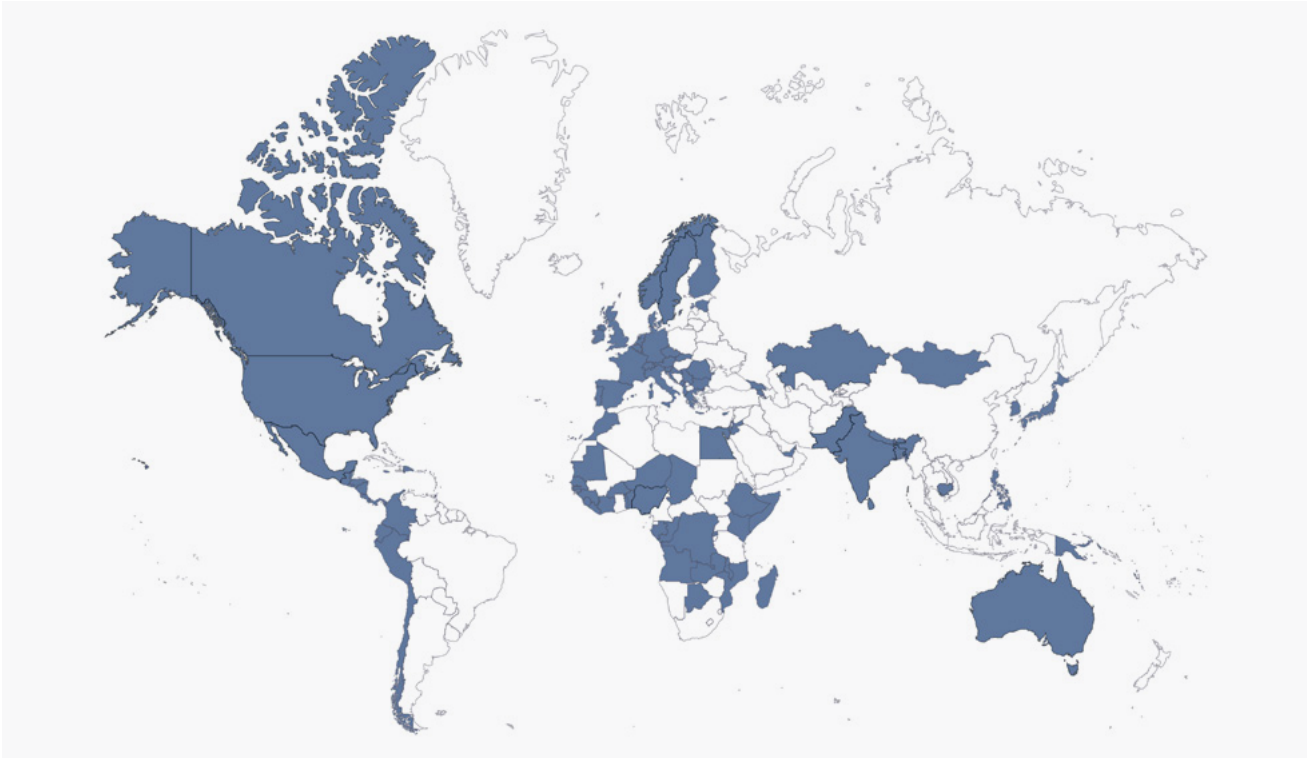
³⁴ Natural Capital Ireland, May 2022

³⁵ World Ocean Day, “Announcement: More than 100 Countries Commit to 30x30”, June 2022

³⁶ High Ambition Coalition for Nature and People, “30x30 High Ambition Coalition Ready to Deliver”, 2022

³⁷ WWF, “Time to deliver 30x30 for the ocean”, February 2023

Countries committed to the High Ambition Coalition for MPAs



- 196 countries signed the Global Biodiversity Framework at the United Nations Biodiversity Conference (COP15) on 19 December 2022, committing to halt and reverse nature loss, including putting 30 percent of the planet and 30 percent of degraded ecosystems under protection by 2030.
- In addition, 116 countries joined the High Ambition Coalition for Nature and People (HAC) championing 30x30, which aims to halt the accelerating loss of species, and protect vital ecosystems that are the source of our economic security.

However, to date, the quality of this 30% protection has not been defined. The GBF may create an opportunity for heavier emphasis on the quality of protected areas and OECMs to accompany the 30% target. This is important as it is imperative to ensure the highest level of protection for at least 30% of the ocean globally in order to effectively combat climate change and biodiversity loss. Some experts also point out that the global picture of protected areas needs to be representative of all types of life on Earth and that, given that climate change is already shifting species' distributions, protected areas should be well connected through corridors that facilitate species' movements and migration patterns.³⁸

Several countries have already made significant progress towards meeting their 30x30 commitment.

Example 1

The Government of Portugal has expanded an MPA around the Selvagens Islands, creating the largest fully protected MPA in Europe and the North Atlantic, spanning 2,677km².³⁹

Example 2

In 2021, the Biden Administration committed to protecting 30% of U.S. land and ocean by 2030 in an Executive Order that addresses climate change, environmental justice and clean energy.⁴⁰ The initiative includes building an 'American Conservation and Stewardship Atlas', an accessible and evolving mapping or other database tool that will provide a baseline of information on lands and waters that have already been conserved or restored. The Atlas will serve to measure the progress of conservation, stewardship, and restoration efforts across the United States.⁴¹

Example 3

Panama is expanding its MPAs to protect more than 54% of its ocean. In March 2023, President Laurentino Cortizo and Minister of Environment Milciades Concepción signed an Executive Decree that protects the Banco Volcán MPA, in

Exhibit 1.3: 100+ countries have now joined the global coalition championing 30x30, a target which aims to halt the accelerating loss of species, and protect vital ecosystems that are the source of our economic security

Source: HAC for Nature and People, [HAC Members](#)

38 International Institute for Sustainable Development, "The Global Biodiversity Framework's "30x30" Target: Catchy slogan or effective conservation goal?", December 2022

39 National Geographic, "Portugal Established the Largest Fully Protected Marine Reserve in Europe & North Atlantic", November 2021

40 WRI, "Biden Administration Commits to Protect 30% of U.S. Land and Ocean by 2030", January 2021

41 NRDC, "Biden Administration Lays out 30x30 Vision to Conserve Nature", May 2021

the Panamanian Caribbean, spanning 93,389km² (created in 2015, the Banco Volcán MPA was initially 14,211km²). As a result of this expansion, Panama now protects more than half of its ocean.⁴²

1.4. IRELAND'S PROGRESS ON ITS MARINE '30X30' COMMITMENT

Ireland's ocean economy is estimated to have generated €4.98 billion in total revenues in 2021.⁴³ The direct economic contribution of Ireland's ocean economy, as measured by direct gross value added (GVA), was €2.11 billion. For example, shipping and maritime transport, tourism in marine and coastal areas, and seafood processing, contributed €456.5 million, €396 million, and €134 million, respectively, in direct GVA in 2021. Indirect GVA, which is the gross value added by upstream and downstream economic activities (e.g., boat building and fuel supply) supporting the production of a particular industry, amounted to approximately €1.7 billion in the same year. Direct and indirect GVA generated from marine economic activities represented approximately 1.6% of Ireland's 2021 national output. Additionally, employment from Ireland's ocean industries was estimated to be 32,100 full-time equivalents (FTEs) that year. The many opportunities for blue growth evident across the sector suggest that the outlook for the ocean economy is positive.⁴⁴

Despite the importance of its ocean economy, Ireland has historically lagged behind international best practice on marine protection. Although it had commitments under both

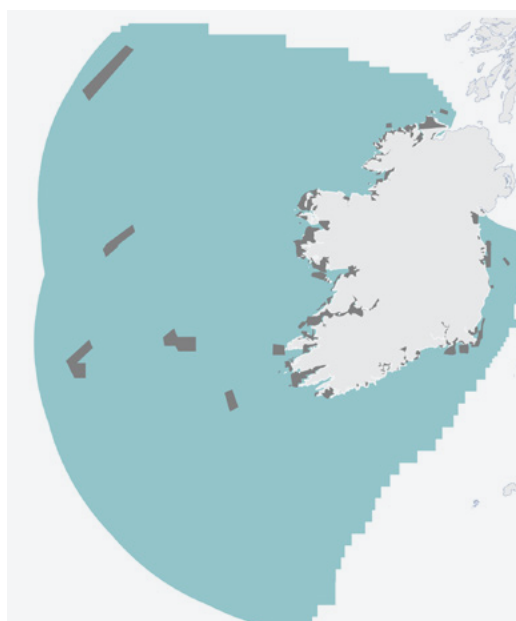
international and European law to protect 10% of its waters by 2020, the Government of Ireland had designated only 2.3% of the seas around Ireland by 2020 (Exhibit 1.4). And only a small fraction of these protected areas could be described as 'strictly' or 'fully' protected and able to deliver the full range of potential benefits to nature and society.⁴⁵ This is set to change as the Government has committed to expanding Ireland's MPA network to 30% by 2030 as part of its 2020 Programme for Government 'Our Shared Future'.⁴⁶

Although Ireland has now committed to 30x30 and is making progress towards the target, there is an urgent need for a paradigm shift in how it designates, manages, monitors and enforces its existing network of protected areas, as well as any future MPA sites. Ireland started from a low base of just 2.3% marine protection in 2020, but has since more than tripled the overall size of its protected areas in the sea to 8.3% and is on track to reach 10% by the middle of 2023. However, Ireland's existing protected area network is not only lacking in spatial coverage but also requires greater support to ensure adequate and effective management.

The current level of protection in Ireland's existing MPAs would likely not be in alignment with best practices if the agreed international criteria were applied. Therefore, the passage of strong and ambitious MPA legislation is crucial for positioning Ireland to deliver on its ambition of achieving 30% of protected areas across its maritime area by 2030.⁴⁷

Exhibit 1.4: Coverage of Special Protected Areas and Special Areas of Conservation in Ireland's marine environment, 2020

■ EEZ's of Ireland
■ SAC and SPA



Source: Central Statistics Office, "Ireland's UN SDGs - Goal 14 Life Below Water 2021", October 2022

42 Smithsonian Magazine, "Bigger Is Better: Panama Expands MPA to Protect More Than 54 Percent of Its Oceans", March 2023

43 The University of Galway, "Ireland's Ocean Economy", December 2022

44 The University of Galway, "Ireland's Ocean Economy", December 2022

45 Fair Seas, [Fair Seas White Paper: Key asks of Ireland's MPA legislation](#), December 2022

46 Government of Ireland, Press release: Ireland announces major boost in marine environmental protection to coincide with COP15, December 2022

47 Government of Ireland, Press release: [Ireland announces major boost in marine environmental protection to coincide with COP15](#), December 2022; Fair Seas, "Ireland's new Marine Protected Area legislation: the journey so far", March 2023

2 Current state of MPAs in Ireland and introduction of new legislation

2.1. CURRENT STATE OF MARINE PROTECTION IN IRELAND

In 2022, Ireland had designated 8.3% of its EEZ as protected areas. This represents a tripling of its overall protected areas since 2020, when Ireland claimed 2.3% marine protection. In December 2022, the Government declared that it is on track to achieve its ambition to reach 10% by the middle of 2023.⁴⁸ However, the level of protection also needs to be enhanced to be more effective and more consistent with agreed international standards and criteria.

Ireland's current MPA network consists primarily of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) (Exhibit 2.1), collectively known as 'Natura 2000' sites. SPAs are required under the terms of the EU Birds Directive (2009/147/EC) to designate the protection of listed rare and vulnerable species, regularly occurring migratory species, and wetlands, especially those of international importance. Ireland has had a programme to identify and designate SPA sites in place since 1985,⁴⁹ but it is still ranked as one of the poorest performers in Europe in terms of the extent to which its SPA network covers Important Bird and Biodiversity Areas (IBAs).⁵⁰ Despite its large marine area and importance for seabirds, Ireland has only designated coastal SPAs, and these

SPAs (covering 1,432km² of marine area) protect less than 1% of Irish waters. In addition, only 42% of the marine area of the IBAs identified by the BirdLife Partnership as sites significant for the long-term viability of birds is currently protected by SPAs.⁵¹

SACs are established through the EU Habitats Directive (92/43/EEC), transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). The Directive lists certain habitats and species that must be protected, including raised bogs, blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets. The 25 Irish species that must be afforded protection include salmon, otters and bottlenose dolphins. The areas chosen as SACs in Ireland cover approximately 634.5km² of marine area and big lakes.⁵²

These SACs and SPAs are currently the only types of legally protected area designations available between 12 nautical miles and 200 nautical miles from the Irish coastline. The 1976 Wildlife Act is the principal national legislation providing for the protection of wildlife and the control of some activities that may adversely affect wildlife. However, the provisions of the Act are limited in

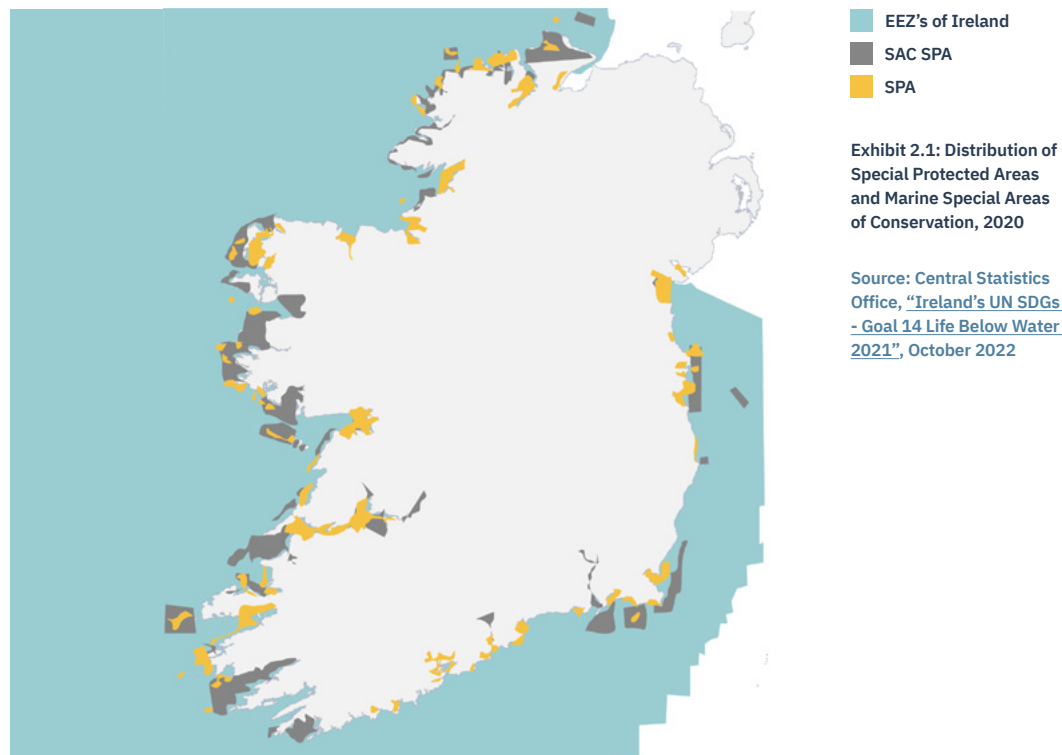
⁴⁸ Government of Ireland, Press release: Ireland announces major boost in marine environmental protection to coincide with COP15, December 2022

⁴⁹ Ireland National Parks & Wildlife Service, [Special Protection Areas \(SPAs\)](#)

⁵⁰ BirdLife International, "Assessment of the protection of important Bird and Biodiversity Areas for seabirds by Special Protection Areas of the Natura 2000 Network", May 2022

⁵¹ BirdLife International, "Assessment of the protection of important Bird and Biodiversity Areas for seabirds by Special Protection Areas of the Natura 2000 Network", May 2022

⁵² Ireland National Parks & Wildlife Service, [Special Areas of Conservations \(SACs\)](#)



their geographic scope as they apply only to the foreshore.⁵³ Protection in marine areas beyond 12 nautical miles from shore is therefore currently limited to measures taken under either the EU Birds and Habitats Directives or the Convention for the Protection of the Marine Environment of the North-East Atlantic.⁵⁴

SACs and SPAs are limited by their focus on habitats and species determined to be vulnerable, rare and/or endemic at a pan-European scale, which excludes significant aspects of the Irish marine environment. In addition, even though they apply within Ireland's territorial seas, EEZ and continental shelf, most SACs and SPAs are in coastal areas, with only eight offshore designations in Irish seas.⁵⁵ SACs and SPAs are also designed to meet very specific conservation objectives for a limited number of habitats and species. For example, SACs can be designated to protect a reef, sea caves, or bottlenose dolphins. They cannot, however, be designated for species not specifically listed by the EU Directives, such as sharks and other marine fish.⁵⁶ In effect, habitats and species that are not listed in the EU Directives, but which may be locally, nationally or internationally important, cannot currently

be afforded the necessary protection.⁵⁷ These include critically endangered elasmobranchs, pelagic species, ecosystem engineering species, Vulnerable Marine Ecosystem indicator species, continental shelf soft substrate habitats, and habitats associated with oceanographic features.⁵⁸ This is one of the key weaknesses of the Natura 2000 network at a policy level.

Another major problem is that SACs/SPAs have historically not been well-managed. One reason is that many SPAs and SACs in Ireland lack site-specific conservation objectives (SSCOs).⁵⁹ EU Member States are required to develop conservation objectives specific to each protected site to maximise the conservation of the habitats and species designated for protection. These objectives should then be translated into action through management plans. Where SSCO have not been developed for a protected site, an EU Member State can use generic conservation objectives temporarily, but SSCO should be established within six years of a site's designation as a protected area.⁶⁰ The European Commission has alleged that for certain sites of community importance within the territory of Ireland, the Government of Ireland has failed to either adopt

53 Ireland National Parks & Wildlife Service, [Legislation](#)

54 BirdLife International, "Assessment of the protection of important Bird and Biodiversity Areas for seabirds by Special Protection Areas of the Natura 2000 Network", May 2022

55 Fair Seas, "SAC, SPA, MPA... so what do they all mean?", July 2022

56 Fair Seas, "SAC, SPA, MPA... so what do they all mean?", July 2022

57 Fair Seas, "SAC, SPA, MPA... so what do they all mean?", July 2022

58 Fair Seas, "SAC, SPA, MPA... so what do they all mean?", July 2022

59 EUR-Lex, "[Document 62021CC0444](#)", February 2023

60 EUR-Lex, "[Document 62021CC0444](#)", February 2023

or complete any conservation measures, and that even for some sites that have conservation measures, Ireland has failed to make the measures site-specific based on conservation objectives.⁶¹ An analysis of State files carried out by Noteworthy showed that, while SSCOs have been prepared for 327 of Ireland's 437 SACs, detailed SSCOs have been prepared for only 37 out of 154 SPAs as of August 2021 – just 24% of Ireland's SPA network.⁶²

There is also a lack of management plans to implement the conservation objectives – specific or generic – set for SPAs/SACs. As of August 2021, only 53 management plans had been prepared for sites within Ireland's SAC network, and no management plans were in place for any sites in Ireland's SPA network. A European Environment Agency (EEA) audit report released in 2020 found that Ireland's management plans “do not address the requirements of the habitats and species that the Natura 2000 site was designated for”.⁶³

Another area where there is great scope for improvement is in the level of stakeholder engagement and participation in the site selection and management process. This would promote and support marine stewardship and the overall effectiveness of the network.⁶⁴ As outlined in Fair Seas' December 2022 report, 'Expanding Ireland's Marine Protection Areas -- A Legal Handbook', the law relating to MPAs in Ireland derives predominantly from international and European legislation, reflecting a 'top down' approach through which States undertake treaty obligations that they must fulfil by adopting domestic laws. In contrast, a 'bottom up' approach would involve elaborating strategies by engaging with different groups of stakeholders likely to be impacted by the designation and/or on-going management of protected sites.⁶⁵

2.2. INTRODUCTION OF MPA LEGISLATURE IN IRELAND

The Government of Ireland is currently developing and negotiating new MPA legislation through the Oireachtas (Ireland's parliament) which is expected to be signed into law in 2023. The Government has acknowledged the limitations in the existing legal framework for marine spatial protection, specifically the lack of a legal basis

for MPA designations in Ireland outside of SACs and SPAs. As a result, it has been in various preliminary stages of developing this specific MPA legislation since at least 2019. In July 2022, the Government approved the development of a General Scheme of the new MPA Bill, which was published in December 2022.⁶⁶ The General Scheme then underwent pre-legislative scrutiny (PLS) in the Housing, Local Government and Heritage Joint Oireachtas Committee in February 2023, which in turn published its PLS recommendations soon after.

Until the new MPA legislation is passed, the details of how new nationally designated sites will differ in process and implementation from those established under the EU Birds and Habitat Directives remains uncertain. However, the creation of this new legislation signifies a key turning point in Ireland and is a beacon of hope for its marine species and habitats. The MPA legislation represents a once in a generation opportunity to transform the way Ireland conserves, protects and restores its seas.⁶⁷ It therefore must be secured with the highest degree of ambition possible.⁶⁸

2.3. KEY NEXT STEPS TO ACHIEVING '30X30'

Once the new MPA legislation has been signed into law, the Government of Ireland can focus on three key tasks:

1) Determining where to establish MPAs

Efforts are already underway to determine the optimal MPA network. For example, in October 2020, the Department of Housing, Local Government and Heritage published a report outlining principles and methodologies for selecting MPA sites and developing the network.⁶⁹ Additionally, in June 2022, the Government updated the 'National Marine Planning Framework Baseline Report', which provides a comprehensive Marine Spatial Planning (MSP) analysis of Ireland's EEZ.⁷⁰

While developing the MPA network, the Government will need to consider their offshore wind targets, as well as the needs of other offshore sectors (e.g., fisheries, shipping lanes, any existing oil and gas fields, etc.). This is particularly important as Ireland is currently

61 EUR-Lex, “Document 62021CC0444”, February 2023

62 Noteworthy, “Loss of Ireland's biodiversity is accelerating - and we're missing the chance to halt it”, August 2021

63 European Environment Agency, “Management effectiveness in the EU's Natura 2000 network of protected areas”, 2020

64 Fair Seas, “SAC, SPA, MPA... so what do they all mean?”, July 2022

65 Fair Seas, Expanding Ireland's Marine Protected Areas – A Legal Handbook, December 2022; Afloat, “Government Approval for Two New Special Areas of Conservation off Irish Coast Welcomed by Environmental Network”, December 2022

66 Government of Ireland, General Scheme of Marine Protected Areas Bill 2022, December 2022

67 Fair Seas, Expanding Ireland's Marine Protected Areas – A Legal Handbook, December 2022

68 https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_housing_local_government_and_heritage/reports/2023/2023-03-01_report-on-pre-legislative-scrutiny-of-the-general-scheme-of-the-marine-protected-areas-bill-2023_en.pdf

69 Government of Ireland, Expanding Ireland's Marine Protected Areas, October 2022

70 Government of Ireland, National Marine Planning Framework Baseline Report, June 2022

fast-tracking the development of its offshore wind sector. In its 2019 Climate Action Plan, the Government committed to increasing the country's offshore wind capacity to 3.5GW as part of its ambition to deliver 70% of Ireland's electricity from renewable sources by 2030.⁷¹ In 2022, Ireland raised its offshore wind target to 7GW, including 5GW of grid-connected offshore wind to be delivered by 2030, and a further 2GW of floating offshore wind for additional non-grid use that will be in development by the end of the decade.⁷²

To meet these targets, the Minister for the Environment, Climate and Communications, recently announced significant measures to accelerate the roll out of offshore renewable energy.⁷³ In March 2023, the Cabinet approved plans to accelerate the delivery of the 5GW of grid-connected offshore wind by 2030, which likely requires an estimated area of 833km² for offshore wind farm development.⁷⁴ The Government's decision to fast-track offshore wind projects will energise Ireland's offshore wind industry and put the country on a path to achieving its 2030 targets for offshore wind. This will deliver a secure, sustainable, and cost-effective supply of indigenous energy for future generations, while unlocking green energy export opportunities.⁷⁵

Both the Minister of State for Heritage and the Minister for Housing, Local Government and Heritage have stated that MPAs will ensure the sustainable use of Ireland's natural resources, including supporting Ireland's offshore renewable energy ambitions.⁷⁶ The goal is to manage offshore wind development in a planned, strategic and sustainable way. The development of offshore wind capacity under the Offshore Renewable Energy Development Plan II (ORED II) will occur within Offshore Renewable Energy (ORE) Designated Areas, which will be designated according to legislative provisions for Designated Maritime Area Plans (DMAPs) in the Maritime Area Planning Act.⁷⁷

It is urgent for Ireland to develop a legal definition of MPAs in order to ensure coordination with offshore wind developments. While there is pressure from the EU to accelerate offshore

renewables in response to the energy crisis, Ireland also needs to make sure conservation is in line with the biodiversity protection regime implemented by EU. It is vital that the Irish Government provides clarity on the definition and requirements of MPAs to help guide investment and decision-making around offshore wind development that complements the forthcoming network of MPAs in Ireland. This will support the country in achieving both its marine protection goals and its 2030 target for offshore wind development.

2) Ensuring Ireland's MPA legislation continues to align with EU legislation

The EU's biodiversity strategy for 2030 aims to put Europe's biodiversity on a path to recovery by 2030. It is a comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems. Containing over 100 specific actions and commitments to be delivered by 2030, the strategy's key elements include establishing a larger EU-wide network of protected areas on land and at sea, launching an EU nature restoration plan, and introducing measures to enable the necessary transformative change and to tackle the global biodiversity crisis. In meeting the EU's biodiversity commitments, the European Commission will also implement the new GBF, including the flagship 30x30 target.⁷⁸

The European Commission has proposed a new regulation – the Nature Restoration Law (NRL) – as part of the EU plan to restore ecosystems, habitats and species across the EU's land and sea areas. The NRL combines an overarching restoration objective for the long-term recovery of nature in the EU's land and sea areas with binding restoration targets for marine, freshwater and terrestrial ecosystems. One of the specific targets contained in the proposal is for restoring marine habitats – such as seagrass beds and sediment bottoms – that deliver significant benefits, including for climate change mitigation, and restoring the habitats of iconic marine species such as dolphins and porpoises, sharks and seabirds.⁷⁹ The overall goal is to have 20% of land and sea ecosystems restored in Europe by 2030, and ultimately cover all ecosystems in need of restoration by 2050.⁸⁰

71 Carbon Trust, "[Harnessing Ireland's offshore wind opportunity](#)"

72 Government of Ireland, "[Accelerating Ireland's Offshore Energy Programme](#)", March 2023

73 [Department of the Environment, Climate and Communications](#), March 2023

74 Assuming a 6 MW/km² capacity density of offshore wind farms, which is the capacity density of the wind farms in the North Sea region according to the European MSP Platform; "European MSP Platform, "Capacity Densities of European Offshore Wind Farms"

75 Government of Ireland, "[Accelerating Ireland's Offshore Energy Programme](#)", March 2023

76 Energy Ireland, "[Marine area protection legislation published](#)", February 2023

77 Government of Ireland, "[Accelerating Ireland's Offshore Energy Programme](#)", March 2023

78 European Commission, "[Biodiversity Strategy for 2030](#)"; Wiley Online Library, "[The Post-2020 Global Biodiversity Framework: How did we get here, and where do we go next?](#)", February 2023

79 European Commission, "[Nature restoration law](#)"

80 European Commission, "[Nature restoration law](#)"

EU countries are all expected to submit National Restoration Plans to the Commission within two years of the NRL coming into force, showing how they will deliver on the targets. However, Ireland has said that it lacks data to set restoration targets and lacks funding to conduct research. As stated by the Minister for Agriculture, Food and the Marine, an absence of data for certain ecosystems and species would constrain Ireland's ability to set restoration targets, and there is currently insufficient funding to conduct research in these areas.⁸¹ Ireland's MPA network will need to tie in with the goals of the NRL. However, as there is currently no legal definition of an MPA in Ireland, introducing a legal definition into Irish law is a critical step.⁸²

The 'EU Action Plan: Protecting and restoring marine ecosystems for sustainable and resilient fisheries' will also contribute to achieving the objectives of the proposed NRL. As part of the European Commission's efforts to achieve a more consistent implementation of the EU's environmental policy and common fisheries policy, the Action Plan provides a forward-looking strategy on how to better apply the ecosystem-based approach to fisheries management. It outlines actions to make fisheries management more sustainable and modern in order to protect and restore marine ecosystems, achieve their good environmental status, and encourage and inspire the rest of the world to follow suit.⁸³ Actions called for in the plan include:

- Making fishing practices more sustainable by improving fishing selectivity, reducing the impact of fisheries on sensitive species, and reducing the impact of fisheries on the seabed.
- Securing a fair and just transition for all by encouraging and supporting fishing communities to help them strengthen their resilience, innovate and adapt. In particular,

Member States should take measures towards the take-up of sufficient funding by strategically mobilising resources available from EU, national or private funding sources to promote their projects.

- Strengthening the knowledge base and research and innovation. Member States are called on to identify and develop solutions and incentives to reduce the environmental impacts of fishing, define the objectives and specific data needs for each sea basin under EU environmental and fisheries law to monitor the impact of fishing on ecosystems and carbon sequestration by the end of 2023, and submit updated national Data Collection Framework (DCF) work plans to improve data collection planning and efforts by the end of 2024.
- Improving monitoring and enforcement. Member States need to take action to implement, monitor and enforce EU fisheries and environmental legislation, and the European Commission needs to monitor Member States' compliance with them.
- Enhancing governance, stakeholder involvement, and outreach. Member States are called on to prepare and publish roadmaps outlining all the measures needed to fulfil the objectives of the EU Action Plan, including a timeline for adoption and proposals to improve coordination between national authorities and stakeholders.⁸⁴

3) Developing a long-term MPA financing strategy

For Ireland to meet its 30x30 commitment, it will need to establish MPA financing mechanisms to sustain the management operations.

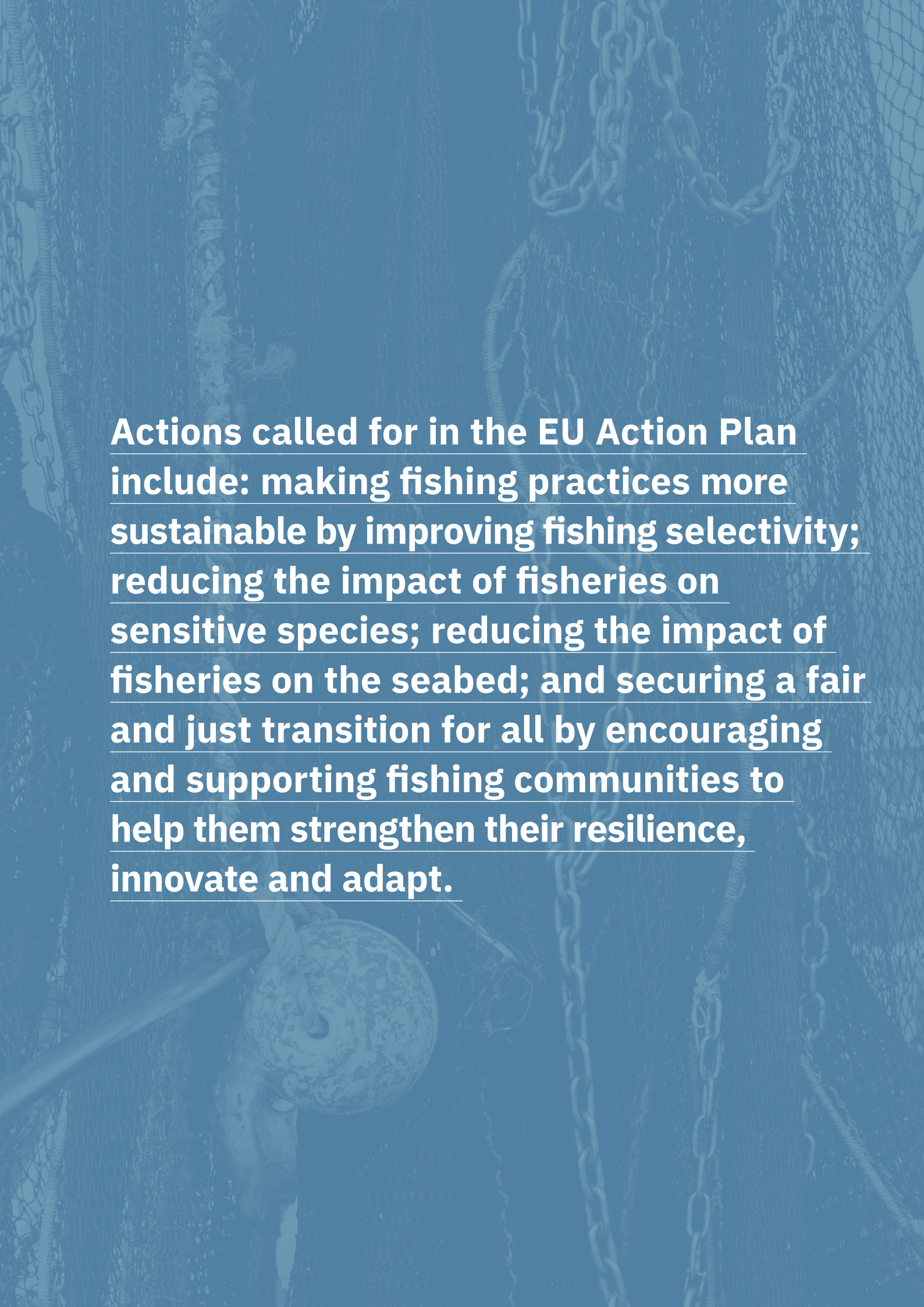
The objective of this report is to develop a perspective on how much financing is required for the establishment and effective management of MPAs covering of 30% of Ireland's EEZ, and to outline which of the available financing mechanisms are most suitable for Ireland.

81 Fair Seas, "EU Nature Restoration Law – What does it mean for the ocean?", January 2023

82 European Commission, "Nature restoration law"

83 European Commission, "EU Action Plan: Protecting and restoring marine ecosystems for sustainable and resilient fisheries", February, 2023

84 European Commission, "EU Action Plan: Protecting and restoring marine ecosystems for sustainable and resilient fisheries", February, 2023



Actions called for in the EU Action Plan include: making fishing practices more sustainable by improving fishing selectivity; reducing the impact of fisheries on sensitive species; reducing the impact of fisheries on the seabed; and securing a fair and just transition for all by encouraging and supporting fishing communities to help them strengthen their resilience, innovate and adapt.

3 Assessment of MPA financing gap in Ireland

The purpose of this section is to outline the analysis conducted to estimate the funding required for Ireland to meet its 30x30 commitment for MPAs. The section first describes the current (2023) spend on SACs and SPAs in Ireland, before presenting the estimated spend required for achieving a well-managed MPA network covering 30% of Ireland's EEZ for every subsequent year up to 2030, as well as the 'steady-state' level of spend needed in 2031 and beyond. It outlines the analysis done, the key inputs and assumptions included, and the estimated breakdown of the spend (e.g., between establishment and management costs, capital expenditure and operating expenditure, staff salaries, equipment maintenance, etc.).

3.1. CURRENT FUNDING FOR MARINE SACs AND SPAs IN IRELAND

To understand the MPA financing gap in Ireland, it is first necessary to assess the current funding being provided for the existing SACs and SPAs. This, coupled with an understanding of the governance and quality of management of the SACs and SPAs, provides helpful insights in determining the funding necessary to meet 30x30 in Ireland's marine environment.

As discussed in Section 2, a lack of funding is one of the key reasons that has historically led to the lower-quality management of SACs and SPAs. The 2020 report published by the Marine Protected Area Advisory Group for the Department of Housing, Local Government and Heritage, 'Expanding Ireland's Marine Protected Area Network', acknowledges that "there is currently a significant shortfall in resourcing for the process of designation and management of protected

areas, severely compromising their effectiveness."⁸⁵ Historical spend data was not publicly available at the time of writing this report. However, in response to a parliamentary question in April 2023, the Minister for Housing, Local Government and Heritage stated that €425,000 of the Department's 2023 marine environment budget has been set aside for MPA development. Of this, €327,000 has been allocated to undertaking sensitivity analyses of the Irish Sea to expedite early identification and designation of MPAs at the earliest opportunity after the proposed MPA legislation has been enacted.

3.2. ANALYSIS OF FUNDING REQUIRED TO ESTABLISH AND MANAGE MPAs TO ACHIEVE '30X30'

Three analyses were conducted to estimate MPA establishment and management costs: (1) benchmarking existing MPAs around the world to get a sense of their total spend, major spend categories, and level of effectiveness; (2) leveraging historically used academic models; and (3) developing a 'bottom-up' model consisting of line-by-line MPA establishment and management activities and their associated costs.

The bottom-up model was developed because neither the benchmarking analysis nor the academic models were able to produce reliable results. Regarding the benchmarks, it was challenging to find sufficient data points that were credible and reliable. Additionally, the data points that were found did not allow for consistent 'apples-to-apples' comparisons, largely because national MPA networks that meet 30x30 size and governance standards are still rare across the globe. Regarding the academic models, the availability

⁸⁵ Marine Protected Area Advisory Group for the Department of Housing, Local Government and Heritage, [Expanding Ireland's Marine Protected Area Network](#), October 2020

	2024	2025	2026	2027	2028	2029	2030	2031
Establishment costs	€2.3 - 8.9M	€0.6 - 2.3M	€0.6 - 2.3M	€0.6 - 2.3M	€0.6 - 2.3M	€0.6 - 2.3M	€0.6 - 2.3M	€0.0 - 0.0M
Management costs	€0.9 - 5.M	€1.8 - 10.6M	€2.2 - 12.8M	€2.6 - 14.9M	€3.0 - 17.1M	€3.4 - 19.4M	€3.8 - 21.6M	€4.0 - 22.4M
Total	€3.2 - 14.8M	€2.4 - 12.9M	€2.8 - 15.1M	€3.2 - 7.2M	€3.6 - 19.4M	€4.0 - 21.7M	€4.4 - 23.9M	€4.0 - 22.4M

Exhibit 3.1: Estimated ranges of annual spend (€M) to establish and manage MPAs to achieve 30x30 in Ireland

of regression models for both MPA establishment and management cost is limited in the academic literature. In addition, although these models estimated a total establishment or management cost, major cost components of the outputs could not be clearly identified without access to the inner workings of the models. As the models were a 'black-box' that generated outputs based on inputs, without demonstrating how the outputs were generated, their outputs are of limited use and ultimately were deemed unsuitable for the purposes of this report.

By contrast, the bottom-up model allowed transparent cost estimates to be obtained. Vetted by several experts⁸⁶, the model lists out the costs associated with all the activities required to establish and manage MPAs. The values outlined in Section 3.2.1 were deduced using this bottom-up model (see Section 3.2.2 for detailed inputs and assumptions).

3.2.1 ESTIMATES OF FUNDING REQUIREMENTS

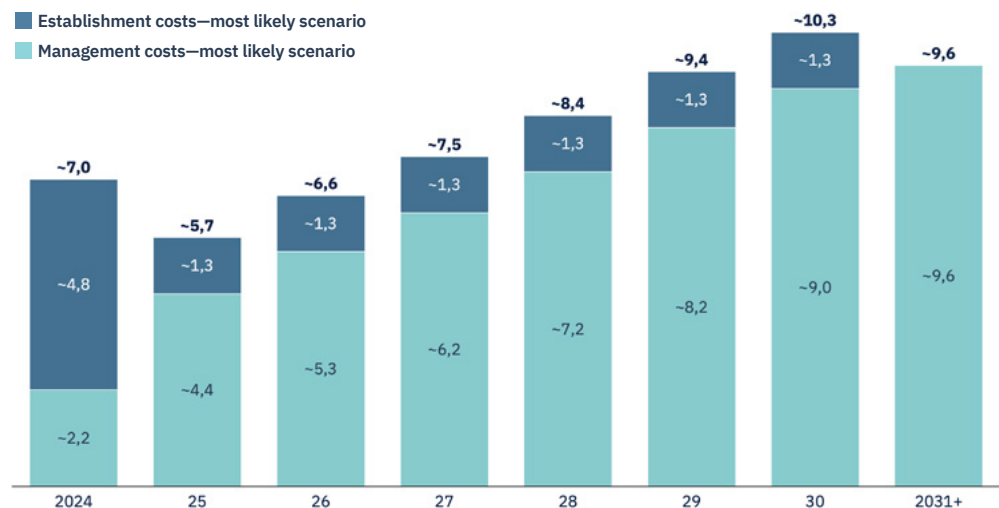
Based on the analysis conducted, it is estimated that a cumulative amount of ~€54.9 million (minimum €23.6M, maximum €124.8M) is likely needed between 2024 and 2030 to achieve Ireland's commitment to MPAs for 30x30.

Values are provided in the format of 'LIKELY (MIN, MAX)' and are not adjusted for inflation. LIKELY represents the best and most realistic estimate,

MAX assumes that every cost item is at its maximum unit price and quantity, whereas MIN assumes the opposite. Two main drivers of the difference between MIN and MAX are unit price and quantity. For example, MAX considers the need to invest in new, long-range vessels, instead of using existing vessels in Ireland, and accounts for more staff (e.g., administrative, scientific, and field staff). It is worth noting that LIKELY is not necessarily the average of MAX and MIN.

The ~€54.9 million comprises a total spend of ~€12.4 million (€6.0-22.5M) to establish the full 30% MPA network and ~€42.5 million (€17.6-102.3M) to continuously manage the growing network between 2024 and 2030. In order to achieve 10% of EEZ protection in 2024, ~€7.0 million (€3.1-14.8M) is needed to cover upfront establishment and management costs in 2024. Once the 30x30 network is implemented, it is estimated that an annual average of ~€9.6 million (€4.0-22.4M) will need to be spent on annual management costs for Ireland to maintain its 30% of EEZ network beyond 2030. Between 2024 and 2030, the amount needing to be spent on establishment and management of MPAs varies as the MPA network grows from the current 8.3% of EEZ to the target 30% of EEZ in 2030 (Exhibit 3.1, Exhibit 3.2).

Exhibit 3.2: Estimated annual spend (€M) to establish and manage MPAs to achieve 30x30 in Ireland



86 See Acknowledgements Section

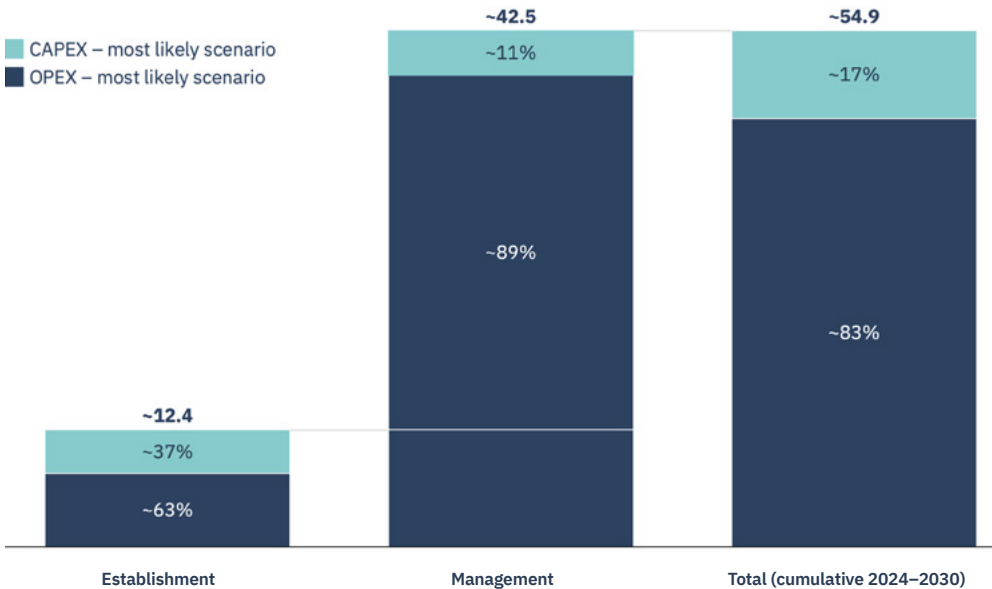


Exhibit 3.3: Breakdown of establishment and management (€M) costs into CAPEX and OPEX for cumulative 2024-2030 spend

Breaking the costs down further (Exhibit 3.3):

- Of the ~€12.4 million (€6.0-22.5M) cumulative total spend between 2024-2030 on establishment costs, ~63% (~€7.8 million [€4.1-13.8M]) is for initial operating expenditure (OPEX) required to designate and establish the MPA sites (e.g., staff salaries, scientific studies), and ~37% (~€4.6 million [€1.8-8.8M]) is for initial capital expenditure (CAPEX) required to enable effective MPA management (e.g., boat and car purchases, demarcation buoys, scuba diving equipment, purchase of surveillance systems such as radar and drones, etc.).
- Of the ~€42.5 million (€17.6-102.3M) cumulative total spend between 2024 and 2030 on management costs, ~89% (~€37.8 million [€15.2-93.0M]) is for continued operating expenditure (OPEX) required to manage the MPA sites (e.g., staff salaries, boat fuel and maintenance, surveillance-system maintenance, scientific studies, communications, etc.), and ~11% (~€4.7 million [€2.4-9.3M]) is for continued capital expenditure (CAPEX) required to sustain effective MPA management (e.g., periodic replacement of equipment and vehicles, etc.).
- Collectively, of the ~€54.9 million (€23.6-124.8M) cumulative total spend between 2024 and 2030, ~83% (~€45.6 million [€19.4-106.7M]) is expected to be OPEX costs and ~17% (~€9.4 million [€4.3-18.1M]) is expected to be CAPEX investments.
- In steady-state (after 2030), this balance is expected to shift to ~96% (~€9.2 million [€3.9-21.7M]) annually in OPEX and ~4% (~€0.3 million [€0.2-0.7M]) annually in CAPEX.

- Of the ~€54.9 million (€23.6-124.8M) cumulative total spend between 2024 and 2030, the major cost categories are staff salaries and related overhead costs (~55%), equipment use and maintenance (~14%), scientific studies (~9%), equipment purchases (~5%), and surveillance (~2%) (Exhibit 3.4). In steady-state (after 2030), this balance shifts to staff salaries and related overhead costs (~63%), equipment use and maintenance (~17%), scientific studies (~10%), equipment purchases (~3%), and surveillance (~3%).

*Other includes costs related to specialised events such as conferences and training, communication, ecological restoration of degraded ecosystems, and compensation measures.

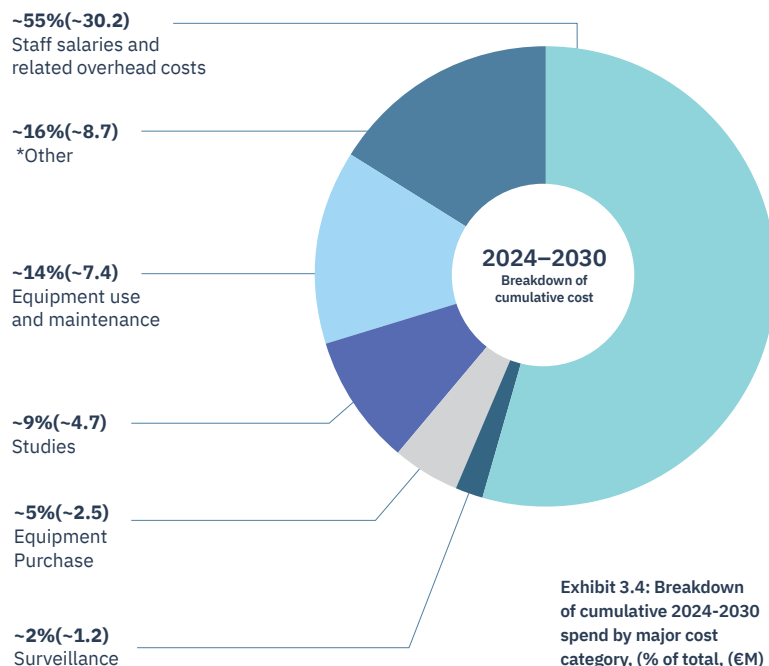


Exhibit 3.4: Breakdown of cumulative 2024-2030 spend by major cost category, (% of total, (€M))

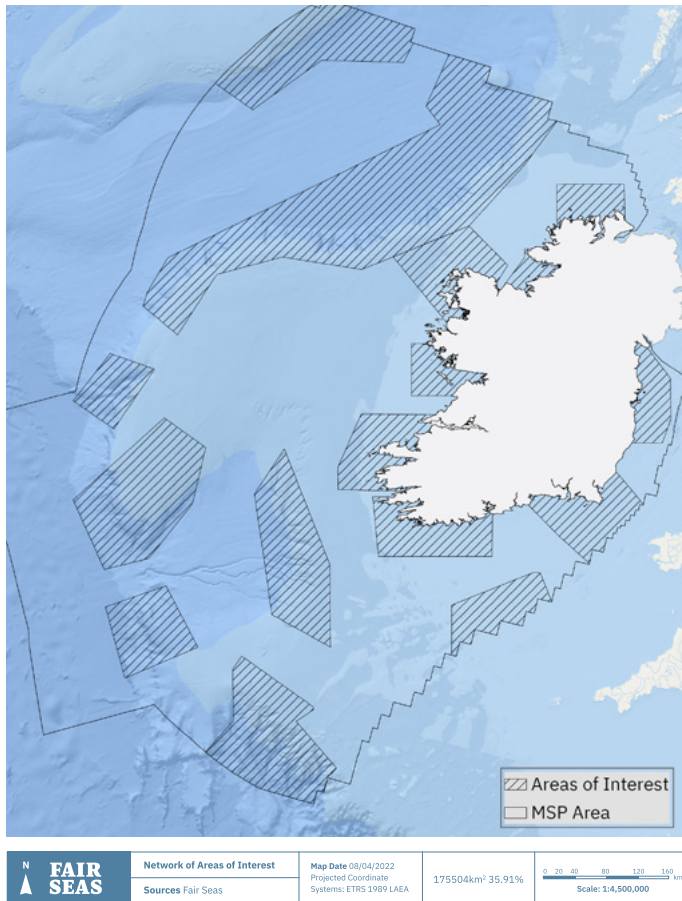


Exhibit 3.5:
Fair Seas Identified Areas of Interest (AOIs) for MPA designation

Source: Fair Seas, [Revitalising Our Seas](#), June 2022

For the purposes of this report, in the LIKELY cost scenarios it is assumed that the MPA management authority would not need to purchase a large vessel for offshore MPA scientific studies, but could instead use the national research vessels R.V. Celtic Explorer and R.V. Tom Crean, paying the OPEX cost of ship-time on-board.⁸⁷

The alternative – investing in a new long-range vessel – would increase cumulative 2024-2030 CAPEX costs by an estimated 30-50%, while cumulative 2024-2030 OPEX costs related to use and maintenance could increase by 3-7%. These additional costs have been built in for the MAX cost scenario.

For additional details and cost breakdowns, please refer to Section A3.2.3 in the Appendix.

3.2.2 OVERVIEW OF MPA COST MODEL, KEY INPUTS AND ASSUMPTIONS

The bottom-up analysis was developed due to the challenges faced in both the benchmarking analysis and the academic models, as described in Section 3.2. (see details in Appendix Section 3). The development of this analysis involved understanding the key activities required in the establishment and management of MPAs, estimating the costs associated with each, and

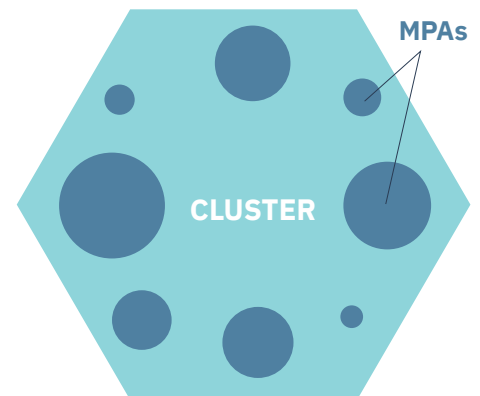


Exhibit 3.6: A single 'cluster' contains multiple MPAs of different sizes. Costs in the model vary based on the number of clusters, not on the number of MPAs

validating those costs with experts. Certain assumptions were made about what the 30% MPA network solution might look like and how it would be managed. However, these assumptions are not suggestions to the Government of Ireland as to how the 30x30 solution should look. This report instead aims to facilitate informed conversations about how to finance Ireland's national and international commitments.

KEY INPUTS & ASSUMPTIONS

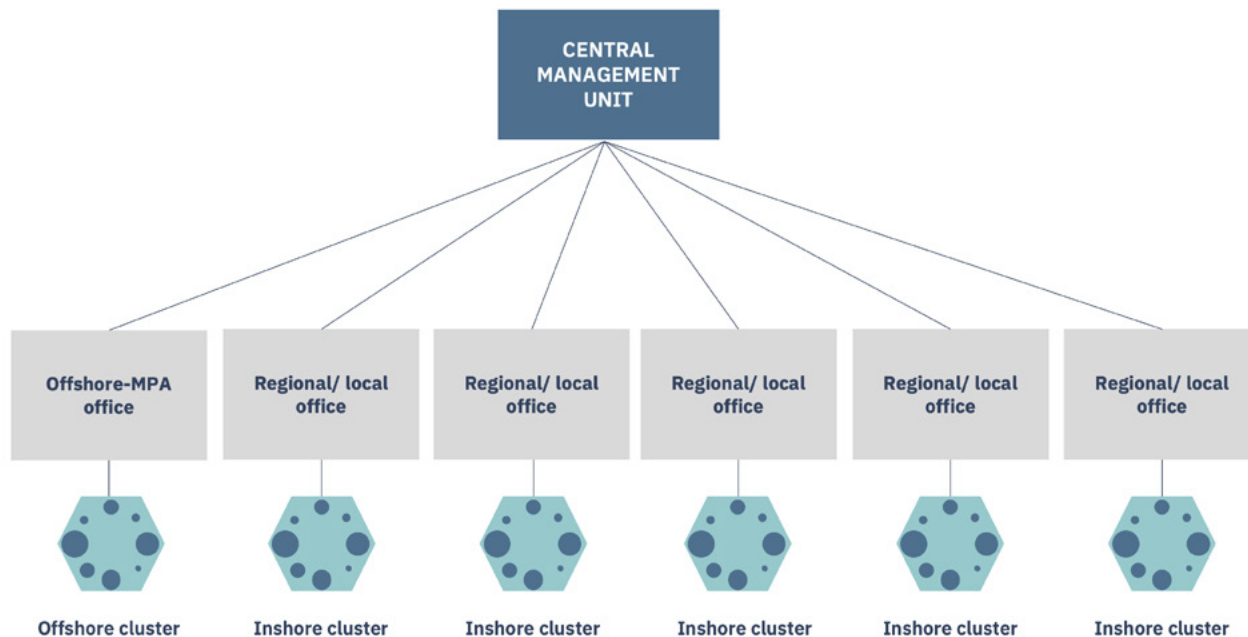
1. Location of MPAs

Given that the Government of Ireland has not yet determined where the MPAs will be designated in the 30x30 solution, the science-backed Areas of Interest (AOIs) outlined in Fair Seas' 2022 'Revitalising Our Seas' report were used as a proxy for where MPA location may be designated (Exhibit 3.5). MPA location is a key input into the model as offshore and inshore MPAs differ in their physical characteristics, use, size, and monitoring activities (e.g., presence of a coastal component, proximity to populated areas, ease of monitoring by boat, radar or satellite, etc.), with different costs associated with each.

2. Number and size of MPAs

As mentioned above, given that the Government of Ireland has not yet determined where the MPAs will be designated in the

⁸⁷ Marine Institute, [Ship-Time Programme 2024](#), May 2023



30x30 solution, a ‘cluster-based’ model was used instead of direct assumptions about the number and size of MPAs. A ‘cluster’ is defined as a group of nearby MPAs, irrespective of their size or total number, that are collectively overseen by a single local management unit (Exhibit 3.6). This MPA management entity assumes the costs (e.g., salaries, boats, fuel, etc.) required to manage its cluster of MPAs. In this way, costs in the model vary based on the number of clusters (explained in more detail below) rather than the number of MPAs.

3. Governance/management structure of MPA clusters

To determine certain management, equipment and infrastructure costs, assumptions need to be made about how the MPA network will be managed. The analysis assumes that clusters consisting of inshore MPAs (<12 nautical miles) would be managed by a nearby local/regional entity, while all the offshore MPAs (>12 nautical miles) would be grouped into a single cluster managed by one dedicated entity. All of these clusters would then be managed by a central management unit, responsible for general oversight, coordination, knowledge sharing, etc. (Exhibit 3.7).

The central entity ensures efficiencies across the whole network, oversees the establishment and management of MPAs, and acts as a shared service centre and Centre of Excellence for the various MPAs (e.g., developing and implementing management plans, enforcing regulations, monitoring progress & compliance, R&D, research lab). The primary cost component of the central entity is personnel. The main activities of the regional/local offices responsible for inshore

clusters involve on-site visits by park rangers and scientific personnel, undertaking regular patrols, enabling ecotourism, and monitoring of ecological status and compliance with MPA regulations. The primary cost components are personnel, equipment and scientific studies. The main activities of the team responsible for managing the offshore cluster of MPAs involve surveillance, compliance and ecological monitoring (including an important remote-sensing component). Physical site visits would be conducted in collaboration with external partners. Like the regional/local offices, the primary cost components are personnel, equipment and studies.

The analysis assumes that all these entities are overseen by an existing State agency, thus removing the need for additional high-level executive and core business function roles (e.g., board, CFO, HR functions, accounting, etc.) and the associated costs. If the Government decides that a new State agency needs to be established to manage MPAs, the need for these roles will increase costs.

4. Number and location of MPA clusters

To determine the number and location of the clusters, an assumption was made regarding which existing State agency would be responsible for MPA management. This allowed the physical locations of that State agency’s regional/local offices to be used as an indication of where clusters may be located. Given the National Parks and Wildlife Services (NPWS) is the organisation currently responsible for the management of SACs and SPAs, for the purpose of modelling it was assumed it is the agency responsible for MPA management. As mentioned earlier, this assumption is not a recommendation

Exhibit 3.7: Assumed MPA management structure in model; a central management unit working in coordination with a remote surveillance team for offshore MPAs and regional/local offices for inshore MPAs

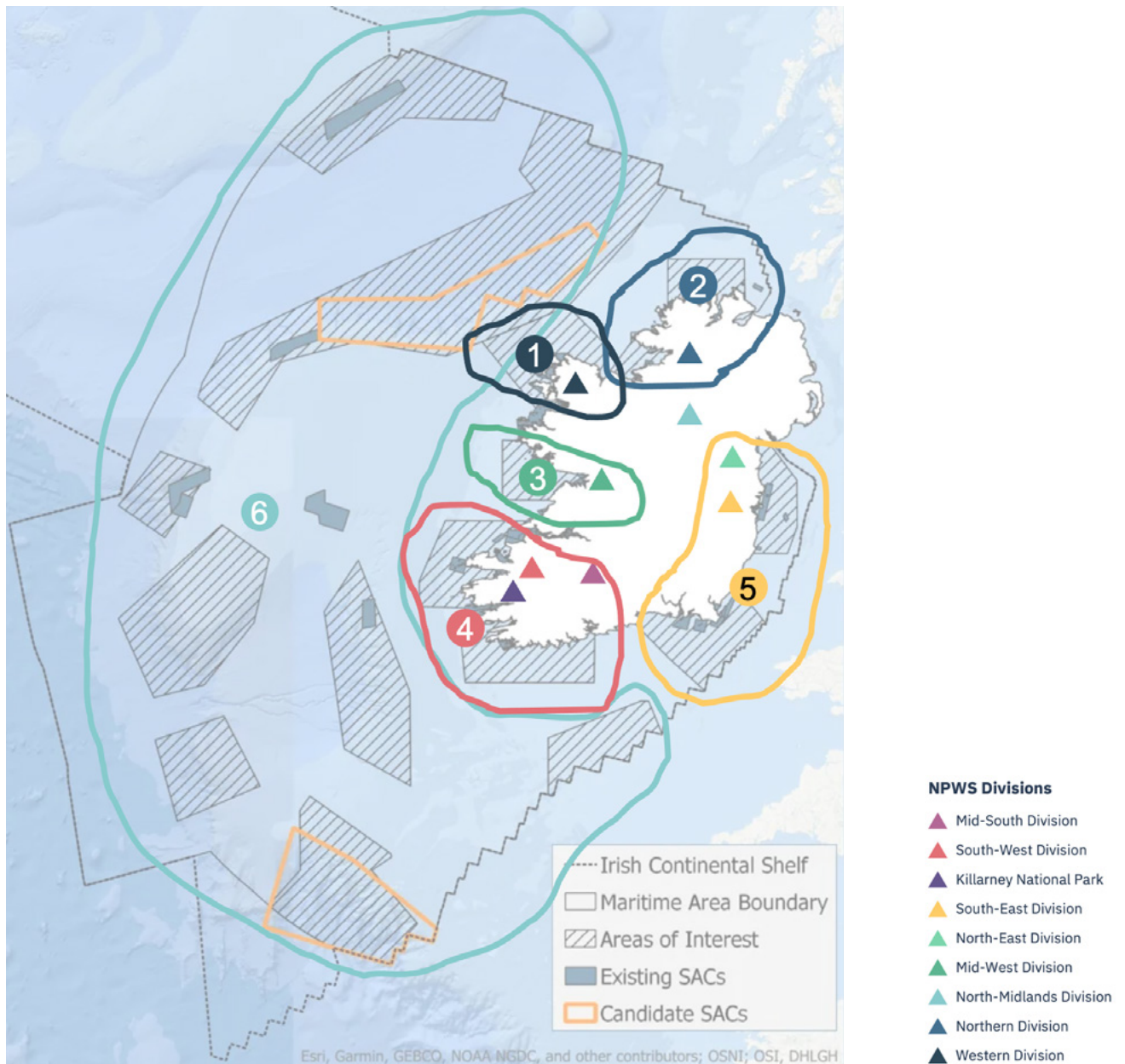


Exhibit 3.8: Existing NPWS regional divisions overlapped with Fair Seas AOIs; nearby regional divisions and AOIs were then grouped into clusters

Source: National Parks & Wildlife Service, "Contact Us", 2023



Source: Fair Seas, [Revitalising Our Seas](#), June 2022



regarding the required MPA authority, but rather an assumption for modelling purposes. Regional divisions of NPWS' existing National Parks were identified and overlapped (in terms of locations) onto the Fair Seas AOI map. Grouping nearby regional offices and AOIs into clusters resulted in six clusters – five inshore clusters and one offshore cluster (Exhibit 3.8).

The number of regional/local offices is one of the primary drivers for MPA establishment and management costs. Cost estimates in this study were developed based on the six clusters presented in Exhibit 3.8. However, if there were seven clusters (i.e., one additional in-shore cluster and associated management organisation), that would increase the total 2024-2030 cumulative cost by ~14%, increasing by ~€7.6 million to ~€62.5 million (mid estimate), and the average steady-state (post-

2031) cost by ~15%, increasing by ~€1.4 million to ~€11 million (mid estimate). On the other hand, if there were five clusters (e.g., combining clusters #1 and #3), that would instead reduce the total 2024-2030 cumulative cost by ~14%, decreasing by ~€7.6 million to ~€47.3 million (mid estimate), and reduce the average steady-state (post-2031) cost by ~15%, decreasing by ~€1.4 million to ~€8.2 million (mid estimate).

These are indicative high-level estimates and do not factor in the change in per-cluster costs that may occur if there were more or fewer clusters (e.g., if there were fewer clusters, each cluster may have to spend more on boat fuel to cover a greater surface area). However, although these are just estimates, they demonstrate the scale of the financial impact that every incremental regional management organisation may have on the total cost.

Level of protection	Description	Conservation effectiveness (illustrative)	Cost driving activities	Costs (illustrative)
Fully protected	No extraction / activities permitted		1. Monitoring and evaluating conservation objectives	\$
Highly protected	Small-scale, low-impact extraction of fish or shellfish permitted		1. Fishing management and monitoring 2. Monitoring and evaluating conservation objectives	\$\$\$
Not protected ('Paper Parks')	Park legally designated with few/no monitoring or conservation activities	None	None	None

 High  Lower
 \$ Low \$\$\$\$ Higher

The combination of assumptions 1-4 resulted in the modelling of MPA establishment and management costs for a central management entity (that sits within the NPWS), five regional/ local teams responsible for establishing and managing their cluster of individual inshore MPAs, and one team responsible for managing and establishing the offshore cluster.

5. Year-by-year timing of the implementation of the 30x30 MPA network

To determine the ‘rollout’ of the MPA network (needed to determine annual management and establishment costs between 2024 and 2030), it is assumed that the MPA network would cover 10% of Ireland’s EEZ in 2024 and 30% by 2030, with a linear ramp-up of the network between these two reference points. As discussed in Section 2, given that Ireland’s current MPA network consists primarily of SPAs and SACs, and that these have historically been undermanaged due to lack of funding, for cost modelling purposes it is assumed that the cost of establishment is for the full 30% network. That means the estimated costs cover the increase from 0% to 30% marine protection, and not for the incremental amount starting from 8.3% (the SAC/SPA coverage in 2022) and rising to 30% by 2030. Additionally, it is assumed the implementation occurs cluster-by-cluster, so as to model the deployment of one regional office at a time.

6. Level of protection

The costing model does not factor in different levels of protection because (1) the analysis was performed at a cluster level, not at an individual MPA level, and (2) the final configuration and level of protection of the network have not yet been detailed. As outlined in Fair Seas’ 2022

‘Revitalising Our Seas’ report, MPAs could be either fully or highly protected according to the MPA Guide. For example, of the 30% protected network, 10% could be fully protected areas, which “do not allow any kind of extraction through fisheries or aquaculture”, and the remainder could be highly protected, allowing small-scale, low-impact and sustainable use only. It typically costs less to manage fully protected, no catch areas compared to highly protected areas, which are also less effective, because enforcing a fully protected MPA requires less administrative and monitoring efforts than enforcing a highly protected one (e.g., there is no need to manage fishing activities in fully protected areas) (Exhibit 3.9).

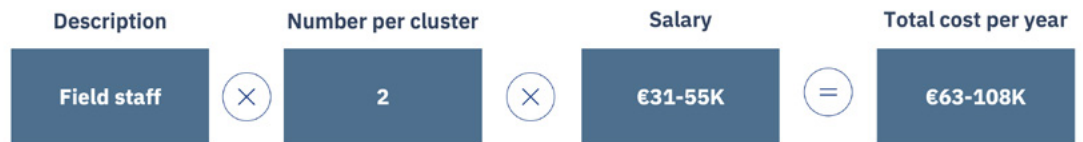
It is also possible to designate ‘paper parks’ that offer no protection to marine ecosystems. These parks exist legally on paper but involve few/no monitoring or conservation activities and, as a result, do not generate conservation outcomes. Although these parks are relatively easy to establish (requiring no physical infrastructure or personnel on site), it should be noted that they accomplish little or nothing in terms of conservation. Once the Government designates MPAs and their level of protection, it is recommended that cost assumptions be further refined to take this into account.

With all these inputs and assumptions in mind, the bottom-up cost model was developed to replicate the key activities that each of the different entities would undertake in order to establish and manage MPAs. The costs associated with these activities were then calculated. The foundation of the model is a paper published in 2015 by Binet et al.⁸⁸, which presents a comprehensive analysis

Exhibit 3.9: Fully protected MPAs cost less to manage and result in higher conservation outcomes than highly protected MPAs, illustrative

88 Sustainable financing of Marine Protected Areas in the Mediterranean, A guide for MPA managers, https://www.rac-spa.org/sites/default/files/doc_medmpanet/final_docs_regional/52_management_tool_on_the_sustainable_financing_of_mpas_in_the_mediterranean.pdf

Exhibit 3.10: Simplified illustrative example of underlying logic in bottom-up model



of the financial costs and needs of establishing and managing MPAs. The study is focused on the Mediterranean Sea and is based on interviews with national authorities and surveys of managers of 20 MPAs. To be representative of Ireland and its 30x30 target, this foundational study was tailored and further developed in the analysis with the inputs and assumptions outlined above.

The minimum, maximum and most likely estimates are provided for each parameter and cost item. Consequently, the minimum, maximum and most likely estimates for overall cost are calculated assuming the corresponding values for all parameters and cost items (i.e., the minimum estimate is produced using the minimum unit cost and minimum quantity). Costs are distinguished (1) between CAPEX and OPEX, and (2) between establishment costs and management costs.

Cost items that are recognised as being part of the establishment process are counted towards establishment cost on their first occurrence.

Management costs are then calculated as the difference between total costs and establishment costs. Finally, the input values were reviewed by global experts in MPA management, and notably by experts with experience in developing budgets for MPAs. These included members of ENI CBC Med (the largest Cross-Border Cooperation [CBC] initiative implemented by the EU under the European Neighbourhood Instrument [ENI]), Oceans5, the Blue Nature Alliance, and other leading NGOs.

To illustrate a simplified example, for the monitoring and surveillance activities of an inshore cluster, the number of field staff required as well as potential salary ranges (identified in research) were estimated so that the total annual cost of field staff for this activity could be calculated (Exhibit 3.10). Conducting this same exercise in more detail for over 80 cost categories resulted in a representative estimate of the actual costs of MPA establishment and management in Ireland.

Cost items that are recognised as being part of the establishment process are counted towards establishment cost on their first occurrence.
Management costs are then calculated as the difference between total costs and establishment costs.

4 Financing mechanisms for Ireland's MPAs

The purpose of this section is to outline the potential financing mechanisms that the Government of Ireland can consider using to fund the costs outlined in Section 3. For the purposes of this report, 'financing mechanisms' are defined as any financial instrument, programme, policy, organisation, or other solution that acts as a source of funding for MPA establishment and management. These financing mechanisms can either be 'one-time' sources of funding or recur every year. The section explains the process used to develop the shortlist of potential financing mechanisms, as well as providing a deep-dive explanation of each mechanism, including rationale, considerations, timing, estimated funding amount (for select examples), and a preliminary legislative review in Ireland. Finally, the section concludes by describing a prioritisation logic that the Government of Ireland can follow when evaluating which financing mechanism to implement first.

4.1. OVERVIEW OF POTENTIAL FINANCING MECHANISMS

Process used to develop the shortlist

To evaluate which financing mechanisms are most suitable for MPAs in Ireland, an exhaustive list of over 60 mechanisms was created. These financial mechanisms were identified through various means, including online research, report scanning, and conversations with global and regional sustainable financing experts (for a full list of the mechanisms evaluated, please see Appendix Section A4.1.). This initial list was then filtered by considering a series of screening questions designed to eliminate mechanisms that would not be suitable in Ireland (Exhibit 4.1). Specifically, the following questions were asked:

- **Is this mechanism suitable for a developed country such as Ireland?**

Many financing mechanisms that exist today are targeted towards developing countries. For example, Official Development Assistance (ODA) is a financing mechanism specifically designed to promote the economic development and welfare of developing countries, and therefore would not be applicable in Ireland. Similarly, in developing countries, philanthropic funding typically plays a key role in providing conservation financing. As outlined later in Section 4, there is a role for philanthropic funding to play in Ireland, however, it is not likely to be as significant a source of funding as it is in developing countries.

- **What is the potential financial impact of this mechanism? Is it worth pursuing?**

Given the need for a cumulative spend between 2024 and 2030 of ~€54.9 million, some mechanisms on the initial list were deemed insufficiently impactful in terms of the magnitude of funding they could provide and therefore not worth pursuing. For example, retail (e.g., gift shops and/or food and drink stores near MPAs, branded merchandise sold online, etc.) could generate some revenues for MPAs, however, the financial impact is likely to be small. Additionally, when considering the costs required to implement this mechanism (e.g., administrative costs, costs of goods sold (COGS), marketing), the viability becomes questionable. To assess this, a high-level qualitative review of potential implementation costs was conducted, and for those mechanisms that were sized in detail, estimates of implementation costs were calculated.

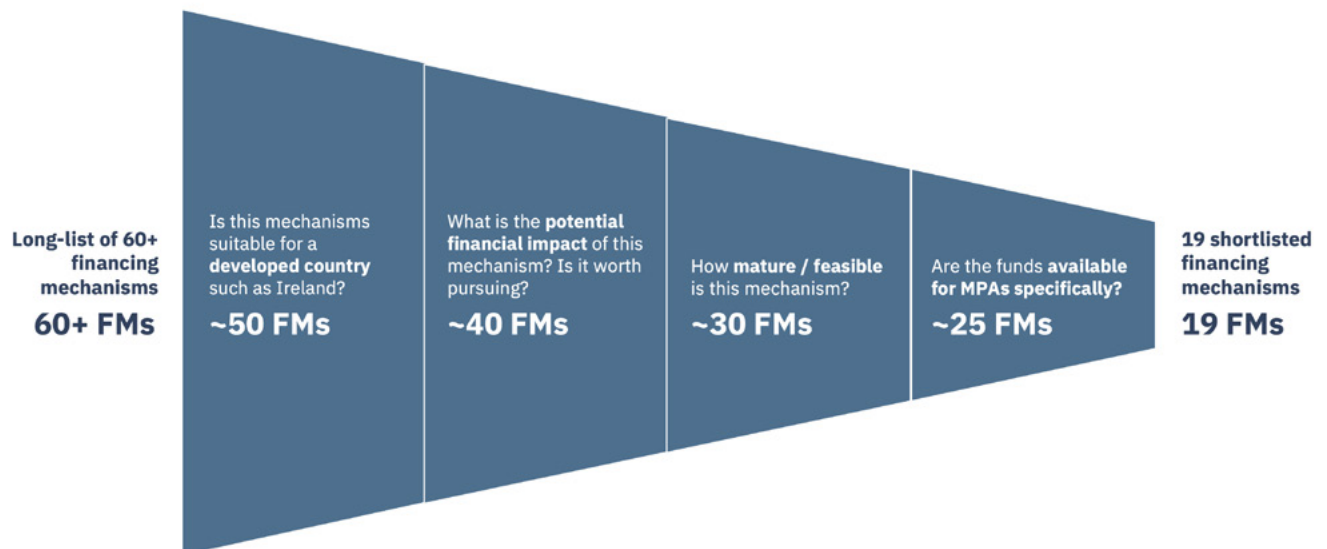


Exhibit 4.1:
Illustrative funnel showing screening steps taken to shortlist financing mechanisms (FMs)

- **How mature is this mechanism? How feasible is its implementation in the Irish context?**

Consideration was given to how feasible it may be to implement a financing mechanism in Ireland based on examples from other developed countries and considering the local Irish context. For example, Public-Private Partnerships (PPPs), a mechanism which has been used in Ireland for major infrastructure projects, are an emerging financing mechanism for marine conservation. PPPs involve a co-management agreement between a private, non-profit entity and a government to form a new Special Purpose Entity (SPE) that is responsible for the management of the MPA. Typically, PPPs are used in situations when the government cannot provide annual budget allocations, and the SPEs are expected to become financially sustainable and generate their own incomes from statutory user fees, as was done for the Arrecifes del Sureste MPA in the Dominican Republic.⁸⁹ However, as MPAs in Ireland are likely to be managed by a State agency (e.g., the NPWS) and partially funded by Government budget allocation, this mechanism was excluded. On the other hand, some mechanisms that may not be feasible in the short-term were still considered as potential long-term mechanisms if there appears to be a global trend to develop them (e.g., blue carbon).

- **Are MPAs and/or national agencies eligible for this funding?**

This filter is necessary to screen the many EU programmes that provide funding for various sustainable development purposes. It is critical

to understand which programmes have funding specifically for MPAs and how they are required to deploy those funds (e.g., through NGOs, local government, with co-financing, etc.). For example, the EU's Connecting Europe Facility focuses specifically on cross-border renewable energy projects rather than funding MPAs and was therefore excluded from the shortlist.

After applying these four questions, a shortlist of 19 financing mechanisms considered to have the potential to provide financing for MPAs in Ireland was produced (Exhibit 4.2). To build confidence in the process, this shortlist was then tested with multiple global marine conservation financing experts, including members of the World Bank, UNDP, Oceans5, the Blue Nature Alliance, and other leading NGOs. While this shortlist is not exhaustive of all potential financing mechanisms, it can serve as a highly relevant starting point for the Government of Ireland to reference.

As can be seen in Exhibit 4.2, financing mechanisms were categorised by instrument type (grants, revenue generating mechanisms, debt based instruments) from the perspective of the Government of Ireland. Additionally, broad funding categories and subcategories of mechanisms (e.g., marine activity based, ecosystem value based, philanthropic) were outlined.

A qualitative assessment of which mechanisms are more suited for establishing MPAs, which are more suited for managing MPAs, and which are suited for both was also conducted. Mechanisms

⁸⁹ CPIC, *Conservation Investment Blueprint: Public-Private Partnership for Marine Protected Areas*, January 2019

From the perspective of the Government of Ireland

Instrument type ¹	Funding category & sub-categories	Financing mechanisms				
Grant <i>(may require co-financing from the Government of Ireland)</i>	EU programmes	LIFE				
	Philanthropy / Donations <table border="1"> <tr> <td>Institutional</td> </tr> <tr> <td>Private / Individuals</td> </tr> </table>	Institutional	Private / Individuals	EMFAF Horizon EU (Mission Ocean) Just Transition Fund Peace Plus Programme e.g., WAITT Institute, Swedish Postcode Foundation Donations		
Institutional						
Private / Individuals						
Revenue	Non-marine activity based	Government revenue (<i>from income tax, VAT, etc.</i>)				
	Marine activity based <table border="1"> <tr> <td>Commercial activities</td> <td>Once-off fees</td> </tr> <tr> <td>Private / Individual activities</td> <td>Recurring levies, fees, or reduced subsidies</td> </tr> </table>	Commercial activities	Once-off fees	Private / Individual activities	Recurring levies, fees, or reduced subsidies	Fines & penalties Offshore wind Fishing Other (e.g., shipping, port use) Tourism
	Commercial activities	Once-off fees				
Private / Individual activities	Recurring levies, fees, or reduced subsidies					
Ecosystem value based	Fishing or boating Blue carbon Nature credits					
Debt	Investment based	Irish Sovereign Green Bond (ISGB) ¹ Blue, Sustainability, or Sustainability-linked bonds European Investment Bank's (EIB)				

1. ISGB may have to restructure their framework to specify blue activities or establish a dedicated Blue Bond, however, this may take additional time (1y+)

- Applicable for both establishing and managing MPAs
- Immediately available in 2024
- More applicable for managing MPAs
- Requires development of legislation, application, etc. (1y+)
- More applicable for establishing MPAs
- Long-term opportunities to monitor and develop

that are more suited for establishing MPAs typically issue funds once as opposed to recurring annually. For example, investment based mechanisms (e.g., the European Investment Bank (EIB), sustainability-linked bonds) provide initial capital with interest, and some philanthropic funds may also be one-off as opposed to annual. On the other hand, mechanisms that are more suited for managing MPAs are more likely to provide annual funds. Typically, these are the revenue based mechanisms (e.g., taxes/fees on tourism) which will continue to generate funding for MPAs in perpetuity. Some mechanisms can be used for both establishing and managing MPAs, depending on the specific terms of the funding (e.g., government budget allocations).

An initial perspective on the timeline of implementation of these mechanisms was provided, tagging them as either “Immediately available in 2024”, “Requires development of legislation, application, etc. (1y+)”, or “Long-term opportunities to monitor and develop”. These timeline considerations are important for the Government of Ireland to keep in mind as, for example, in 2024, only the mechanisms that are currently in the Government’s control might be able to provide funding for MPAs (i.e., annual budget allocations from government revenues and funds from the Irish Sovereign Green Bond [ISGB]).

Finally, the potential size of some of these mechanisms was estimated on an annual, steady-state basis. High-level sizing estimates were

provided for the following mechanisms (see sizing details for all three in Section 4.2.):

- Fees, taxes, or levies on offshore wind energy production: **~€8 million (€5-12M) per year**
- Tourism fee: **~€9 million (€3-18M) per year**
- Blue carbon: **~€0.5 million (€0.4-0.7M) per year** or higher, depending on the trading price of carbon

These values are the estimated ‘net contribution’ these mechanisms could have on MPA funding once the costs to set-up and run the mechanisms have been taken into account. The funding potential of EU programmes (LIFE, Horizon Europe) and investment based inflows (EIB, ISGB, sustainability-linked bonds) was not sized as the amount of funding available is at the discretion of the funders and dependent on the business case made. In many cases the funding could cover the full amount required. The annual budget allocation from the Government was not sized either since, like the EU programmes and investment based inflows, the budget allocation could potentially cover the full amount required.

However, a benchmarking analysis of MPAs in other countries was conducted to provide some insight into what percentage of the total funding for MPAs typically comes from the government (Exhibit 4.3)⁹⁰. Data at the national level was challenging to find, so funding sources at the MPA level were assessed (please see Section 3.2.2. ‘Benchmarking analysis’ for more information on benchmarking data challenges).

Exhibit 4.2: Shortlisted financing mechanisms for MPAs in Ireland

The analysis shows that, for developed countries, government typically provides the majority of MPA funding, upwards of 90% in most cases. Naturally, there are exceptions to this trend. For example, the Cinque Terre MPA in Italy is funded primarily through local tourism activities. For context, the Cinque Terre National Park is a tourism hotspot that receives an estimated 2.5 million tourists every year.⁹¹ However, depending on the legislation in place to govern the flow of tourism revenues, these could also be considered 'government funds' if they were first collected by the Italian Government and then distributed to the MPA (see additional information on the role of legislation below). By contrast, MPAs in developing countries are typically funded primarily through other means, and often through ODA from other countries.

In Exhibit 4.3:

* For each of the MPAs included in this benchmarking analysis, a small % of area may be terrestrial and/or coastal

** Data based on various sources dated from 2003 to 2015

*** Other sources of funding include revenue from sales of goods and service rendering, funding received from the Great Barrier Reef Foundation, and other revenue such as sale of assets

As seen with the Cinque Terre MPA in Italy, legislation plays a key role in determining the flow of funds from the different financing mechanisms and whether this funding is considered government funding or some form of direct MPA revenues (Exhibit 4.4).

Exhibit 4.3:
Benchmarking analysis of sources of funding for MPAs in both developed and developing countries

Source: Various online sources including individual MPA annual reports

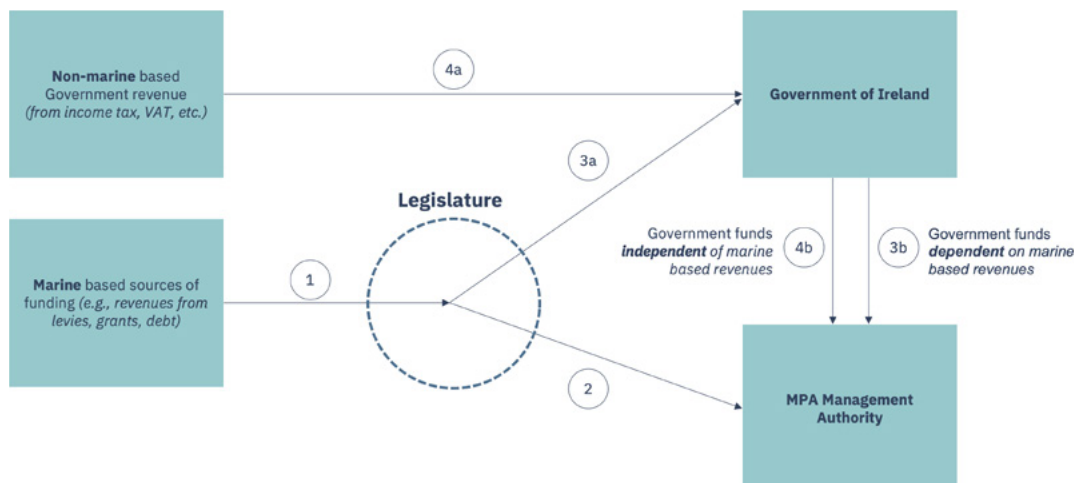
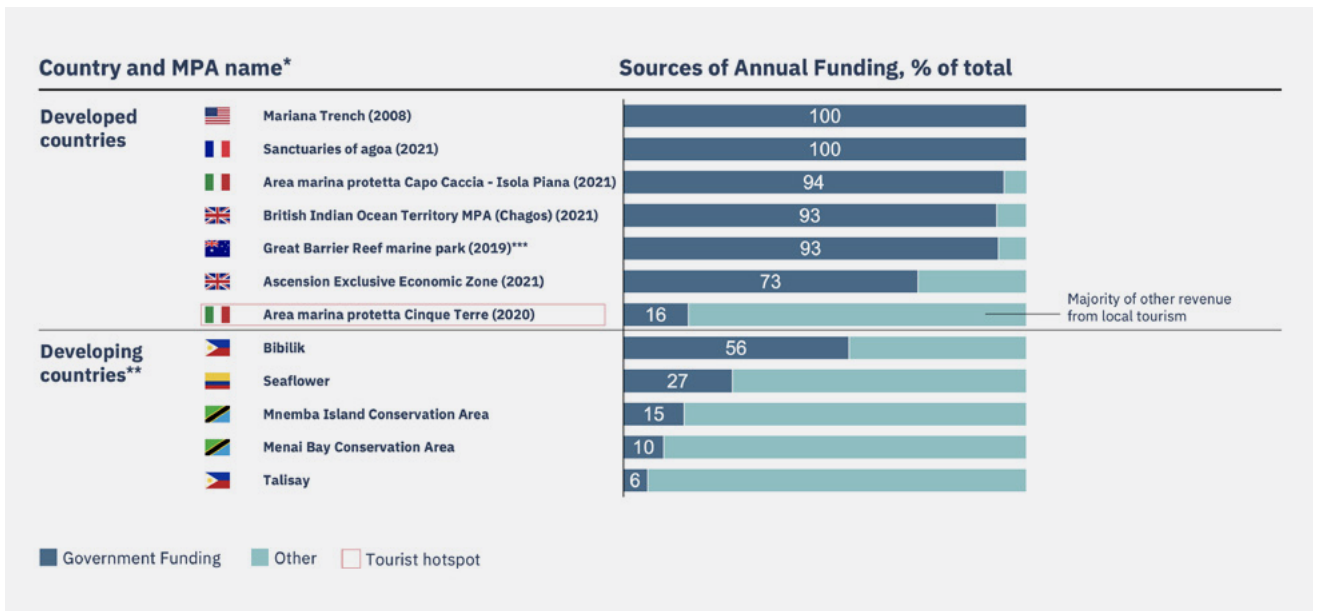
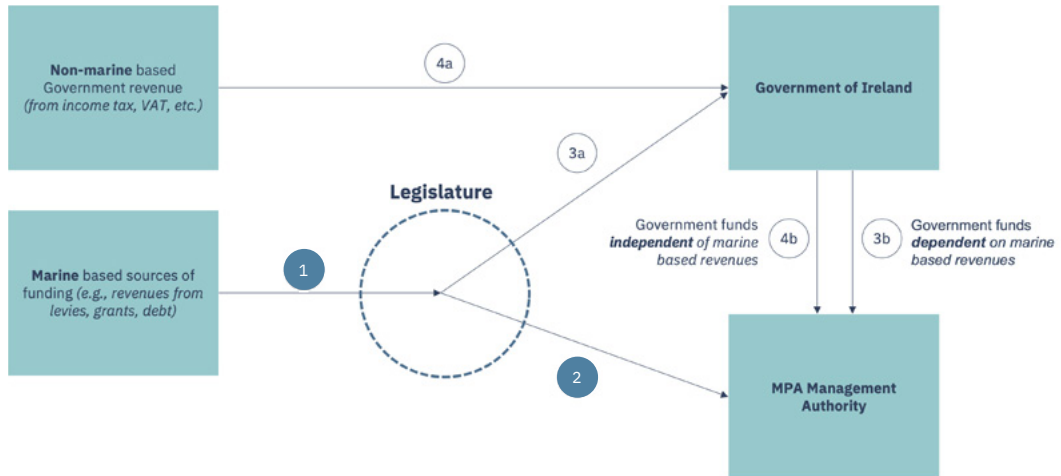


Exhibit 4.4: Legislation will play a key role in determining the pathway by which sources of funding reach the MPA authority and the size of the Government's annual budget allocations

91 The Local Italy, "Cinque Terre town pushes train company to limit tourist numbers", July 2019

Consider the following three MPA scenarios:

Scenario A

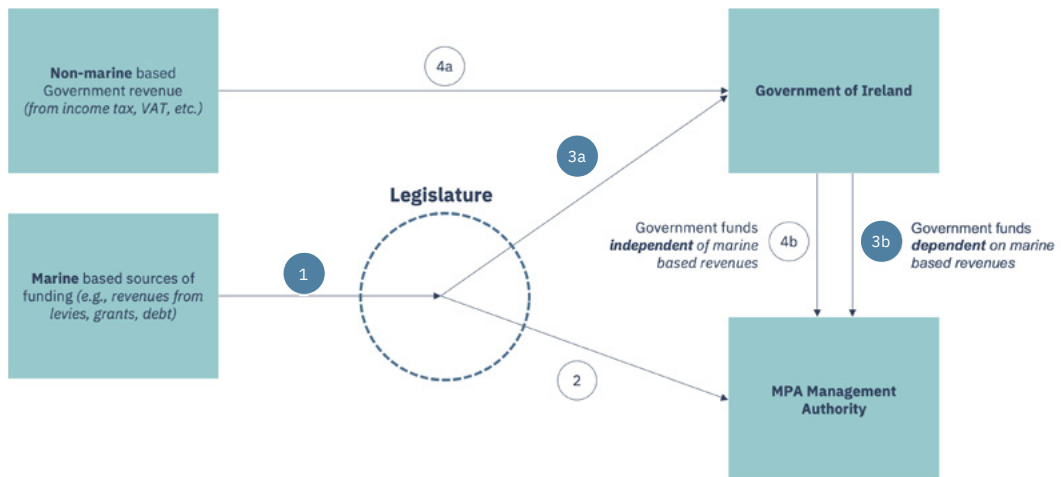


No budget allocations, MPA dependent on marine based revenues (circles #1 + #2 in Exhibit 4.4)



This model is similar to what can be observed in the Cinque Terre MPA (Exhibit 4.3), where revenues from tourism flow directly to the authority managing the MPA to cover their costs. In this scenario, the MPA authority will require more capabilities to manage the revenue sources. This poses a risk that the focus of the MPA authority will shift from conservation to commercialisation, which may conflict with or distract from conservation activities. Additionally, as with the Cinque Terre MPA, the government may need to continue to provide some direct funding to the MPA authority if the revenue sources are insufficient to cover their costs. Tourism revenues may also be seasonal and subject to shocks, such as Covid-19.

Scenario B

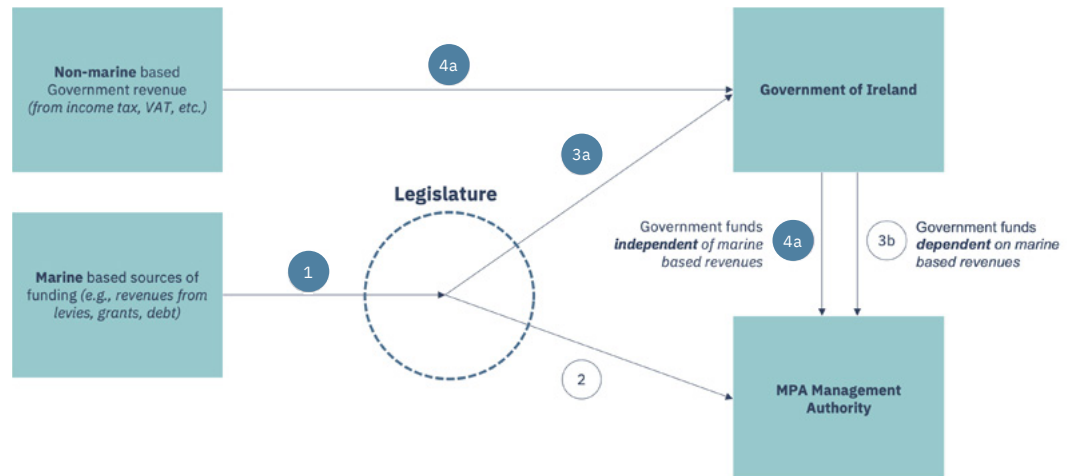


Government budget allocations dependent on marine based revenues (circles #1, #3a and #3b in Exhibit 4.4)



In this model, the government's annual allocation to the MPA authority varies with the marine based revenues. For example, MPAs may receive 10% of all marine based revenues. As with Scenario A, in this scenario the MPA authority can rely on other government agencies to manage the revenue collection process and disburse the funds. This provides a minimum guarantee of funding for MPAs, however, it necessarily relies on the successful implementation and management of the revenue generating mechanisms, over which the MPA authority will not have direct control.

Scenario C

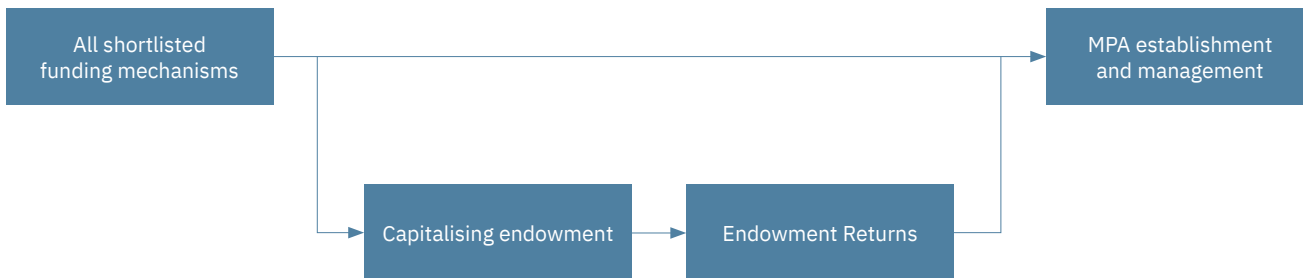


Standard government budget allocations (circles #1, #3a, #4a and #4b in Exhibit 4.4)

In this model, the government commits to annual budgetary allocations to the MPA authority, independent of the marine based sources of funding. The funding can be considered as coming from the 'general fund' that the government allocates every year. In this scenario, the MPA authority has no responsibility to collect revenues, allowing it to focus on core conservation operations. However, this places MPA funding at risk should political priorities change. Appropriate legislation will be needed to ensure the balance of flows of funds produces sustainable financing for the MPA authority, and the government's annual budget allocations to the MPA authority will be dependent on this legislation.

Finally, not all the other mechanisms (e.g., nature credits, recreational fishing and boating) were sized, since either funding from them is very small compared to other sources (e.g., EU programmes, government budgets) or they are too early in their maturity to develop an accurate perspective.

Appropriate legislation will be needed to ensure the balance of flows of funds produces sustainable financing for the MPA authority, and the Government's annual budget allocations to the MPA authority will be dependent on this legislation.



Additional financing strategy considerations

In addition to the financing mechanisms outlined above, the Government of Ireland can consider two potential financing strategies when developing a holistic plan for the long-term financing of the MPAs: (1) establishing an Environmental Fund, such as an endowment fund, to generate investment returns to fund MPA management operations, and/or (2) utilising the Project Finance for Permanence (PFP) capital fundraising and deployment methodologies. Neither of these financing strategies are considered 'financing mechanisms' as they require initial capitalisation from the other mechanisms detailed in this report. However, once capitalised, both strategies have the potential to generate revenue streams for MPA management operations. Although the focus of this report is financing mechanisms (i.e., methods to raise or generate funding), some high-level information on these additional financing strategy considerations is provided below for the Government to consider.

1. Establishing an Environmental Fund

There are three main types of Environmental Funds:⁹²

- 1) **Endowment fund:** a fund that only spends income from its capital, preserving the capital itself as a permanent asset.
- 2) **Sinking fund:** a fund that disburses its entire principal and investment income over a fixed period of time, usually a relatively long period.
- 3) **Revolving fund:** a fund that receives new income on a regular basis - such as proceeds from special taxes, user fees, etc. - to replenish or augment the original capital.

An endowment fund can be used by an organisation to raise capital to fund operations on an ongoing basis. The endowment structure enables organisations to manage a set of financial assets through which investment returns can be generated. Annual investment returns generated

from the financial assets are then used to fund the annual operational expenditure of the organisation and further grow the endowment (Exhibit 4.5).⁹³

There are many different types of governance structures that determine how an endowment is established and run. To avoid full government control, endowments are usually held at 'arm's-length' from the government and are commonly structured as a private non-profit entity (e.g., a charitable trust) with members of the government on the board. This is done to protect endowment funds from changes in government leadership and policy and ensure that funds are being used for their established mandate (i.e., MPA financing). Endowments also require an endowment or 'trust fund' administrator/committee to manage the funds. The administrator/committee is responsible for creating and maintaining an investment policy, setting the investment portfolio's policy asset allocation, developing an appropriate spending policy, rebalancing the portfolio on a regular basis, and providing an annual report to the board on the state of the endowment.⁹⁴

For example, in 2007 the Government of Canada, in partnership with the Government of British Columbia, philanthropic foundations, and Indigenous First Nations, established 'Coast Funds', a conservation trust fund organisation, as a central element in the creation of new terrestrial protected areas in the Great Bear Rainforest. In 2023, the Great Bear Sea network of co-designed and co-managed MPAs was announced, which is being implemented until 2030. Coast Funds was established using the PFP approach (see more details below) with a US\$30 million contribution from the Government of Canada, a matching US\$30 million contribution from the Province of British Columbia, and an additional US\$60 million in donations from individuals and private foundations, totalling US\$120 million altogether.⁹⁵ The fund consisted

Exhibit 4.5: An endowment could be established to generate future revenues for MPAs

⁹² Environmental Funds, [What is an Environmental Fund, and when is it the right tool for conservation?](#)

⁹³ CFI, ["Endowment"](#), December 2022

⁹⁴ commonfund, [Endowment Management and the Three Primary Responsibilities of a Board](#), June 2021

⁹⁵ Coast Funds, [Indigenous-led Conservation Finance in the Great Bear Rainforest: A Pathway to Reconciliation](#), July 2018

of two separate but related funds: a US\$60 million Conservation Fund, which is a permanent endowment for the protection of the included rainforest areas and provides annual revenue towards operating costs, and a US\$60 million Economic Development Fund, which is a sinking fund focused on sustainable development among the area's First Nations.⁹⁶

Another example is the Blue Endowment Fund capitalised by the debt service payments from Seychelles' debt-for-nature swap. With support from The Nature Conservancy, the US\$21.6 million debt-for-nature swap in Seychelles enabled the Government to make a policy commitment to safeguard 30% of its EEZ in MPAs.⁹⁷ Through this debt conversion, the Government created SeyCCAT (Seychelles Conservation and Climate Adaptation Trust) in 2015 for ocean conservation. With US\$151,000 per year from the debt service payments from the debt conversion, the Blue Endowment Fund (maturing in 2036) is being capitalised, with an expected value of US\$6-7 million available for investments in conservation and climate adaptation projects and to implement the Seychelles Marine Spatial Plan and MPAs.⁹⁸

2. Utilising the Project Finance for Permanence (PFP) methodology

The Project Finance for Permanence (PFP) methodology is an innovative approach used to overcome common conservation fundraising challenges and to secure both short- and long-term funding for conservation. A PFP initiative typically begins with the development of conservation and broader socio-economic goals, followed by the development of a comprehensive conservation and financial plan to achieve the goals. Public and private donors commit funds to bring the plan to life, but their funds are held back until the total fundraising goal is reached and all key legal and financial conditions agreed upon in advance are met. This provides donors with an upfront guarantee that their support will be put to best use, and helps solve the 'chicken-and-egg' problem where some donors may only commit

funding on the basis that another donor also commits funding. Once the conditions have been met, the donations are put into a fund. Money within the fund is then distributed over a set period of time and in accordance with the agreed financial plan, covering both short-term, upfront costs as well as supporting the development of long-term, sustainable sources of funding to meet the stated goals.⁹⁹

Historically, PFPs have been deployed in developing countries, with leading examples in Brazil (Amazon Region Protected Areas for Life), Columbia (Columbia Heritage), Peru (Peru's Natural Legacy) and Costa Rica (Costa Rica Forever).¹⁰⁰ That being said, some of the largest and most successful PFPs to date are Indigenous-led conservation efforts in Canada. For example, at COP15 in 2022, the Government of Canada announced its plan to invest US\$800 million in four Indigenous-led conservation initiatives across Canada, including a commitment to support First Nations to develop a PFP for the Great Bear Sea. Led by 17 First Nations of the North Pacific Coast, the innovative partnership between the First Nations, the Governments of Canada and British Columbia, and philanthropic funders will protect millions of hectares of temperate rainforest, finance Indigenous stewardship, management and protection of traditional territories, create over 1,200 new jobs, and facilitate the transition to a more diverse and sustainable regional economy.¹⁰¹

The Government of Ireland could consider utilising PFP principles to secure funding from a broad range of stakeholders (e.g., securing philanthropic money on the condition that the Government also commits a certain amount), involve local coastal communities who may be impacted by the introduction of MPAs, and commit to the development of long-term, sustainable financing mechanisms (e.g., blue carbon, offshore wind taxes, etc.). This could allow the Government to gradually scale and cover the operational costs of MPA management.

96 Redstone Strategy Group, *PFP: Assessments of three landscape-scale conservation deals: ARPA, Great Bear, and Forever Costa Rica*, July 2011

97 The Commonwealth Blue Charter, "*Case study: Innovative Financing – Debt for Conservation Swap, Seychelles' Conservation and Climate Adaptation Trust and the Blue Bonds Plan, Seychelles*", 2020

98 *SeyCCAT*; The Commonwealth Blue Charter, "*Case study: Innovative Financing – Debt for Conservation Swap, Seychelles' Conservation and Climate Adaptation Trust and the Blue Bonds Plan, Seychelles*", 2020

99 World Wildlife Fund (WWF), *Project Finance for Permanence: Key Outcomes and Lessons Learned*, August 2015

100 World Wildlife Fund (WWF), *Securing Sustainable Financing for Conservation Areas*, June 2022

101 Coastal First Nations Great Bear Initiative, *Federal government commits to developing conservation finance model for Great Bear Sea*, December 2022

4.2. DETAILED REVIEW OF POTENTIAL FINANCING MECHANISMS

A) GRANT BASED

A1) EU Funding Programmes

There are a variety of EU funding opportunities for environmental projects, nature conservation, and many other related projects, designed to support EU Member States in implementing environmental policies/regulations, preserving biodiversity, advancing research and innovation, and ultimately upholding the EU's environmental commitments. For marine conservation specifically, several of the most important funding programmes that help governments promote strong governance of marine resources with significant financial support have been identified, including EMFAF, LIFE, Horizon Europe, EU Just Transition Fund, and PEACE PLUS Programme.

EMFAF

Description: The European Maritime, Fisheries and Aquaculture Fund (EMFAF) is an EU fund running from 2021 to 2027 that channels financial resources from the EU budget to support the EU common fisheries policy (CFP), the EU maritime policy, and the EU agenda for international ocean governance. It provides financial support for developing innovative projects aimed at ensuring that aquatic and maritime resources are used sustainably.¹⁰²

Potential value: The European Commission has adopted an EMFAF programme for Ireland, with a total financial allocation for 2021-2027 amounting to €258.4 million, €142.4 million of which is accounted for by the EU contribution and the remainder accounted for by a Government of Ireland contribution.¹⁰³ The funding will be directed towards sustainable fisheries (50%), sustainable aquaculture and processing of fisheries and aquaculture products (36%), sustainable blue economy (6%), technical assistance (6%), and international ocean governance (2%). One of the focus areas of EMFAF's support for sustainable fisheries is to protect and enhance marine biodiversity, including the designation and management process of Natura 2000 sites and MPAs. Specific actions that are supported to improve MPA management include development and use of

more selective fishing gear, restoration of habitats and species, appropriate fisheries control and enforcement, control of invasive marine species, tackling plastic pollution, and increasing awareness of the Natura 2000/MPA network.¹⁰⁴

Considerations/challenges: Improvements are needed in the management and control system of the EMFAF programme, such as the development of a new grant management system that will simplify administration for all implementing bodies and beneficiaries, while strengthening reporting requirements and the provision of administrative capacity for all implementing bodies to ensure effective management of EU funds.¹⁰⁵

Additionally, the financial allocation from EMFAF for the Irish programme might come with specific earmarks outlining the intended areas of focus for the funding. Therefore, it is unclear whether the programme has available funds that can be directed to activities not considered at the time of initial allocation.

Timing: Immediately available in 2024.

LIFE

Description: The LIFE Programme provides funding for the support of environment, nature conservation and climate action projects throughout the EU. As the EU's funding instrument for the environment and climate action, the LIFE Programme has a total indicative 2021-2027 budget of approximately €5.43 billion. LIFE targets projects with an environmental dimension, with funding allocated for four sub-programmes: nature and biodiversity (€1,103.5 million), circular economy and quality of life (€697.5 million), climate change mitigation and adaptation (€505.5 million), and clean energy transition (€527 million).¹⁰⁶ One of the areas directly targeted by the nature and biodiversity sub-programme is the sustainable use and protection of marine and water resources, which is also one of the main objectives of MPAs. This sub-programme aims to protect and restore Europe's nature and halt and reverse biodiversity loss, supporting the EU's Biodiversity Strategy for 2030.¹⁰⁷

The LIFE Programme provides funding in the form of grants, prizes and procurement. The

102 European Commission, "The European Maritime, Fisheries and Aquaculture Fund - Frequently asked questions"

103 Department of Agriculture, Food, and Marine, "McConalogue welcomes EU Commission decision to adopt the €258 million European Maritime, Fisheries and Aquaculture Fund (EMFAF) Programme 2021-27 for Ireland", December 2022

104 European Commission, "Ireland will receive €142 million from the European Maritime, Fisheries and Aquaculture Fund 2021-2027", September 2022

105 Gov.ie, "Seafood Development Programme 2021-27 Summary of Programme", July 2022

106 Gov.ie, "EU LIFE Programme", June 2022

107 European Commission, "LIFE Programme", "Find Your EU Funding Programme for the Environment", June 2022

predominant form of funding used is grants, broadly constituting about 85% of the total budget. Depending on the type of projects, grants can co-finance up to 95% of project costs.

Potential value: The Department for Housing, Local Government and Heritage has recently applied for EU LIFE funding of over €15 million to support Ireland's MPA programme up to 2030.¹⁰⁸ The Department has committed to provide €10 million in matched funding from the Department's voted allocation, totalling €25 million in funding for MPAs.¹⁰⁹

Example: The LIFE-IP INTEMARES project, which is part of a special group of LIFE Programme projects known as Integrated Projects, aims to achieve a network of efficiently managed Spanish marine Natura 2000 areas. Total EU contribution to this project (which started in January 2017 and ends in December 2024) amounts to €13.4 million. With this funding, this project aims to ensure a favourable conservation status for the different habitats and species of community interest, improve the knowledge necessary for the management of the marine areas of the Natura 2000 network, and improve surveillance and monitoring of marine areas as well as the conservation status of habitats and species of community interest.¹¹⁰

Consideration/challenges: LIFE Programme funding must not overlap with funding from other EU programmes (e.g., related funding previously received from the EU budget and any ongoing operating grants from other EU programmes that could lead to double financing).¹¹¹

Timing: If the Government of Ireland's project proposal to LIFE is selected during the 2023 application cycle, then the disbursement of funding will likely start in 2025, since the process of negotiating grant agreements typically takes several months.

Horizon Europe

Description: Horizon Europe is the EU's key funding programme for research and innovation, with a budget of €95.5 billion. It facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while

tackling global challenges. The programme dedicates one of its five missions to 'Restore Our Ocean and Waters', which aims at the restoration and protection of the ocean and waters by 2030 through R&D, citizen engagement, and blue investments. One of the key strategic goals for the targeting of investments in the programme's first four years is restoring Europe's ecosystems and biodiversity and sustainably managing natural resources to ensure food security and a clean and healthy environment.¹¹²

Potential value: €90 million is available for the programme's 2023 call of 'Land, ocean and water for climate action'. This call addresses research and innovation projects assessing the impacts of climate change on marine environments, lands, natural resources, agriculture, and food systems. This adds to the €50 million that are being allocated in 2023 for the first joint transnational call of the Sustainable Blue Economy Partnership (SBEP), a Horizon Europe co-funded partnership that supports transnational R&D projects aimed at achieving a sustainable blue economy in the EU.¹¹³ With funding from Horizon for MPAs, the Government of Ireland can contribute to the objectives of the EU Mission to 'Restore our Ocean and Waters' by protecting and restoring biodiversity while supporting a sustainable blue economy.

Example: Ocean Sentinel, one of the five projects of the Horizon 2020 framework programme for research and innovation, supports the development of an innovative technology to detect illegal fishing activity and gathers information for authorities, regional fishing and conservation agreements, and NGOs that are fighting to preserve the ocean and its inhabitants. This project received a total of €150,000 in EU contributions.¹¹⁴

Consideration/challenges: There is a need for the Government of Ireland to strengthen and support marine research and innovation that tackles issues related to the marine environment and wider environmental challenges.¹¹⁵ For example, Horizon Europe could support research required in the MPA establishment phase, such as ecological research as part of site surveys and socio-economic impact assessment, and other specific research programmes that Ireland's MPA authority decides to pursue.

108 Email correspondence with the Minister for Housing, Local Government and Heritage

109 Inquiry response letter from the Minister for Housing, Local Government and Heritage, May 2023

110 Intemares; European Commission LIFE Public Database

111 Governo Italiano, "Frequently Asked Questions", September 2021

112 European Union, "Find Your EU Funding Programme for the Environment", June 2022

113 Fi group, "The EU announces €816.5 million worth of commitments for the protection of the ocean", March 2023

114 European University for Smart Urban Coastal Sustainability, "The 'Ocean Sentinel' project awarded by Europe", February 2021

115 Gov.ie, "Impact 2030: Ireland's Research and Innovation Strategy"

However, funding from Horizon Europe is unlikely to cover standard operating expenses associated with MPAs.

Timing: Ireland enjoys a strong track record in Horizon Europe, having received €1.2 billion in funding through Horizon 2020 (2014-2020).¹¹⁶ After a full project proposal is submitted, the evaluation phase typically lasts up to five months, and once successful proposals are selected, parties generally sign the grant agreement within three months.¹¹⁷ Therefore, it is likely that funding would be disbursed starting in 2025, if the Irish Government's proposal is selected during the 2023 application cycle.

Just Transition Fund

Description: The EU Just Transition Fund is a financial instrument created to support regions and communities that are reliant on industries undergoing significant transition towards a greener and more sustainable economy. The fund aims to mitigate the social and economic consequences of this transition by providing financial assistance and facilitating the development of alternative industries and job opportunities. The fund primarily focuses on supporting the transition of regions and communities towards a low-carbon and sustainable economy, with an emphasis on mitigating the social and economic impacts of this transition. The fund has a budget of €17.5 billion for the 2021-2027 period and is available to all EU Member States.¹¹⁸ The allocation of funds is based on the specific needs and challenges faced by each region, taking into account factors such as the share of fossil fuel employment and GDP per capita.

Potential value : Approximately €163 million has been planned for nature and biodiversity protection as well as other measures to reduce greenhouse gas (GHG) emissions in natural areas.¹¹⁹

Challenges/considerations: Grants are specifically targeted at regions and communities that are transitioning from more carbon intensive activities and face economic and social challenges due to the transition. The funds are

intended to support these regions and their residents directly, and thus they may not be available for activities or entities outside the eligible regions.

Timing: Ireland submitted a €169 million National Transition Plan to the EU, which was approved in December 2022 and includes €5.7 million for nature and biodiversity protection.¹²⁰ The current proposal focuses on the restoration and rehabilitation of peatlands as well as the regeneration of industrial assets, with the selection of interventions slated to begin in the second quarter of 2023.

PEACE PLUS Programme

Description: In 2022, the EU adopted PEACE PLUS, a new cross-border EU programme to strengthen peace and reconciliation and cross-border cooperation between Ireland and Northern Ireland. It combines the previous INTERREG and PEACE funding strands into a new programme for the 2021-2027 EU period. The European Commission will invest €235 million from the European Territorial Cooperation allocation of the European Regional Development Fund. Together with the UK's financial commitment and additional national co-financing from Ireland and Northern Ireland, this will result in a total investment of €1.1 billion in peace and prosperity on the island of Ireland.¹²¹

The programme will target investment in six key thematic areas. The development of MPAs would be most relevant for Theme 5: Supporting a Sustainable and Better-Connected Future.

Potential value: Approximately €300 million has been allocated towards Theme 5, which includes sub-themes for biodiversity, marine and coastal management, and water quality.¹²² Financing for MPAs would primarily fall into the marine and coastal management sub-theme 5.2, which has a total budget of around €25 million.

Challenges/considerations: Proposals will be viewed favourably if they align with Ireland's Marine Strategy Framework Directive as well as with the Northern Ireland and United Kingdom's Marine Strategy Priority Areas, which includes a list of priority species and habitats. Several

¹¹⁶ [Horizon Europe](#)

¹¹⁷ European Research Executive Agency, "Horizon Europe - How to Apply"

¹¹⁸ European Commission, "The Just Transition Fund"

¹¹⁹ European Commission, "Cohesion Open Data Platform"

¹²⁰ European Commission, "EU Cohesion Policy: €169 million for a just climate transition in Ireland", December 2022

¹²¹ European Commission, "Northern Ireland: PEACE PLUS programme will support peace and prosperity across Northern Ireland and the border counties of Ireland", July 2022

¹²² Government of Ireland, "PEACE PLUS Programme 2021-2027 Program Overview"

of these priorities overlap with high potential solutions outlined in this report, including blue carbon interventions such as seagrass, saltmarsh and kelp forest.

Timing: The official call for proposals for sub-theme 5.2 will be launched in the second half of 2023. Early engagement with Programme Officials during the development of project proposals is recommended to ensure alignment with national and local priorities.¹²³

A2) Philanthropic Funding

Description: Philanthropic funding for marine conservation has doubled over the past decade, from roughly US\$520 million in 2010 to US\$1.2 billion in 2020. Research institutions (e.g., the Monterey Bay Aquarium Research Institute and the Woods Hole Oceanographic Institute) and large, international environmental NGOs (e.g., WWF, The Nature Conservancy) represent most of the top 20 grant recipients for ocean funding. Science (21%) and protected areas and habitat protection (17%) are top areas of marine grant making, which has historically allocated a large proportion of funding to global initiatives (40%) and work focused on North America (32%).¹²⁴

In Ireland, philanthropic funders donate financial resources into programmes or NGOs that provide the Government with support on MPA implementation and capacity building, especially around research, monitoring and surveillance, and engagement with local communities. There are also philanthropic grants that can be directed towards community-led MPAs and grassroot organisations working at the forefront of marine conservation in Ireland, primarily for community education and industry and government awareness raising.

Examples: The WAITT Institute (WI), for example, partners with governments around the world committed to improving their economies and protecting their resources to create and implement sustainable ocean plans, engaging local stakeholders and communities, facilitating the policymaking process, and building capacity for long-term success.¹²⁵ Affiliated with the WI, the Waitt Foundation is a funding and grant making organisation that provides strategic funding in grants big and small, not only to countries working towards 'Blue Prosperity', but also to high-impact ocean conservation and research around the globe.¹²⁶

In addition, the Postcode Foundation, as a beneficiary of the Swedish Postcode Lottery supports NGOs both in Sweden and internationally by granting funding to various projects related to people's living conditions, nature and environment, culture, and sports. For example, the Race for The Baltic project, which aims to combat eutrophication by decreasing the leakage of fertilisers when handled in ports, was supported with SEK 1.62 million (~€143,000) from the foundation. In March 2023, the Postcode Foundation received SEK 180 million from the Swedish Postcode Lottery and launched a coastal ecosystems initiative aiming to support projects that reduce human-caused threats to coastal ecosystems, protect and restore critical ecosystems (e.g., through the designation of protected areas), enhance community resilience and coastal protection, and promote community-led solutions.¹²⁷

Consideration/challenges: In the context of philanthropic funding, developing countries that have high biodiversity and fewer resources to address the challenges are more likely to attract charitable donations compared to developed countries like Ireland. Moreover, the establishment of a legal entity, such as a charitable trust, is usually needed for the management of philanthropic funding, which can come with legal and administrative complexities. Another important consideration is that philanthropic funding should support projects that are in line with the priorities and objectives of MPA management plans, so that there can potentially be synergies that enhance government efforts.

The long-term cost implications and sustainability of projects should be carefully evaluated before philanthropic funding is invested into the projects. A project that seems beneficial in the short run might potentially incur cost liabilities that a government cannot secure the necessary operating expense for in the long run. Consequently, such a project can cause financial strain for the government and become too burdensome to be justified for continued investment. Close coordination between funders and the government and proper due diligence on the project can help ensure that philanthropic funding is utilised effectively to achieve impactful outcomes.

In addition to institutional foundations/ philanthropists, individual donors may also make contributions to marine conservation projects in Ireland to complement other sources of funding

¹²³ Special EU Programmes Body, "PEACEPLUS Programme 2021-2027; Investment Area 5.2: Marine and Coastal Management"

¹²⁴ Our Shared Seas, "A Decade of Ocean Funding: Landscape Trends 2010-2020"

¹²⁵ WAITT Institute

¹²⁶ WAITT Foundation

¹²⁷ PostKod Stiftelsen



Ireland submitted a €169 million National Transition Plan to the EU, which was approved in December 2022 and includes €5.7 million for nature and biodiversity protection.



and potentially help unlock additional public and private funding. By leveraging philanthropic funding, MPA authorities can expand their capacity to effectively manage MPAs and build public awareness and support.

B) REVENUE BASED

B1) Government revenue (non-marine activity)

In addition to the other financing mechanisms outlined in this report, the Government of Ireland can consider providing financing for MPAs through general government revenue, i.e. the money received from both taxes (e.g., income tax, VAT tax, corporate tax) and non-tax sources (e.g., profits of State-owned companies, sales of State assets), to enable it to undertake public expenditure and create an enabling environment for private finance.¹²⁸ The Government of Ireland can consider various changes in the existing fiscal policy to generate additional funds for MPAs. However, these specific non-marine related fiscal policy changes are beyond the scope of this report.

Recent data shows Ireland's budget surplus was 1.6% of GDP in 2022, amounting to €8 billion.¹²⁹ Ireland's Department of Finance estimates show the budget surplus is expected to grow to €10 billion in 2023 and then double to €20 billion by 2026. The Taoiseach has pledged to use part of that surplus to cut taxes, increase welfare payments, and funnel more money to infrastructure spending – particularly housing, healthcare, public transport and childcare – in Budget 2024.¹³⁰ Consideration could be given to also using some of these funds for establishing and managing MPAs.

B2) Commercial activities

With effective planning and regulation, commercial activities in marine areas, such as commercial fishing, offshore wind energy development, maritime transportation, ports, and extraction of oil, gas, mineral, and other natural resources, could be managed sustainably to minimise negative impacts on blue ecosystems and contribute financially to marine protection. For example, there is potential to levy fees on both the oil and gas and the ports and shipping sectors, which

would establish a principle that all maritime users of the sea's resources contribute to the costs of managing the seascape and the sustainability of marine resources. Reducing harmful subsidies while imposing fees and/or levies on such activities can not only help recover the administrative, monitoring and enforcement, and other associated costs, but it may also generate funding for marine monitoring, conservation and preservation efforts (MPA management in particular) to ensure the long-term health of marine environments. Utilising a portion of revenue generated from these commercial activities for MPA funding enables economic activities taking place in the ocean to contribute to marine protection.

Fishing Sector Contributions

Description: As a direct beneficiary of marine resources that is highly dependent on the health of the marine environment, the fishing sector can play an important role in the protection and preservation of the ocean, which can in turn help ensure the long-term sustainability of fisheries. In Ireland, the fishing industry is heavily subsidised by the Government. Reducing subsidies and repurposing those funds to MPA management could be a way for the fishing sector to contribute to the preservation of the ocean. Fishing subsidies are defined as any direct or indirect financial transfer from public entities to the private fishing sector that helps to supplement income or lower costs for industrial and small-scale entities.¹³¹

For example, the EMFAF Programme, running from 2021 to 2027, provided €142 million of EU funds for Ireland to support the management of fisheries, aquaculture, and fishing fleets.¹³² This EU contribution is combined with co-funding from the Government of Ireland to provide direct support for fishers through policies aiming to maintain or increase their incomes. Such policies include providing payments that are partially decoupled from fishing activities (e.g., income support and special insurance systems), giving benefits in exchange for capacity reduction (e.g., payments for early retirement), and lowering input costs by subsidising variable costs (e.g., costs of fuel, ice and bait) as well as fixed costs (e.g., cost of

¹²⁸ Nature Communications, [Financing a sustainable ocean economy](#), June 2021

¹²⁹ Independent.ie, [From PIIGS to posh: Ireland's €8bn surplus puts us in exclusive company](#), April 2023

¹³⁰ Independent.ie, [From PIIGS to posh: Ireland's €8bn surplus puts us in exclusive company](#), April 2023

¹³¹ Frontier, ["The Global Fisheries Subsidies Divide Between Small- and Large-Scale Fisheries"](#), September 2020; PEW, ["Reducing Harmful Fisheries Subsidies"](#)

¹³² Government of Ireland, ["European Maritime, Fisheries and Aquaculture Fund \(EMFAF\) 2021-2027"](#),

vessel construction and modernisation).¹³³ According to a study conducted by researchers at the University of British Columbia and the BLOOM Association, a total of US\$35.3 billion was provided to subsidise fisheries globally in 2018, with fuel subsidies being the largest subsidy type. Based on a report commissioned by the Our Fish campaign, the EU fishing fleet (including Ireland) was exempted from paying up to €15.7 billion in fuel taxes between 2010 and 2020. In the proposal adopted by the EU Commission for a revised energy taxation directive, the proposed tax rate for fishing industry fuel is €0.036/litre, roughly 20 times lower than average tax rates for road transport. Cutting such subsidies on fuel and investing the additional tax revenues generated to support low-impact fishing projects, regenerative practices and fisheries management initiatives, and other sustainable fishing practices can deliver better outcomes for fishers, the marine ecosystem (e.g., through MPA protection), and the broader natural environment.¹³⁴

Example: The Government of Spain estimated that a fossil fuel tax of €0.33/litre (the minimum level of taxation applicable to motor fuels specified in the EU Council Regulation on the taxation of energy products)¹³⁵, as opposed to the €0.036/litre tax rate proposed by the European Commission for the fishing industry, would have generated them an additional €193 million in revenue in 2019. If equally divided among initiatives focused on fisher assistance, fisheries management, professional initiatives (e.g., training opportunities designed to enhance fishers' occupational mobility), reduction of carbon footprint of fisheries operations, regenerative practices (e.g., use of fishing fleet to improve marine conditions), and low-impact fishing (e.g., use of selective gear and avoidance of wildlife incidents), this revenue could support 3% of all employed fishers, provide professional initiatives for 9% of all fishers, finance energy reduction and decarbonisation measures for 1%, regenerative practices for 2%, and low-impact fishing equipment for 4% of the fleet, respectively.¹³⁶

Considerations/challenge: Many fishing communities and operations rely heavily on subsidies for their economic viability. The cost of energy and raw materials, important

components of the overall fishing expenditure, are subject to price volatility, which makes the production cost of fishing and the resulting income for fishers uncertain in the absence of input subsidies. The Russian invasion of Ukraine has contributed to increasing fuel prices, which, along with the quota reductions for Ireland as a result of Brexit, has made it challenging for some fisheries to continue operating.¹³⁷

On 25 March 2022, the European Commission adopted and implemented a decision to trigger the crisis mechanism of the European Maritime, Fisheries and Aquaculture Fund, which allowed for the introduction of fuel subsidy schemes. Fishers in Ireland are urging the Minister for Agriculture, Food and the Marine to make an urgent intervention to assist the fishing industry, given that its counterparts in Spain and France have received direct subsidies from their governments to navigate through the crisis.¹³⁸ In 2022, a support scheme was put in place by the Government of Ireland to assist inshore fishers in adjusting to the impacts of Brexit on their businesses. In April 2023, the Minister for Agriculture, Food and the Marine, announced up to €3.5 million in short-term funding for the sector, which will bridge the gap for the inshore sector, while longer term measures to strengthen the seafood sector as a whole take effect.¹³⁹

The World Wildlife Fund and Finance Earth, alongside leading industry partners, recently announced the launch of an innovative financing model – the Fisheries Improvement Fund (FIF) – which aims to catalyse more than US\$100 million in fisheries improvement by 2030. The FIF blends different sources of capital together to increase the overall availability of funding for fisheries recovery. Fishers in Ireland can potentially tap into this fund to support them in transitioning to more sustainable fisheries.¹⁴⁰

Ultimately, policymakers need to carefully evaluate the situation and manage the transition to minimise the unintended negative impacts on both local communities dependent on fishing-related activities and the broader economy while shifting toward sustainable fisheries.¹⁴¹ For instance, potential options the Government of Ireland could consider are targeted reduction of

133 OECD, "Fisheries and Aquaculture in Ireland", January 2021

134 The Irish Times, "EU subsidies driving fossil fuel use in fishing sector should be ended - NGO report"

135 €0.33 tax per litre was the minimum level of taxation applicable to motor fuels specified in the EU Council Regulation on the taxation of energy products in 2019

136 Our Fish, "Better Use of Public Money: The End Of Fuel Subsidies For The EU Fishing Industry", April 2023

137 Houses of the Oireachtas, "Fisheries Protection", March 2022

138 Skipper, "More Hope of Spotting A White Whale Than A Fuel Subsidy Scheme For the Fishing Sector", December 2022

139 Environmental coastal & offshore, "McConalogue Announces Further Support for Inshore Fisheries Sector", April 2023

140 WWF, "WWF and Finance Earth Launch Blue Finance Innovation for Fisheries Improvement", April 2023

141 Houses of the Oireachtas, "Fisheries Protection", March 2022

subsidies for at-risk species, subsidies reduction during mating seasons, and graduated subsidy reduction based on catch level (i.e., reducing subsidies as catch level increases). These could encourage fisheries to adopt more sustainable practices, such as using more selective fishing gear to reduce bycatch, implementing seasonal closures for fishing activities during mating and feeding seasons, and improving monitoring and reporting to ensure compliance. One of the main actions in the marine action plan adopted by the European Commission on 21 February 2023 is to phase out mobile bottom fishing in MPAs by 2030, which can potentially be targeted via subsidies.

Fee, tax or levy on offshore wind energy production

Description: Coastal communities and the marine environment can benefit from revenues generated by offshore wind farms. As the Government of Ireland strives to achieve its target of reaching 7GW of offshore wind capacity by 2030, significant development of Ireland's offshore wind industry is set to take place.¹⁴² In Ireland, there are various wind farm community funds that provide communities near wind farms with support via initiatives and activities that are aligned with local needs. In this way, wind farm investment generates economic co-benefits for the surrounding communities while advancing renewable energy development. There is a strong pipeline of offshore wind projects in the Irish Sea. Currently, there are 36 offshore wind farms at various stages of design or planning around Ireland's east, south and west coasts as interest in the sector mushrooms.¹⁴³ The boom in offshore wind development will potentially contribute to reducing the MPA financing gap, if the Government can use a portion of the offshore wind revenue to support the conservation of marine habitats and species.

Examples: In Ireland, the Electricity Supply Board (ESB) Wind Farm Community Benefit Funds encourage stronger interactions and engagement between wind farms and the communities around them. Funds are available to community and voluntary organisations for eligible projects that are based in the vicinity of the wind farms, such as registered

charities, schools, community development groups, and sports and recreation clubs. Funds support projects that are aligned with local needs and opportunities, like the purchase of equipment, building or refurbishment work. Every year, through the nominated grant making organisations, approximately €1.1 million funds are awarded.¹⁴⁴

In the U.S., the bipartisan and bicameral Reinvesting in Shoreline Economies and Ecosystems (RISEE) Act has been reintroduced to create a new dedicated stream of funding from future offshore wind development for coastal protection and resiliency. The RISEE Act would send 37.5% of offshore wind revenue to adjacent States where offshore wind farms are developed. The funds can be used for coastal restoration, hurricane protection, mitigation of damage to fish, wildlife or other natural resources, and the implementation of marine, coastal or conservation management plans. In addition to the 37.5% revenue sharing, 12.5% of offshore wind revenues would serve as a further dedicated funding source for the National Oceans and Coastal Security Fund, which supports programmes aimed at improving the country's oceans and coastal areas.¹⁴⁵

Potential value: The net-contribution to MPA funding from offshore wind farms in Ireland is estimated to be €8 million (€5-12M) annually. In Ireland, renewable electricity generation project owners are required to contribute €2 per MWh of electricity produced annually into a community fund for the Renewable Electricity Support Scheme (RESS) contract period. In the sizing analysis, it is assumed that a portion of community fund contributions from offshore wind farms in Ireland will be used to fund MPAs. Since the Irish ocean space is a public good, all offshore wind farms, regardless of whether they are located within Ireland's MPAs, should contribute to the funding of MPAs as a way of taking responsibility for their impact on the marine environment. See Section A4.2. in the Appendix for further details on the sizing calculations.

Considerations/challenges: The Government of Ireland has introduced an offshore wind policy change requiring all future offshore wind farms to be built in Designated Marine Areas¹⁴⁶, which have yet to be identified and might not be identified in the next 18 to 24 months as of March 2023 due to State agencies' lack of resources.¹⁴⁷ This

142 Energy Ireland, "Marine area protection legislation published", February 2023

143 Independent.ie, "Energy firms have sights on developing 36 wind farms off Ireland's coasts", February 2023

144 Environment and Energy Management, SSE Renewables powers change with €1.1 million donation to community groups, August 2021

145 Jeanne Shaheen U.S. Senator for New Hampshire, "Shaheen Helps Reintroduce Bill to Strengthen Revenue Sharing Program for Coastal Communities", February 2023

146 According to Phase 2 Ireland's Policy Statement for Phase 2 Offshore Wind projects off the south coast of Ireland will only be permissible in the ORE Designated Areas, which are to be defined according to the Designated Maritime Area Plan ("DMAP") to be made under the Maritime Area Planning Act 2021

147 Wind Energy Ireland, "New Government Offshore Wind Policy Puts 2030 Targets at Risk", March 2023

change in policy has created uncertainty among international investors, and many developers have started to halt large investments in Irish offshore wind parks, resulting in adverse impacts on Ireland's offshore wind revenue. Additionally, in August 2022, the Minister for the Environment, Climate and Communications committed to a windfall tax to be applied to the revenue of energy companies due to increases in wholesale gas prices as a result of the Russian military actions in Ukraine, and the EU authorised its introduction in September 2022.¹⁴⁸ Under the windfall profit tax, a 75% tax will be levied on the excess profits of oil and gas and a maximum price will be set for non-gas electricity generators to sell electricity at. The Minister of State at the Department of Public Expenditure, National Development Plan Delivery and Reform said in February 2023 that the implementation details on the windfall charges are likely to be legislated for in the coming weeks, with implications for the offshore wind industry in Ireland.¹⁴⁹

Biodiversity impact: Artificial reef creation is the most well-documented effect of offshore wind farms on marine ecosystems. Wind turbine foundation and scour protection create artificial reefs that are quickly colonised by hard substrate epibenthic organisms (e.g., suspension feeders), attracting demersal and pelagic fish for food and habitat.¹⁵⁰ Consequently, the installation of wind farms in soft sediment ecosystems increases the local abundance of pelagic and epibenthic organisms, while no significant reduction of seabed communities has been reported close to the wind turbines.¹⁵¹ At the wind farm level, the accumulation of pelagic/epibenthic communities with existing seabed communities increases biodiversity.¹⁵² The magnitude of the biodiversity increase depends on the specific location where the wind farm is installed, with Irish seabed characteristics varying widely, from rock and boulders to soft sediments.¹⁵³

While artificial reef creation from offshore wind farms is heavily documented and expected to have positive effects on biodiversity, negative impacts from noise and vibrations (during installation, operation, and decommissioning) are less well understood. Some marine species are sensitive to noise and vibration levels, which can impact their respiration rate, stress level,

feeding and swimming behaviour.¹⁵⁴ Similarly to noise and vibrations impacts, the understanding of the effect on bird and bat communities due to collisions with wind farms is still limited. However, while a large panel of bird species are vulnerable to collision with wind turbines (e.g., 38 bird species documented for Scottish waters), there is limited documentation on the occurrence of collisions and the impact on bird species survival.¹⁵⁵

Timing: This can be a medium-term opportunity that requires a careful balancing of competing interests and priorities to get the necessary political support for the legislation to be enacted.

B3) Individual Activities

In Ireland, a country with a thriving tourism industry and abundant natural resources, imposing levies and/or fees on individual activities such as tourism, recreational fishing, and boating can provide a sustainable source of funding for MPAs, while also promoting the sustainable use of terrestrial and marine resources. Levies and fees can be tailored to different individual activities based on their impacts on the environment, helping to ensure that the costs of protecting natural resources, including the costs of MPA establishment and management, are distributed among the various user groups who benefit from the environment.

Tourism Tax/Fee

Description: Various mechanisms may be used by the Government of Ireland to gather revenues from tourism-based activities. A portion of these revenues could then be directed toward supporting conservation efforts. Example mechanisms include:

1. Taxes

- a. Tourist sales tax: A fixed or percentage-based tax on sales of souvenirs, food and other products in specified tourist locations
- b. Airport departure tax: A fixed fee paid by tourists as they depart Ireland
- c. Hotel room taxes: A fixed fee added to hotel room fees on a per-night basis

148 Law Society of Ireland, "Plans to tax windfall energy profits set out", March 2023

149 Houses of the Oireachtas, "Dáil Éireann debate", February 2023

150 Degraer et al., *Offshore wind farm artificial reefs affect ecosystem structure and functioning*, 2020

151 Royal Belgian Institute of Natural Sciences, *Environmental Impacts of Offshore Windfarms in the Belgian Part of the North Sea*, 2022

152 Hofstede et al., *Offshore wind farms contribute to epibenthic biodiversity in the North Sea*, 2022

153 International Council for the Exploration of the Sea, *Ecosystem Overviews: Celtic Seas Ecoregion*

154 Mooney et al., *Acoustic Impacts of Offshore Wind Energy on Fishery Resources: An Evolving Source and Varied Effects Across a Wind Farm's Lifetime*, 2020

155 Martin et al., *Marine birds: Vision-based wind turbine collision mitigation*, 2023

2. MPA/National Park fees

- a. Entrance fees: A one-time charge paid by visitors to a protected area or national park
- b. Facilities fee: A fee paid by visitors to use facilities, such as parking lots, campsites, visitor centres, etc., within a protected area or national park
- c. Activity fees: A fee charged for the use of other services/opportunities offered by certain protected areas (e.g., scuba diving fees)¹⁵⁶

Rationale: Tourism is one of Ireland's most important economic sectors.¹⁵⁷ Ireland recorded a total of 11 million tourists in 2019, ranking 23rd in the world in absolute terms and delivering €1.7 billion in government revenue.¹⁵⁸ Imposing the right combination of fees/taxes on tourism in Ireland could potentially channel meaningful funding towards MPA management.

Examples: Accommodation tax is a common practice in many EU countries. In Portugal, the city of Mafra charges a €2 per person per night Tourist Tax (similar to Lisbon and Porto) intended to finance activities and investments related to tourism, such as strengthening the security of people and goods, environmental protection of the public space, and other maintenance works and improvements.¹⁵⁹ In Spain, the Government of the Balearic Islands has introduced a Tax for Sustainable Tourism, ranging from €0.5 per person per night for campsites and hostels to €2 for five-star hotels. Since the tax was introduced on 1 July 2016, €30 million worth of projects have been approved by the European Commission, ranging from water infrastructure, cultural restoration, and environmental preservation, to marketing, research and training. There is also an overnight accommodation tax in Austria, ranging from €0.15 to €2.18 per person per night. The revenues are used to support local tourism and other initiatives.¹⁶⁰ The Welsh Government is preparing to give councils the power to institute a €1.1 per night levy to pay towards the upkeep of beaches, parks, pavements and footpaths.¹⁶¹

Potential value: The net contribution to MPA funding that could be generated from tourism in Ireland is estimated to be €9 million (€3-18M) per year. In the sizing analysis, the revenue

potential of a Tourism Accommodation Tax – a €1 to €2 fee charged per person per night spent in hotels and other short-stay accommodations in Ireland – was estimated, with the assumption that a percentage of the revenue raised from this Tourist Accommodation Tax will be allocated to support marine protection. If the Irish Government allocates 10% of the revenue raised from this tax towards MPAs, then annual MPA funding from tourism would be ~€3 million; if the percentage is increased to 30% (using Belize as a reference case) then ~€18 million could be used to fund MPAs.¹⁶² See Section A4.2. in the Appendix for further details on the sizing calculations.

Considerations/challenges: Visitor accommodation prices in Ireland have been driven up by factors such as rising costs and staffing challenges, and prices might further increase due to reduced supply.¹⁶³ Given the challenging situation, the national and local governments of Ireland need to carefully consider the potential effects of a Tourist Accommodation Tax and explore the most efficient mechanism to impose such a tax. If effectively utilised to fund important initiatives, such as the improvement of tourism infrastructure and conservation of cultural and natural resources including MPAs, this type of tax can bring about numerous benefits (e.g., increasing visitor satisfaction and enhancing the competitiveness of a destination), potentially attracting more tourists and boosting the tourism industry.

Timing: In the medium-term, such a Tourist Accommodation Tax might be an opportunity for the Government of Ireland to pursue. It would require careful evaluation of the economic, political and environmental factors involved as well as detailed planning.

Aside from tourism, fishing for sport or recreation and recreational boating are two additional main categories of individual activities on which governments sometimes impose levies. Also known as angling, fishing for sport or recreation in Ireland is regulated by the government agency Inland Fisheries Ireland (IFI), whose main function is to ensure that Ireland's fisheries resources are protected and conserved.¹⁶⁴

156 Convention on Biological Diversity, "Mobilizing Funding For Biodiversity Conservation: A User-Friendly Training Guide", 2001

157 Fáilte Ireland, "Ecotourism Handbook for Ireland"; Gov.ie, "Tourism", July 2019

158 Fáilte Ireland, "Preliminary Key Tourism Facts 2019", August 2020

159 Ericeira

160 European Commission, "The Impact of Taxes on the Competitiveness of European Tourism", 2017

161 BBC NEWS, "Tourism tax: Wales' plan for charge on visitors moves closer", March 2023

162 In Belize, the Protected Areas Conservation Trust (PACT) has charged a tourism tax in the form of a conservation fee to all tourists on their departure from Belize, with approximately 30% of the programmes which PACT has financial commitment to being marine protection related. Therefore, 30% was used as the % of Tourist Accommodation Tax revenue going toward MPAs in the high-level estimation.

163 Independent.ie, "Over a fifth of all tourist beds are now contracted to the State for refugees and others, report says", December 2022

164 Citizens Information, "Fishing License and Permits"

Established NBS – proven stocks and sinks

Emerging NBS – potential stocks or sinks

Nascent NBS – potential indirect carbon impact

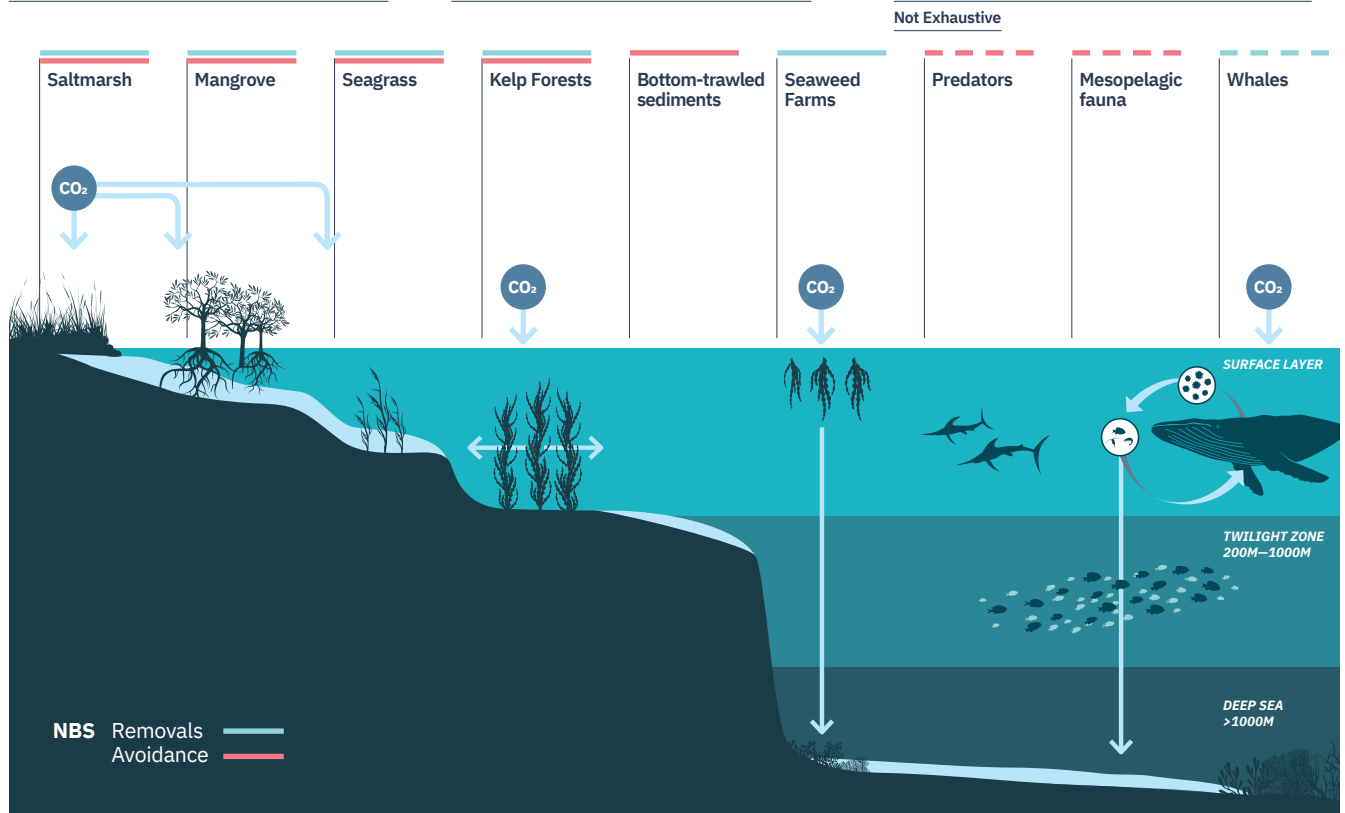


Exhibit 4.6: There are many blue carbon nature based solution (NBS) options, but only three are currently established: saltmarsh, mangrove, and seagrass

Source: McKinsey & Company, “Blue carbon: The potential of coastal and oceanic climate action”, May 2022

In Ireland there are various angling regulations in place. For example, a State Licence is required to fish for both salmon and sea trout. A local permit is usually required in addition to the State Licence before fishing. For trout, pike and coarse fishing, a license is not required, but a local permit might need to be purchased.¹⁶⁵

Recreational boats in Ireland are also regulated in different ways depending on their size and what they are used for, with different licensing and permit requirements. For example, a Passenger Boat License for passenger boats that can carry up to 12 passengers each costs €144.¹⁶⁶ A portion of government revenues raised from such fees can be allocated toward marine protection to fund MPAs.

B4) Ecosystem value based inflows

The urgency of restoring both terrestrial and aquatic ecosystems lies not only in their role as habitats for numerous flora and fauna, but also in the value of the services they provide to the global economy, which is estimated at US\$125 trillion annually.¹⁶⁷ These ecosystems play a vital role in supporting industries such as agriculture,

fishing, forestry and tourism, which together provide employment to 1.2 billion people. On a global scale, every dollar invested in the restoration of degraded landscapes can yield economic returns of US\$7-30.¹⁶⁸

Ireland can potentially leverage its marine resources to generate financing for conservation. By protecting and restoring these ecosystems, Ireland can create high quality conservation projects that can lead to avoided emissions, removed carbon, or an improved state of biodiversity. The credits from these projects could be monetised in international carbon and nature credit markets, thus generating financial resources towards the conservation of marine ecosystems in Ireland. These incremental resources would support Ireland in achieving its target of protecting 30% of its marine area by 2030.¹⁶⁹ In addition to catalysing climate objectives, these nature based solutions (NBS) can also protect people, respect local knowledge and tenure rights, and secure biodiversity benefits. Ireland is endowed with a rich marine fauna and flora and is well positioned to tap into the markets for both blue carbon (the carbon stored in coastal and marine ecosystems) and nature/biodiversity credits.

165 Angling Ireland, “A Guide to Irish Angling Regulations”, 2020

166 Citizens information, “Boat licences and safety regulations”

167 Global Restoration Initiative, UNFCCC, “Why resilient economies rely on healthy ecosystems”, June 2021

168 Global Restoration Initiative, UNFCCC, “Why resilient economies rely on healthy ecosystems”, June 2021

169 Government of Ireland, “Ireland announces major boost in marine environmental protection to coincide with COP15”, December 2022

Blue Carbon

Description: Ireland can leverage its blue carbon ecosystems (BCEs) to generate financing to conserve its marine resources. BCEs sequester and store carbon, as well as providing a range of other ecosystem services such as fish provision, coastal protection, pollutant trapping, etc.¹⁷⁰ Projects that protect and restore BCEs and demonstrate additional sequestration of carbon can yield high-quality credits that can be monetised in the international carbon markets. The global value of traded carbon credits reached a record €850 billion in 2022¹⁷¹, with cryptocurrency platforms, airlines, carmakers, and oil companies being the biggest buyers.¹⁷² The Government of Ireland is also due to buy almost €3 million worth of carbon credits from Slovakia ahead of an EU deadline for emission target compliance.¹⁷³

There are three broad categories of blue carbon solutions, based on their maturity (Exhibit 4.6):

1. Established solutions: These solutions are focused on BCEs such as mangroves, saltmarshes, and seagrass meadows. They are well understood, blue carbon standards either already exist for them or are in development, their carbon abatement potential can be scientifically verified and validated, and they are amenable to funding through carbon credits.

2. Emerging solutions: These include solutions such as the protection and restoration of seaweed forests, whose potential to abate carbon dioxide varies by species and is not yet well established. Because of this uncertainty, these solutions are only just beginning to be financed through carbon markets. For example, voluntary blue carbon credits from wild kelp restoration were first recognised in Japan when the Japan Blue Economy Association (JBE)¹⁷⁴ published their methodology for quantifying carbon sequestration by kelp in 2022.¹⁷⁵

3. Nascent solutions: These solutions are focused on protecting and restoring marine fauna that help sequester carbon, including oysters and whales.

In the near term, the Government of Ireland can explore the monetisation of the established NBSs that are naturally occurring in Ireland's habitats, such as saltmarshes and seagrass. In the future, Ireland can also explore emerging and nascent solutions, such as programmes that increase and protect its sizable whale and oyster population, to generate additional carbon sequestration. These initiatives will be subject to the development of rigorous standards for measuring carbon uptake and storage by blue carbon ecosystems and for creating standards and credits for blue carbon.

Potential value: Based exclusively on seagrass and saltmarsh solutions, the two main blue carbon ecosystems in Ireland¹⁷⁶, the net contribution to MPA funding from blue carbon in Irish waters is estimated to be ~€0.5 million (€0.4-0.7M) per year. This value is highly dependent on the trading price of carbon credits and is based on a conservative assumption of a voluntary market price of ~€30/tCO₂. If the price were to increase to ~€100/tCO₂, such as those seen in the EU compliance market, the funding potential could increase to ~€1.8 million (€1.3-2.3M) per year. In estimating these values, the revenue generation potential (focused on carbon credit issuance) of seagrass and saltmarsh was estimated, accounting for (1) their annual carbon capture rate¹⁷⁷, (2) the carbon emissions associated with the avoided loss of these ecosystems through MPA conservation efforts, and (3) the cost of carbon credit monetisation (e.g., certification, verification). Seagrass and salt-marsh ecosystems restoration revenues and costs were not estimated (see more details in the 'Considerations/Challenges' section below). Additionally, it is assumed that 15% of credits would be contributed to an insurance buffer pool to backstop emissions due to project failure.¹⁷⁸ See Section A4.2. in the Appendix for further details on the sizing calculations.

Example: The city of Yokohama in Japan uses blue carbon credits to fund the preservation and regeneration of marine ecosystems. The Yokohama Blue Carbon Project also helps increase absorption of carbon monoxide and creates new jobs and opportunities for the local fish industry¹⁷⁹ and has expanded to certify blue carbon credits from other cities in Japan, like

170 Plos Climate, "Capitalizing on the global financial interest in blue carbon", August 2022

171 Reuters, [Global carbon markets value hit record \\$909 bln last year](#), February 2023

172 Quartz, [A crypto platform is the world's largest buyer of carbon offsets](#), August 2022, based on a Bloomberg analysis of data from Verra, the largest carbon offset brokerage

173 The Journal, ["Govt to buy up €3 million worth of carbon credits from Slovakia to meet climate targets"](#), February 2023

174 Japan Blue Economy Association (JBE) is the Japanese State-appointed research institute tasked to establish blue carbon credit standards for the country, validate the science, and certify voluntary blue carbon credit.

175 The Ocean Decade, ["Urchinomics secures world first kelp restoration blue carbon credits"](#), November 2022

176 Marine Institute, ["Blue Carbon and Marine Carbon Sequestration in Irish Waters and Coastal Habitats"](#), 2021

177 Average annual carbon sequestration rate of seagrass and saltmarsh are 0.01 Mt C/year and 0.02 Mt C/year, respectively; Marine Institute, ["Blue Carbon and Marine Carbon Sequestration in Irish Waters and Coastal Habitats"](#), 2021

178 Sylvera, ["Guide to Carbon Credit Buffer Pools"](#), December 2022

179 Circular Yokohama, ["Yokohama Blue Carbon"](#)

Hannan and Hyuga.¹⁸⁰ Between 2014 and 2019, the programme has offset 79 tCO₂, and the profit generated from the blue carbon credits has been included in the cities' budgets.¹⁸¹

Considerations/challenges: There are several key challenges for the Government of Ireland to consider when further evaluating a blue carbon solution:

1. Maturity of crediting framework: Although seagrass and saltmarshes are considered established NBSs, their current crediting protocols/frameworks are not as robust as those of other nature solutions (e.g., rainforests), thus only allowing the sale of credits on voluntary markets.

2. Need to demonstrate additionality: Carbon credit projects must demonstrate additionality through project interventions. If marine habitats are not under threat of loss, credits cannot be sold because there is no net gain in carbon emission terms. The main threats to seagrass meadows include urban, industrial and agricultural run-off, wastewater discharges, coastal development, dredging, unregulated fishing and boating activities¹⁸², whereas the primary threats to saltmarshes are relative sea level rise, changes to wind and wave energy, temperature and precipitation, livestock grazing, and human developments, such as coastal defence works and dredging.¹⁸³

3. Challenge in achieving sustained permanence: As with all nature based offsets involving carbon sequestration, permanence may be difficult to achieve. For example, ecosystems can be easily affected by natural disasters and human activities (e.g., pollution), causing the carbon stock to be released back into the atmosphere.¹⁸⁴ This is true for seagrass and saltmarshes too, and is a risk that should be considered.

4. High costs of restoration: A 2017 study with over 900 data points from restoration or rehabilitation projects of coral reefs, seagrass, mangroves, saltmarshes, and oyster reefs

worldwide, found that coral reefs, seagrass and saltmarshes were among the most expensive ecosystems to restore. Conversely, mangrove restoration projects were typically the largest and the least expensive per hectare.¹⁸⁵ The median cost of restoration per hectare was found to be: for seagrass, US\$106,782; for saltmarshes, US\$67,128; and for mangroves, US\$8,961.¹⁸⁶ The cost ranges were also found to be very large, and highly dependent on the specific site-level restoration activities.¹⁸⁷ Additionally, the carbon sequestration rate per hectare of seagrass (~1.25 tCO₂/ha/year¹⁸⁸) and saltmarshes (~2.39 tCO₂/ha/year¹⁸⁹) is much lower than that of mangroves (~23.77 tCO₂/ha/year¹⁹⁰). Assuming a blue carbon credit voluntary market trading price of ~€30/tCO₂, the above factors combined make it unlikely that revenues from blue carbon from restored seagrass and saltmarsh ecosystems will cover the costs of restoration. Even at a higher compliance market price of ~€100/tCO₂, it may prove challenging to generate a profit. However, even though there may not be a positive business case through blue carbon, the revenues can still support efforts to offset the high costs of restoration.

Nature/Biodiversity credits

Description: Biodiversity credits are an economic instrument used to finance actions that result in measurable positive outcomes for biodiversity (e.g. species, ecosystems, natural habitats) through the creation and sale of biodiversity units.¹⁹¹ Blue carbon solutions aimed at restoring critical marine ecosystems in Ireland have the potential to generate biodiversity credits as they would protect habitats where fish and other marine fauna populations live, increasing or protecting the biodiversity of a given area after the intervention. By being effectively packaged into high-integrity nature/biodiversity credits, these net positive gains in biodiversity can be used to leverage further investments towards the long-term conservation and restoration of marine ecosystems and biodiversity in Ireland.

180 Kuwae, T., Yoshihara, S., Suehiro, F., Sugimura, Y. (2022). Implementation of Japanese Blue Carbon Offset Crediting Projects. In: Nakamura, F. (eds) Green Infrastructure and Climate Change Adaptation. Ecological Research Monographs. Springer, Singapore. https://doi.org/10.1007/978-981-16-6791-6_22

181 Kuwae, T., Yoshihara, S., Suehiro, F., Sugimura, Y. (2022). Implementation of Japanese Blue Carbon Offset Crediting Projects. In: Nakamura, F. (eds) Green Infrastructure and Climate Change Adaptation. Ecological Research Monographs. Springer, Singapore. https://doi.org/10.1007/978-981-16-6791-6_22; unfortunately, no details were provided as to the size of the profits

182 The Irish Times, [Seagrass on Irish coastline part of global habitat in decline](#) - report, June 2020

183 Marine Climate Change Impacts Partnership (MCCIP), [Climate change and marine conservation](#), July 2021

184 CAP, ["The CFTC Should Raise Standards and Mitigate Fraud in the Carbon Offsets Market"](#), October 2022

185 Ecological Society of America (ESA), ["The cost and feasibility of marine coastal restoration"](#), November 2015

186 Ecological Society of America (ESA), ["The cost and feasibility of marine coastal restoration"](#), November 2015

187 Ecological Society of America (ESA), ["The cost and feasibility of marine coastal restoration"](#), November 2015

188 Frontiers, ["Scoping carbon dioxide removal options for Germany—What is their potential contribution to Net-Zero CO₂?"](#), October 2022

189 The Royal Society, ["Effect of restoration on saltmarsh carbon accumulation in Eastern England"](#), January 2019

190 FRIENDSHIP carbon offset initiative, ["Estimated CO₂ absorption capacity of a mangrove plantation"](#), 2021

191 World Economic Forum, ["How biodiversity credits can deliver benefits for business, nature and local communities"](#), December 2022

The definition of a biodiversity credit unit is still under development. In 2023, an expert consultation exercise requested by the World Economic Forum (WEF) and Verra suggested that a unit of biodiversity could be defined as a 1% gain per hectare in the median value of a basket of taxa (a group of organisms that are classified together based on shared characteristics) for example avoided loss of coral reef or restoration of native bird species.

Examples: No marine ecosystems nature/biodiversity credits have been issued yet, but there are examples of land-based biodiversity credits. In 2022, in Colombia, a Latin American biodiversity conservation and habitat banking organisation called Terrasos issued 'voluntary biodiversity credits' for the conservation of remaining native species in the High Andes, where the Cloud Forest ecosystem is home to multiple threatened species like the yellow-eared parrot, the black-and-chestnut-eagle, and the spectacled bear. Each voluntary biodiversity credit was priced at US\$30, reflecting 30 years of conservation and/or restoration of 10m² of Cloud Forest.¹⁹²

Considerations/challenges: The market for nature/biodiversity credits is still nascent, with multiple ongoing initiatives currently creating frameworks/methodologies that can standardise the issuance of these credits. There is also a critical need to ensure that the Indigenous peoples and local communities that safeguard natural ecosystems are appropriately included in the design and implementation of these credits.

Conclusion: By making efforts to protect and restore its marine ecosystems and biodiversity, Ireland can tap into the markets for carbon and nature credits. The international carbon markets are fairly mature and are advancing at a rapid pace, while the markets for nature/biodiversity credits are nascent but likely to develop fast given the impetus around nature conservation after COP15. These markets can be a significant source of funding for long-term marine conservation efforts in Ireland.

C) DEBT BASED

C1) Investment based

Green, Blue, Sustainability and Sustainability-linked Bonds

Ireland can further tap into the bond market to raise capital for the conservation of its marine resources. Green, blue, sustainability and sustainability-linked bonds (GBSS) offer avenues to raise long-term capital. The issuers of these bonds make a commitment to use the proceeds raised either to finance sustainable projects (in the case of use-of-proceeds bonds) or to pursue pre-defined sustainability objectives (in the case of sustainability-linked bonds).

Green/blue bonds fund investments for new and existing projects with environmental benefits. Green bonds were the first type of sustainable bond to be developed and the largest category of labelled bond. Sometimes referred to as impact bonds, labelled bonds are bonds with specific environmental, social or governance (ESG) or sustainability objectives.¹⁹³ They deploy capital in projects that have the potential to demonstrate any type of positive environmental impact. This includes projects in renewable energy, energy efficiency, sustainable management of living natural resources, terrestrial and aquatic biodiversity, clean transportation, climate change adaptation, pollution prevention, and wastewater management. Blue bonds are evolving with their own taxonomies and have a focus on Sustainable Development Goal 14 (SDG14) and marine and ocean-based projects.¹⁹⁴

Sustainability bonds are instruments where the proceeds are exclusively used to finance or refinance a combination of green/blue and social projects and which are aligned with the four core components of the International Capital Market Association (ICMA) Green Bonds Principles and Social Bonds principles.¹⁹⁵

Sustainability-linked bonds are borrowing instruments where financial and structural characteristics are based on whether the issuer achieves sustainability or ESG metrics within a given timeframe. If the company does not meet those goals, there is a penalty in the form of higher interest paid to investors.¹⁹⁶

¹⁹² World Economic Forum, "Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes", September 2022

¹⁹³ Investopedia, Green Bond: Types, How to Buy, and FAQs, September 2021

¹⁹⁴ The World Bank, Sovereign Blue Bond Issuance: Frequently Asked Questions, October 2018

¹⁹⁵ International Capital Market Association (ICMA), Sustainability Bond Guidelines (SBG), June 2021

¹⁹⁶ World Economic Forum (WEF), What are sustainability linked bonds and how can they support the net-zero transition?, November 2022

Rationale: These bonds currently constitute a small fraction of the global bond market, representing only 1% of the total assets outstanding and around 2% of the new issuances.¹⁹⁷ In the case of Ireland, these bonds account for a little more than 1% of the total public sector bonds outstanding in 2020. However, they are growing fast – they have grown at an annual rate of 80% since 2014 – and thus have the potential to help raise the financing Ireland will require for the conservation of its marine resources.

In October 2018, Ireland's National Treasury Management Agency (NTMA) issued the Irish Sovereign Green Bond. The bond, with a 12-year tenor, raised €3 billion to finance projects that have positive environmental impact and are aligned with the country's National Development Plan.¹⁹⁸ Ireland raised a further €3.5 billion in its second green bond issuance in January 2023, which was 10 times oversubscribed. Projects include wastewater management, clean transportation, renewable energy, energy efficiency in buildings, climate change adaptation, and natural resources and land use.¹⁹⁹ In its original design, eligible projects did not include conservation, although forestry projects were eligible, including afforestation grants and schemes to increase forest cover with the objective to develop an internationally competitive and sustainable forest sector.

Example: In October 2018, the Republic of Seychelles launched the world's first sovereign blue bond to support sustainable marine and fisheries projects in the country. The bond raised US\$15 million from institutional investors to support projects including the expansion of MPAs, improved governance of priority fisheries, and overall development of Seychelles' blue economy.²⁰⁰

Considerations/challenges: Ireland could further explore the use of green bonds by restructuring its existing framework to include marine protection and other blue activities. Alternatively, Ireland could consider the establishment of a dedicated blue bond framework as bonds can sometimes present lower yields than conventional bonds, thus reducing the cost of capital for the issuer, and also present lower yields than typical sovereign

debt. For green bonds, this yield difference, when it occurs, is known as the 'greenium'. It is important to note that a greenium will not exist in all green bond issuances. In past issuances, a greenium has been regularly observed in issuances in developed markets, such as Germany, although some developing countries, such as Egypt, Thailand and Chile, have also seen a greenium.²⁰¹ If a greenium is observed in any potential issuance by Ireland, it could relieve some pressure on public finances and free up fiscal space, a part of which can be deployed towards the establishment and management of MPAs.

European Investment Bank

The European Investment Bank (EIB), the lending arm of the European Union, is one of the largest providers of climate finance. As the EU's climate bank, the EIB is investing in the sustainable blue economy and supporting initiatives aimed at reducing pollution and preserving natural resources. The Clean and Sustainable Ocean Programme, which is the overarching programme for the EIB's current and future ocean-based initiatives and activities, currently includes two main components, the Clean Oceans Initiative, focused on reducing the discharge of plastics into the ocean, and the Blue Sustainable Ocean Strategy (Blue SOS).²⁰²

Under Blue SOS, the EIB has committed to lending €2.5 billion to sustainable ocean projects over the 2019-2023 period and is expected to mobilise at least €5 billion of investments for a global sustainable blue economy.²⁰³ Two of the four areas targeted by Blue SOS are sustainable coastal development and protection and sustainable seafood production. The EIB provides governments and local authorities, as well as the private sector, with long-term loans and other types of financing to improve the health of the ocean and build stronger coastal environments. For sovereign States and government organisations in particular, the EIB either makes loans starting at €25 million to finance a single large investment project/programme, or flexible loans used to finance an investment programme that usually starts from €100 million and consists of several smaller projects.²⁰⁴

197 OECD, "Green, social, sustainability and sustainability-linked bonds in developing countries", October 2022

198 National Treasury Management Agency (NTMA), Ireland, "NTMA raised EUR 3 billion through syndicated sale of Ireland's first-ever Sovereign Green Bond", October 2018

199 NTMA, "Irish Sovereign Green Bonds", October 2018

200 The World Bank, "Seychelles launches World's First Sovereign Blue Bond", October 2018

201 Climate Bonds Initiative, "Sovereign Green, Social and Sustainability Bond Survey", 2021

202 European Investment Bank, "Who we are", "Preserving our oceans"

203 European Investment Bank Group, "Clean oceans and the blue economy", 2022

204 European Investment Bank, "Loans"

Together with the EMFAF and InvestEU, the EIB Group, which is a programme supporting sustainable investment, innovation and job creation in Europe, makes €1.5 billion of risk financing available to innovative and sustainable blue economy small and medium-sized enterprises and start-ups via financial intermediaries. EIB and the European Commission also set up a financial instrument called the Natural Capital Finance Facility (NCF) that offers loans and technical support to projects expected to have a positive impact on biodiversity and/or adaptation to the impacts of climate change.²⁰⁵

Since 1973, the EIB has provided finance to 352 projects in Ireland, with a total of €20.7 billion in financing, from which ~€462 million have gone to Ireland's agriculture, fisheries and forestry sectors.²⁰⁶ Since MPAs contribute to the sustainable use and protection of water and marine resources, which is aligned with EIB's environmental objectives, Ireland's MPA projects can possibly be considered for EIB financing, making it a potential financing mechanism.

4.3. KEY CONSIDERATIONS FOR PRIORITISING FINANCING MECHANISMS

There are several key considerations for the Government of Ireland to evaluate when deciding how to prioritise the shortlisted financing mechanisms, including:

1. Availability of funding (i.e., immediate or long-term opportunity): For example, for the upcoming year (2024), the financing mechanisms in the Government's direct control (i.e., budget allocations and ISGB grants) can likely be used for MPA financing, as can any funding from EU programmes which the Government is already expecting to receive (e.g., LIFE, EMFAF). Sources of funding that are currently not directly in the Government's control (e.g., fees on offshore wind energy generation, philanthropic contributions) will need additional time to implement as they require, for example, introducing new legislation or establishing special purpose financing vehicles to manage the funds. Given the short time-horizon until 2030, and the fact that many of these mechanisms may take several years to implement, it is likely that the Government of Ireland may need to develop multiple financing mechanisms in parallel while deploying those currently available.

2. Suitability of funds (i.e., better suited for establishing or managing MPAs): As outlined in Exhibit 4.2 in Section 4.1, some financing mechanisms are better suited for one-time establishment costs (e.g., debt based instruments

such as green/blue bond funding, or investments from the EIB), while others are better suited for recurring management costs (e.g., revenue generating mechanisms such as fees/taxes on tourism). Given that MPAs first need to be established, the Government may consider prioritising the mechanisms better suited for this purpose.

3. Implementation complexity: Some mechanisms may be easier to implement, while others require significantly more time or effort. For example, obtaining funding from EU programmes (e.g., LIFE, EMFAF) may require the preparation of an application and business case; the revenue generating mechanisms (e.g., fees on offshore wind energy generation) may require political will, introduction of new legislation, and extensive stakeholder engagement to be implemented; and the ecosystem value based mechanisms may take longer to implement due to their currently underdeveloped technical and scientific maturity.

4. Cost to Government: The total cost to the Government, both in terms of the cost to implement/operationalise the mechanism and the cost of capital, is an important factor to consider. For example, grant programmes provide capital at no cost compared to debt based mechanisms and may be prioritised for this time horizon. However, grant programmes may come with stricter mandates for how the funds may be used as compared to debt based mechanisms.

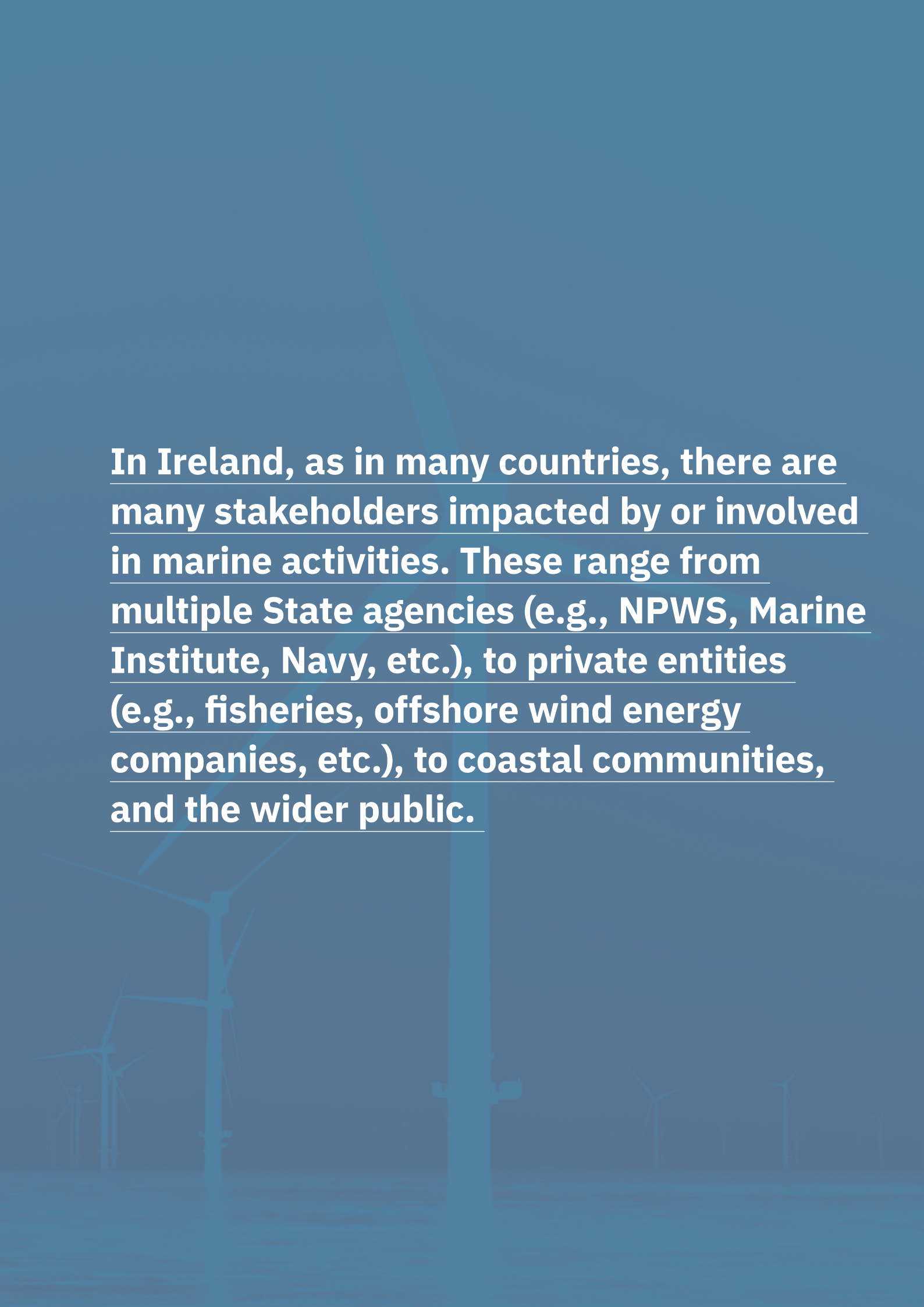
5. Potential funding size: Mechanisms that provide higher funding amounts could be prioritised over mechanisms that may not be expected to provide significant sources of funding.

6. Other stakeholder considerations: In Ireland, as in many countries, there are many stakeholders impacted by or involved in marine activities. These range from multiple State agencies (e.g., NPWS, Marine Institute, Navy, etc.), to private entities (e.g., fisheries, offshore wind energy companies, etc.), to coastal communities, and the wider public. In prioritising financing mechanisms, the Government of Ireland may want to consider the stakeholders impacted in implementing the mechanism (e.g., charging a fee to offshore wind energy companies may drive up energy prices for Irish citizens unless safeguards are introduced).

²⁰⁵ European Investment Bank, "How to make use of the Natural Capital Finance Facility (NCF) within an EIB-funded Urban Framework Loan"

²⁰⁶ European Investment Bank, "Financed Projects", 2023

In Ireland, as in many countries, there are many stakeholders impacted by or involved in marine activities. These range from multiple State agencies (e.g., NPWS, Marine Institute, Navy, etc.), to private entities (e.g., fisheries, offshore wind energy companies, etc.), to coastal communities, and the wider public.

The background of the slide features a dark blue gradient with a faint, semi-transparent image of several wind turbines. The turbines are positioned in the lower half of the frame, with their blades extending upwards. The overall aesthetic is clean and professional, typical of a corporate or academic presentation.

5 Path Forward

Looking ahead, once the new MPA legislation has been passed, there are several possible next steps for the Government of Ireland to consider. In particular, there is a need to:

- 1. Define and establish the MPA Authority, and then in parallel:
- 2a. Designate MPAs and outline required management activities, and
- 2b. Pursue financing mechanisms.

Next step 1: Define and establish the MPA Authority

Before MPAs can be created and managed, an organisation must be assigned the responsibility to do so. The Government of Ireland can first define the specific responsibilities needed for MPA establishment and management, and then determine which of those responsibilities could fall on the newly created/designated MPA Authority, and which would fall on other existing State agencies. Once the responsibilities have been assigned to their respective organisations, an effective governance/management structure can be determined. Given the governance structure has yet to be determined by the Government, for modelling purposes this report assumes that one authority is responsible for managing MPAs. However, in practice, the Government of Ireland may decide that different responsibilities for the designation and implementation of MPAs will fall to different State agencies.

In defining this governance/management structure, the Government of Ireland can consider the financial framework under which the MPA Authority will operate. For example, considerations could be given to such questions as:

- Will the MPA Authority exist as/within a public agency and receive government funding only? Or is the MPA Authority responsible for developing revenue generating financing mechanisms (e.g., fees on offshore wind) to sustain its operations?

- Should an endowment model be used with a separate 'trust fund administrator' entity to manage the funds?

Defining this financial framework may require passing legislation to outline the flow of funds from the revenue mechanisms to the MPA Authority (see Section 4.1 for additional details).

Next step 2a: Designate MPAs and outline required management activities

Once a clear management/governance structure and roles and responsibilities have been outlined in step #1, the next key step the responsible entity can undertake is to designate the MPAs, determine their level of protection, and outline their associated management models. Additional steps needed to establish MPAs include: (1) identifying potential MPA sites based on existing scientific research and analysis (e.g., the National Marine Planning Framework²⁰⁷); (2) conducting detailed ecological/biophysical, social, cultural and economic assessment of the sites; (3) developing the regulatory intent, consultation and participative engagement with interested/affected parties; and (4) conducting the regulatory process to designate the MPAs. Some/all of these steps are already underway in Ireland, driven largely by the Department of Housing, Local Government and Heritage.

As discussed in Section 3.6. 'fully protected' MPAs cost less to maintain and result in higher quality conservation outcomes than 'highly protected' MPAs. However, 'fully protected' MPAs may introduce other indirect costs, such as short-term reductions in fishing revenues. In establishing the MPA network, the Government may consider favouring the designation of 'fully protected' MPAs, in an effort to both reduce costs and improve conservation outcomes.

When designating MPAs, the Government of Ireland or the MPA Authority will have the opportunity to both develop an MPA ‘clustering’ strategy, and clearly outline the required activities on an MPA level, both of which will be critical to further refining cost estimates.

When designating MPAs, the Government of Ireland or the MPA Authority will have the opportunity to both (1) develop an MPA ‘clustering’ strategy, and (2) clearly outline the required activities on an MPA level, both of which will be critical to further refining cost estimates.

1) Developing an MPA ‘clustering’ strategy:

By combining the defined MPAs with the understanding developed in step #1, the Government of Ireland could develop an initial approach to creating regional teams to manage a regional cluster of nearby MPAs. This may help realise cost synergies/operational efficiencies and designate management responsibilities at the regional level.

2) Clearly outlining the required management activities: Once the locations and level of protection of MPAs are determined, the Government of Ireland/MPA Authority could then develop detailed implementation plans, management plans, conservation objectives, and research goals. This will enable the Government of Ireland/MPA Authority to clearly define the required activities and equipment needed to achieve these plans and goals (e.g., number of boats and personnel, monitoring equipment, estimates of fuel consumption, etc.).

The detailed strategy and plans developed in this step could provide the Government of Ireland with the most accurate view of the estimated funding required to reach 30x30 marine protection.

Next step 2b: Pursue financing mechanisms

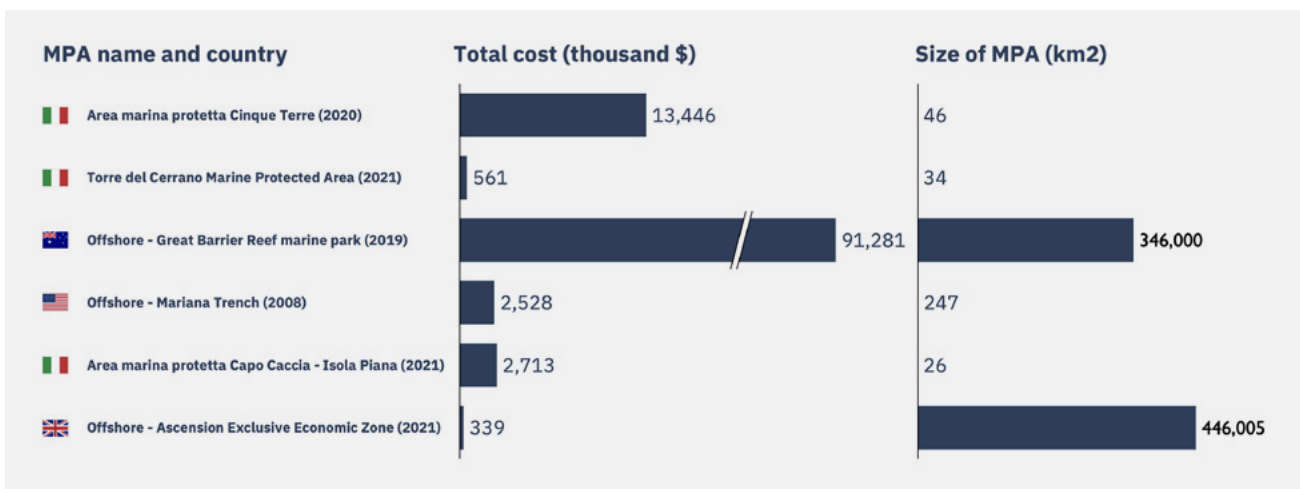
In parallel to designating MPAs and outlining management activities, the Government of Ireland/MPA Authority can continue to advance potential financing mechanisms, specifically by (1) further detailing and pursuing the shortlisted mechanisms, and (2) engaging the relevant stakeholders (e.g., fisheries, local communities, other State agencies, EU officials) to enable their implementation:

1) Further detailing and pursuing the shortlisted mechanisms: For example, for the EU funding programmes, this involves understanding the application requirements (e.g., developing a business case), and then preparing and submitting the request for funding. For blue carbon, this involves continuing to size the revenue generating potentials, based on the latest scientific research in Ireland and carbon market methodologies, etc.

2) Engaging key stakeholders: Given the many stakeholders involved with both establishing MPAs (e.g., fisheries, coastal communities, offshore wind energy sector, other offshore sectors, tourism sector, other State agencies, scientists, etc.) and as financing MPAs (e.g., political leaders, EU officials, lawyers, NGOs/philanthropies, etc.), it will be critical to engage these stakeholders early in the process in order to gain their input and buy-in and enable the financing mechanisms to be implemented.

In conclusion, given that establishing the MPA Authority, designating MPAs, and developing financing mechanisms may take several months or years, and that there are only 6.5 years remaining until 2030, it is imperative that the Government of Ireland continue to act with great determination and urgency.

Appendix



SECTION 3

A3.2.1. Benchmarking analysis

In conducting the benchmarking analysis, MPAs belonging to developed countries or other EU Member States were prioritised. This was done in order to ensure a fair ‘apples-to-apples’ comparison with Ireland as costs in developing countries are likely to differ from those in developed countries (e.g., lower wages).

Research began at the national level, seeking to understand national expenditure on MPAs in a given country. However, as was the case in Ireland, this data was very challenging to find and is not readily or publicly available. This lack of data availability presents a significant opportunity and area of improvement for the global conservation financing community. If governments made such data publicly available and easily accessible, it would allow other nations to better understand MPA financing as they develop their own strategies. The Government of Ireland is encouraged to pioneer this effort and make their future MPA spend data publicly available for others to easily access.

Due to the lack of data at the national level, MPA-level data was found. Depending on the country and the MPA management governance structure in that country, some of the organisations

responsible for managing MPAs disclose annual reports that outline their expenditures. However, most of the examples found were from organisations that managed national parks which included terrestrial areas as well as MPAs, thus making the spend data unrepresentative of MPA management costs. Even for MPAs that disclosed their spend data, it was hard to gauge the quality of the MPA management and whether the current spend was sufficient or insufficient for the MPA’s objectives. High variances in the data were also observed, ranging from a couple of hundred thousand to several million dollars, with no obvious correlations between the total spend and the size of the MPA (Exhibit A3.1).²⁰⁸

As a result of these challenges, benchmarking data was deemed unreliable as sufficient confidence could not be built in its ability to inform Ireland’s required spend to meet its commitment to 30x30. In addition, the data at the MPA level is not representative of what will likely be a comprehensive ‘network’ of MPAs in Ireland under the centralised management of a single overarching organisation. This centralised management structure introduces cost efficiencies (e.g., centralised administrative function, equipment usage at multiple MPAs) that would not be captured by a single MPA.

Exhibit A3.1:
Benchmarking analysis
of selected MPAs in other
developed countries

208 Various online sources including individual MPA annual reports

A3.2.2. Academic regression models

The second approach was to use peer-reviewed regression models published in academic literature to estimate MPA establishment and management costs. These academic models are highly cited and have been used to inform cost estimates in national and international marine policy documents. For management costs, a paper by Balmford et al. (2004)²⁰⁹ was followed, which estimates the management budget based on the correlation with MPA area, distance to inhabited land, and/or national PPP in a dataset of 83 MPAs worldwide. For establishment costs, McRea-Scrub's (2011)²¹⁰ paper was followed, which estimates establishment costs based on MPA size and/or duration of the establishment process, employing data from a set of 13 MPAs of widely varying size and location.

Important caveats to these models have been highlighted (Waldron et al. 2022).²¹¹ However, sufficient confidence could not be built in the outputs of the models to rely on them to inform Ireland's required spend to meet its 30x30 commitment. One reason is that these models' outputs are limited to an overall cost

estimate based on a low number of high-level parameters, and do not provide a breakdown into major categories of spending, or by type of MPA (most notably for this study, inshore vs offshore). A significant portion of the models' training data consists of sample points that, in terms of their size, location, geopolitical context, time of establishment, and level of governance, were deemed unrepresentative for Ireland's 30x30 vision. In addition, these models estimate costs at an individual MPA level, as opposed to a national network level. They are therefore likely to miss inter-MPA synergies as well as costs related to the overarching management level.

In conducting the benchmarking analysis, MPAs belonging to developed countries or other EU Member States were prioritised. This was done in order to ensure a fair 'apples-to-apples' comparison with Ireland as costs in developing countries are likely to differ from those in developed countries (e.g., lower wages).

209 PNAS, *The worldwide costs of marine protected areas*, June 2004

210 Science Direct, *Understanding the cost of establishing marine protected areas*, January 2011

211 Cold Spring Harbor Laboratory, *Costs and economic impacts of expanding marine protected area systems to 30%*, November 2022

A3.2.3. Bottom-up model input data and assumption

Table A3.2.3.1. Management-level line costs constituting overall cost estimates

Management Unit	OPEX/ CAPEX	Included as establishment*	Category	Subcategory	Details	Recurrence
						cost occurs every n years
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central manager	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central asst. manager	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central administrative staff	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central communication staff	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central ecotourism coordination staff	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central event management staff	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central field staff	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Central scientific staff	1
Central	OPEX	Establishment	Staff salaries and overhead costs	Staff overhead cost	Central overhead costs	1
Central	OPEX	Establishment	Surveillance	Surveillance	Software and data	1
Central	OPEX	Establishment	Studies	Studies	Software and data	1
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster manager	1
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster administrative staff	1
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster field staff	1
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster scientific staff	1
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster technical maintenance staff	1
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster communication staff	1
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster stakeholder management staff	1
Inshore	OPEX		Staff salaries and overhead costs	Staff, seasonal	Cluster field staff	1

Amount of item per management unit			Item cost			Remarks	Sources
Min	LIKELY	Max	Min	LIKELY	Max		
1	1	1	90.664	108.663	126.663	We assume 1 central manager in all scenarios	Expert interview; Fórsa
0	1	2	73.339	86.998	100.657		Expert interview; Fórsa
2	3	4	33.987	49.762	65.538	Administration is mostly centralized, lower the requirement for cluster administration staff	Expert interview; Fórsa
1	1	2	33.988	49.763	65.539		Expert interview; Fórsa
1	1	2	33.988	49.763	65.539		Expert interview; Fórsa
0	0	1	33.988	49.763	65.539	Dedicated event management staff was identified by interviewed experts as potentially needed	Expert interview; Fórsa
1	2	3	31.678	43.054	54.430	Central field staff can be deployed throughout the network as required	Expert interview; Fórsa
1	2	3	36.364	63.960	91.556	Central scientific staff can be deployed throughout the network as required, and focus on integrating research throughout the network	Expert interview; Fórsa
7	11	18	16.837	29.932	45.193	Staff overhead costs include office space and supplies, payroll costs, and employee benefits	https://www.icalculator.com/ireland/cost-of-employee-in-ireland-calculator.html
1	1	1	5.000	10.000	15.000		Online search, own assumption
1	1	1	5.000	10.000	15.000		Online search, own assumption
1	1	1	90.664	101.403	112.143	We assume 1 cluster manager in all scenarios	Expert interview; Fórsa
1	1	2	33.987	49.762	65.538	Cluster administrative staff is kept to a minimum due to centralization of administration	Expert interview; Fórsa
2	3	5	31.678	43.054	54.430	We don't assume a linear correlation to protected area size, since amount of staff is likely limited upward by budget	Expert interview; Fórsa
1	2	3	36.364	63.960	91.556	We don't assume a linear correlation to protected area size, since amount of staff is likely limited upward by budget	Expert interview; Fórsa
1	1	1	31.678	43.054	54.430		Expert interview; Fórsa
0	1	1	33.988	49.763	65.539	Cluster communication staff is kept to a minimum due to centralization of communication responsibilities	Expert interview; Fórsa
0	1	1	33.988	49.763	65.539	Dedicated stakeholder management staff was identified by interviewed experts as potentially needed	Expert interview; Fórsa
0	1	2	10.549	14.337	18.125	There will likely be a need for seasonal field staff during the sampling and/or touristic high season	Expert interview; Fórsa

Table A3.2.3.1. Management-level line costs constituting overall cost estimates—cont.

Management Unit	OPEX/ CAPEX	Included as establishment*	Category	Subcategory	Details	Recurrence
						cost occurs every n years
Inshore	OPEX	Establishment	Staff salaries and overhead costs	Staff overhead cost		1
Inshore	OPEX		Equipment use and maintenance	Boat fuel	Short-range vessel	1
Inshore	OPEX		Equipment use and maintenance	Boat maintenance	Short-range vessel	1
Inshore	OPEX		Equipment use and maintenance	Car fuel		1
Inshore	OPEX		Equipment use and maintenance	Car maintenance		1
Inshore	OPEX		Other	Communication		1
Inshore	OPEX	Establishment	Equipment use and maintenance	Technical workplace equipment		1
Inshore	OPEX		Equipment use and maintenance	Surveillance	Radar system upkeep	1
Inshore	OPEX		Equipment use and maintenance	Surveillance	Drones upkeep	1
Inshore	CAPEX	Establishment	Equipment purchase	Demarcation buoys		7
Inshore	CAPEX	Establishment	Equipment purchase	Boat purchase	Short-range vessel	10
Inshore	CAPEX	Establishment	Equipment purchase	Car purchase		10
Inshore	CAPEX	Establishment	Equipment purchase	Scuba-diving equipment purchase		1
Inshore	OPEX		Surveillance	Surveillance	Navy surveillance	1
Inshore	OPEX	Establishment	Studies	Regular ecological monitoring	With Marine Unit research vessel	1
Inshore	OPEX	Establishment	Studies	Scientific studies		1
Inshore	OPEX	Establishment	Studies	Socio-economic assessment		3
Inshore	OPEX	Establishment	Studies	Regular ecological monitoring		2
Inshore	OPEX	Establishment	Studies	Management plan		5
Inshore	OPEX	Establishment	Studies	Business plan		7
Inshore	OPEX	Establishment	Other	Conferences, meetings		1
Inshore	OPEX		Other	Exhibits		1
Inshore	OPEX		Other	Training		1

Amount of item per management unit			Item cost			Remarks	Sources
Min	LIKELY	Max	Min	LIKELY	Max		
6	11	16	17.070	25.689	37.942	Staff overhead costs include office space and supplies, payroll costs, and employee benefits	https://www.icalculator.com/ireland/cost-of-employee-in-ireland-calculator.html
2	3	4	10.950	68.438	328.500	The regulatory requirement of having minimum 3 people per boat limits the number of operational boats at any moment in time	Binet et al., own assumption
2	3	4	500	4.500	16.000	The regulatory requirement of having minimum 3 people per boat limits the number of operational boats at any moment in time	Binet et al., own assumption
2	5	5	2.336	9.928	0	Maximum number of cars required is limited upward by number of field and scientific staff. Max assumes electric vehicle	Binet et al., own assumption
2	5	5	1.250	3.750	10.000	Maximum number of cars required is limited upward by number of field and scientific staff	Own assumption
1	1	1	6.762	6.762	6.762		Binet et al.
1	1	1	2.400	5.999	11.998		Own assumption
0	1	1	500	5.000	15.000		Own assumption
1	2	3	50	300	1.500		Own assumption
1	1	1	47.650	47.650	47.650		Binet et al.
2	3	4	10.000	45.000	80.000	The regulatory requirement of having minimum 3 people per boat limits the number of operational boats at any moment in time	Binet et al.; online search
2	5	5	25.000	37.500	50.000	Maximum number of cars required is limited upward by number of field and scientific staff	Binet et al.; online search
1	1	1	9.486	9.486	9.486	Scuba diving equipment likely needed for every inshore MPA cluster	Binet et al.
0	0	0	35.000	240.000	660.000	We don't assume navy surveillance for inshore clusters, as these can be patrolled by own short-range vessels	Expert interview
0	0	0	35.000	240.000	660.000	We don't assume Marine Unit monitoring for inshore clusters, as these can be visited by own short-range vessels	Expert interview
1	1	1	66.365	66.365	66.365		Binet et al.
1	1	1	19.822	19.822	19.822		Binet et al.
1	1	1	34.158	34.158	34.158		Binet et al.
1	1	1	72.562	72.562	72.562		Binet et al.
1	1	1	49.455	49.455	49.455		Binet et al.
1	1	1	23.341	23.341	23.341		Binet et al.
1	1	1	25.075	25.075	25.075		Binet et al.
1	1	1	12.464	12.464	12.464		Binet et al.

Table A3.2.3.1. Management-level line costs constituting overall cost estimates—cont.

Management Unit	OPEX/ CAPEX	Included as establishment*	Category	Subcategory	Details	Recurrence
						cost occurs every n years
Inshore	CAPEX		Other	Restoration	Ecological restoration of degraded ecosystems	Only on establishment
Inshore	CAPEX	Establishment	Other	Outdoor infrastructure	Hiking paths on terrestrial part and other infrastructure	10
Inshore	CAPEX	Establishment	Equipment purchase	Surveillance	Radar system purchase	10
Inshore	CAPEX	Establishment	Equipment purchase	Surveillance and monitoring	Drones purchase	5
Inshore	CAPEX	Establishment	Other	Compensation measures		Only on establishment
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster manager	1
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster administrative staff	1
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster field staff	1
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster scientific staff	1
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster technical maintenance staff	1
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster communication staff	1
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff, permanent	Cluster stakeholder management staff	1
Offshore	OPEX		Staff salaries and overhead costs	Staff, seasonal	Cluster field staff	1
Offshore	OPEX	Establishment	Staff salaries and overhead costs	Staff overhead cost		1
Offshore	OPEX		Equipment use and maintenance	Boat fuel	Short-range vessel	1
Offshore	OPEX		Equipment use and maintenance	Boat maintenance	Short-range vessel	1
Offshore	OPEX		Equipment use and maintenance	Car fuel		1
Offshore	OPEX		Equipment use and maintenance	Car maintenance		1
Offshore	OPEX		Other	Communication		1
Offshore	OPEX	Establishment	Equipment use and maintenance	Technical workplace equipment		1

Amount of item per management unit			Item cost			Remarks	Sources
Min	LIKELY	Max	Min	LIKELY	Max		
1	1	1	276.002	552.004	1.104.008	The nature of, and need for, ecological restoration is likely to be highly variable between MPAs	Binet et al.
1	1	1	80.961	161.921	323.842		Binet et al.
0	1	1	10.000	50.000	100.000	System might be land-, buoy-, or vessel-based	
1	2	3	1.000	3.000	10.000		Own assumption
1	1	1	92.001	184.001	368.003	The nature of, and need for, compensation measures is likely to be highly variable between MPAs	Binet et al.
1	1	1	90.664	101.403	112.143	We assume 1 cluster manager in all scenarios	Expert interview; Fórsa
1	1	2	33.987	49.762	65.538	Cluster administrative staff is kept to a minimum due to centralization of administration	Expert interview; Fórsa
1	2	2	31.678	43.054	54.430	Less field staff than for inshore, considering more remote and outsourced monitoring	Expert interview; Fórsa
1	2	3	36.364	63.960	91.556	We don't assume a linear correlation to protected area size, since amount of staff is likely limited upward by budget	Expert interview; Fórsa
1	1	1	31.678	43.054	54.430		Expert interview; Fórsa
0	1	1	33.988	49.763	65.539	Cluster communication staff is kept to a minimum due to centralization of communication responsibilities	Expert interview; Fórsa
0	1	1	33.988	49.763	65.539	Dedicated stakeholder management staff was identified by interviewed experts as potentially needed	Expert interview; Fórsa
0	1	2	10.549	14.337	18.125	There will likely be a need for seasonal field staff during the sampling season	Expert interview; Fórsa
5	10	13	17.950	26.106	39.162	Staff overhead costs include office space and supplies, payroll costs, and employee benefits	https://www.icalculator.com/ireland/cost-of-employee-in-ireland-calculator.html
1	1	1	10.950	68.438	328.500	Less short-range vessels are needed than for inshore clusters	Binet et al., own assumption
1	1	1	500	4.500	16.000	Less short-range vessels are needed than for inshore clusters	Binet et al., own assumption
1	2	2	2.336	9.928	0	Maximum number of cars required is limited upward by number of field and scientific staff, and likely lower than for inshore clusters. Max assumes electric vehicle	Binet et al., own assumption
1	2	2	1.250	3.750	10.000	Maximum number of cars required is limited upward by number of field and scientific staff, and likely lower than for inshore clusters.	Own assumption
1	1	1	6.762	6.762	6.762		Online search
1	1	1	2.400	5.999	11.998	Own assumption	Online search

Table A3.2.3.1. Management-level line costs constituting overall cost estimates—cont.

Management Unit	OPEX/ CAPEX	Included as establishment*	Category	Subcategory	Details	Recurrence
						cost occurs every n years
Offshore	OPEX		Equipment use and maintenance	Surveillance	Radar system upkeep	1
Offshore	OPEX		Equipment use and maintenance	Surveillance	Drones upkeep	1
Offshore	CAPEX	Establishment	Equipment purchase	Demarcation buoys		7
Offshore	CAPEX	Establishment	Equipment purchase	Boat purchase	Short-range vessel	10
Offshore	CAPEX	Establishment	Equipment purchase	Car purchase		10
Offshore	CAPEX	Establishment	Equipment purchase	Scuba-diving equipment purchase		1
Offshore	OPEX		Surveillance	Surveillance	Navy surveillance	1
Offshore	OPEX	Establishment	Studies	Regular ecological monitoring	With Marine Unit research vessel	1
Offshore	OPEX	Establishment	Studies	Scientific studies		1
Offshore	OPEX	Establishment	Studies	Socio-economic assessment		3
Offshore	OPEX	Establishment	Studies	Regular ecological monitoring		2
Offshore	OPEX	Establishment	Studies	Management plan		5
Offshore	OPEX	Establishment	Studies	Business plan		7
Offshore	OPEX	Establishment	Other	Conferences, meetings		1
Offshore	OPEX		Other	Exhibits		1
Offshore	OPEX		Other	Training		1
Offshore	CAPEX		Other	Restoration	Ecological restoration of degraded ecosystems	Only on establishment
Offshore	CAPEX	Establishment	Other	Outdoor infrastructure	Hiking paths on terrestrial part and other infrastructure	10
Offshore	CAPEX	Establishment	Equipment purchase	Surveillance	Radar system purchase	10
Offshore	CAPEX	Establishment	Equipment purchase	Surveillance and monitoring	Drones purchase	5
Offshore	CAPEX	Establishment	Other	Compensation measures		Only on establishment

*cost element is counted toward establishment cost on first occurrence

Amount of item per management unit			Item cost			Remarks	Sources
Min	LIKELY	Max	Min	LIKELY	Max		
0	0	0	500	5.000	15.000		Binet et al.
0	1	2	50	300	1.500		Own assumption
0	0	0	47.650	47.650	47.650	No demarcation buoys assumed for offshore MPAs	Binet et al.
1	1	1	10.000	45.000	80.000	Less short-range vessels are needed than for inshore clusters	Binet et al.; online search
1	2	3	25.000	37.500	50.000	Maximum number of cars required is limited upward by number of field and scientific staff, and likely lower than for inshore clusters.	Binet et al.; online search
0	1	1	9.486	9.486	9.486	Scuba-diving equipment might be necessary for specialist operations in offshore MPAs	Binet et al.
1	1	1	35.000	240.000	660.000	Assumed periodic surveillance visits to offshore MPAs outsourced to Irish Navy. Assumed same daily rates as Marine Institute RV	Expert interview; Marine Institute
1	1	1	35.000	240.000	660.000	Assumed periodic ecological monitoring visits to offshore MPAs outsourced to Irish Marine Unit	Expert interview; Marine Institute
1	1	1	66.365	66.365	66.365		Binet et al.
1	1	1	19.822	19.822	19.822		Binet et al.
1	1	1	34.158	34.158	34.158	Includes additional costs to Marine Unite RV	Binet et al.
1	1	1	72.562	72.562	72.562		Binet et al.
1	1	1	49.455	49.455	49.455		Binet et al.
1	1	1	23.341	23.341	23.341		Binet et al.
1	1	1	25.075	25.075	25.075		Binet et al.
1	1	1	12.464	12.464	12.464		Binet et al.
1	1	1	874.006	1.748.013	3.496.025	The nature of, and need for, ecological restoration is likely to be highly variable between MPAs	Binet et al.
0	0	0	256.375	512.750	1.025.501	Assumed no hiking paths or other terrestrial infrastructure to be maintained not captured elsewhere	Binet et al.
0	0	1	10.000	50.000	100.000	System might be land-, buoy-, or vessel-based	
0	1	2	1.000	3.000	10.000		Own assumption
1	1	1	291.335	582.671	1.165.342	The nature of, and need for, compensation measures is likely to be highly variable between MPAs	Binet et al.

Table A3.2.3.2. Additional parameters included in the bottom-up cost model

Parameter	Unit	Value			Source
		min	LIKELY	max	
Staff overhead costs (incl. payroll, benefits, onboarding, office space)	Share of staff salary cost	0,4	0,5	0,6	https://www.icalculator.com/ireland/cost-of-employee-in-ireland-calculator.html
Boat purchase price, short-range vessel	€	10.000	45.000	80.000	Expert interview
Boat activity, short-range vessel	h/day	1	3	6	Expert interview; own assumption
Boat fuel use, short-range vessel	l/h	30	50	100	Internet search
Boat fuel price, short-range vessel	€/l	1	1,25	1,5	Internet search
Boat maintenance cost, short-range vessel	share of fuel cost	0,25	0,5	1	Internet search
Boat maintenance cost, short-range vessel	share of boat purchase cost	0,05	0,1	0,2	Internet search
Car purchase price	€	25.000	37.500	50.000	Internet search; max assumes electric vehicle
Car activity	h/day	1	2	4	Own assumption
Car fuel use	l/h	4	8	0	Internet search; max assumes electric vehicle
Car fuel price	€/l	1,6	1,7	0	Internet search; max assumes electric vehicle
Car maintenance	share of fuel cost	0,1	0,2	0,4	Internet search
Car maintenance	share of car purchase cost	0,05	0,1	0,2	Internet search
Restoration inshore	€ per protected km ²	7,5	15	30	LIKELY estimate is cost per km ² calculated from Binet et al.
Restoration offshore	€ per protected km ²	7,5	15	30	LIKELY estimate is cost per km ² calculated from Binet et al.
Compensation measures inshore	€ per protected km ²	2,5	5	10	LIKELY estimate is cost per km ² calculated from Binet et al.
Compensation measures offshore	€ per protected km ²	2,5	5	10	LIKELY estimate is cost per km ² calculated from Binet et al.
Infrastructure (hiking paths on terrestrial parts)	€ per protected km ²	2,2	4,4	8,8	LIKELY estimate is cost per km ² calculated from Binet et al.
Drones and radar maintenance cost	share of purchase cost	0,05	0,1	0,15	Own assumption
Navy surveillance offshore clusters	days per year	5	15	30	Expert interview; own assumption
Navy surveillance offshore clusters	€ per day	7.000	16.000	22.000	Marine Institute (assumed same daily rates as Marine Institute RV)
Marine Institute RV monitoring offshore clusters	days per year	5	15	30	Expert interview; own assumption
Marine Institute RV monitoring offshore clusters	€ per day	7.000	16.000	22.000	Marine Institute

Table A3.2.3.5. Yearly and cumulative LIKELY-estimate distribution of cost by subcategory, absolute value

Cost category	Cost subcategory	Year		
		2024	2025	2026
Equipment purchase	Demarcation buoys	78.623	26.604	26.605
Equipment purchase	Boat purchase	237.600	80.400	80.401
Equipment purchase	Car purchase	334.125	113.062	113.063
Equipment purchase	Scuba-diving equipment purchase	18.782	25.137	31.492
Equipment purchase	Surveillance and monitoring	10.890	3.685	3.685
Equipment use and maintenance	Boat fuel	361.350	483.625	605.900
Equipment use and maintenance	Boat maintenance	23.760	31.800	39.840
Equipment use and maintenance	Car fuel	88.458	118.391	148.324
Equipment use and maintenance	Car maintenance	33.413	44.719	56.025
Equipment use and maintenance	Technical workplace equipment	11.878	15.897	19.917
Other	Communication	13.389	17.919	22.450
Other	Conferences, meetings	46.215	61.853	77.492
Other	Exhibits	49.648	66.448	83.248
Other	Training	24.678	33.028	41.379
Other	Restoration	1.487.651	503.401	503.389
Other	Outdoor infrastructure	267.170	90.405	90.407
Other	Compensation measures	495.884	167.800	167.796
Staff salaries and overhead costs	Staff, permanent	1.734.933	2.099.180	2.463.428
Staff salaries and overhead costs	Staff overhead cost	881.660	1.068.587	1.255.513
Staff salaries and overhead costs	Staff, seasonal	28.387	37.993	47.599
Studies	Scientific studies	141.402	185.866	230.330
Studies	Regular ecological monitoring	146.833	128.887	223.319
Studies	Socio-economic assessment	39.247	13.281	13.281
Studies	Management plan	143.672	48.616	48.616
Studies	Business plan	97.920	33.135	33.135
Surveillance	Surveillance	181.039	156.416	186.376
TOTAL		6.978.606	5.656.137	6.613.010

					Total		
2027	2028	2029	2030	2031	2024-2030	2031-2040	2024-2040
26.604	26.604	26.605	26.604	78.623	238.250	370.082	608.333
80.400	80.400	80.401	80.400	0	720.000	720.000	1.440.000
113.062	113.062	113.063	113.062	0	1.012.500	1.012.500	2.025.000
37.848	44.203	50.558	56.914	56.914	264.933	569.137	834.070
3.685	3.685	14.575	7.370	3.685	47.575	66.000	113.575
728.175	850.450	972.725	1.095.000	1.095.000	5.097.225	10.950.000	16.047.225
47.880	55.920	63.960	72.000	72.000	335.160	720.000	1.055.160
178.257	208.190	238.123	268.056	268.056	1.247.801	2.680.560	3.928.361
67.331	78.637	89.944	101.250	101.250	471.319	1.012.500	1.483.819
23.936	27.955	31.975	35.994	35.994	167.552	359.940	527.492
26.981	31.511	36.042	40.572	40.572	188.865	405.724	594.589
93.130	108.769	124.407	140.045	140.045	651.912	1.400.455	2.052.366
100.048	116.848	133.648	150.448	150.448	700.334	1.504.477	2.204.811
49.729	58.080	66.431	74.781	74.781	348.106	747.811	1.095.918
503.401	503.401	503.389	503.401	0	4.508.033	0	4.508.033
90.405	90.405	90.407	90.405	0	809.606	809.606	1.619.212
167.800	167.800	167.796	167.800	0	1.502.678	0	1.502.678
2.827.675	3.191.922	3.556.169	3.920.416	3.920.416	19.793.722	39.204.159	58.997.881
1.442.440	1.629.366	1.816.293	2.003.219	2.003.219	10.097.078	20.032.191	30.129.269
57.205	66.811	76.416	86.022	86.022	400.434	860.223	1.260.656
274.795	319.259	363.723	408.187	408.187	1.923.562	4.081.872	6.005.434
205.372	299.806	281.857	376.292	308.658	1.662.367	3.424.749	5.087.116
52.528	26.561	26.561	65.809	26.561	237.268	383.355	620.624
48.616	48.616	192.288	97.232	48.616	627.657	870.738	1.498.395
33.135	33.135	33.135	33.135	97.920	296.727	460.916	757.644
216.336	246.297	276.256	306.217	278.300	1.568.937	3.033.000	4.601.937
7.496.774	8.427.693	9.426.747	10.320.632	9.295.268	54.919.599	95.679.997	150.599.596

SECTION 3

A4.1. Full list of financing mechanisms evaluated

Table A4.1.1. Full list of financing mechanisms evaluated—Shortlist in Section 4.2, p.38—p.54

Instrument type	Funding category & sub-categories		Financing mechanism		
Grant	EU programmes		CAP (Common Agricultural Policy)		
			Cohesion Fund		
			Connecting Europe Facility		
			EAFRD - European agricultural fund for rural development		
			EMFAF - European Maritime, Fisheries and Aquaculture Fund		
			EU LEADER		
			European Agricultural Guarantee Fund		
			European Regional Development Fund: European territorial cooperation goal (Interreg programmes)		
			European Regional Development Fund: Investment for jobs and growth goal		
			European Social Fund Plus		
			Horizon EU		
			Innovation Fund		
			InvestEU		
			Just Transition Fund		
			LA21 - Local Agenda 21		
			LIFE		
			Modernization Fund		
			Peace Plus Programme		
			Recovery and Resilience Facility		
			Ireland programmes		Community Climate Action Fund
	Environmental Fund				
	Irish National Lottery Fund (INLF)				
	Marine Institute - Vessel Research Grants				
	Public Private Partnership (PPP) / Concessions				
	Shared Island Fund				
	Philanthropy / Donations		Institutional		Blue Action Fund
					Corporate/private CSR
					Official Development Assistance (ODA), incl. climate finance
					Pew Trust
					Results-based ODA
					Swedish Postcode Lottery
			Private / Individuals		Crowdfunding
					Donations
Volunteering and cost-sharing (in-kind)					

Instrument type	Funding category & sub-categories		Financing mechanism
Revenue	Ecosystem value based		Blue carbon
			Contributions from EU Member States (PES)
			Insurance premium discount / risk management
			Marine Bioceuticals
			Nature credits
			Payment for ecosystem services (PES)
			Seawater Air Conditioning (SWAC)
	Marine activity based	Commercial activities	Once-off fees
			Recurring levies, fees, or reduced subsidies
		Private / Individual activities	Fishing or boating
			Tourism
	Non-marine activity based	Government controlled	Eco-taxes
			Government revenue (from income tax, VAT, etc.)
Subsidies			
Tax easements / write-offs			
Private / Individual activities		Retail (e.g., license plates, gift stores, dining)	
Debt	Investment based		EU programmes
			European Investment Bank (EIB)
			Ireland programmes
			Blue, Sustainability, or Sustainability-linked bonds
			Irish Sovereign Green Bond (ISGB)
			NGO programmes
Climate Fund CI2			
Debt for nature swap			
Ocean Risk and Resilience Action Alliance (ORRA)			

A4.2. Financing mechanisms sizing calculations

Table A4.2.1. Fee, tax, or levy on offshore wind energy production – sizing calculation

Step #	Step description	Step inputs/components	Unit	Min	Mid	Max
1	Estimate annual electricity production of offshore wind farms		MWh	23,301,600	26,214,300	29,127,000
		Target capacity of offshore wind farms in Ireland by 2030	MW	7,000	7,000	7,000
		Average capacity factor of an offshore wind farm (i.e., average power generated by wind divided by its peak capacity)	%	40%	45%	50%
		Number of hours in a year	Hours	8,760	8,760	8,760
		% of time a wind turbine is expected to be out of operation	%	5%	5%	5%
2	Estimate annual MPA funding from offshore wind farms in Ireland		EUR/year	4,660,320	7,864,290	11,650,800
		Community fund contributions per MWh	EUR/MWh	2	2	2
		Annual community fund contributions	EUR/year	46,603,200	52,428,600	58,254,000
		% of annual community fund contributions captured by MPAs	%	10%	15%	20%

Legend:**Input to calculation**

Output of calculation

Final output: Estimated annual MPA funding

Rationale/Comments	Source
	Calculation based on other inputs
The Irish Government's target in the Climate Action Plan 2023 is to achieve 7GW (7,000MW) capacity of installed offshore wind by 2030	https://www.energyireland.ie/esb-stands-ready-to-deliver-renewable-offshore-wind-energy-for-ireland/
According to IEA, new offshore wind projects have capacity factors of 40%-50%	https://www.iea.org/reports/offshore-wind-outlook-2019 https://www.gov.ie/en/press-release/7bae6-coastal-and-marine-communities-hosting-offshore-wind-projects-to-benefit-from-up-to-20-million-per-year/
	Calculation based on other inputs
Typical contractual availability is 95% for offshore wind	https://onlinelibrary.wiley.com/doi/epdf/10.1002/we.2011
	Calculation based on other inputs
In Ireland, renewable electricity generation (RESS) project owners are required to contribute €2 per MWh (megawatt hour) of generated electricity annually into a community fund for the RESS contract period i.e. the first 15 years of operation	https://www.seai.ie/community-energy/ress/community-benefit-funds/ https://knockshanvowindfarm.ie/community/
	Calculation based on other inputs
The funds support projects focused on the following 7 themes: education and skills, health, safety, and well-being, environment and habitat conservation, energy efficiency and sustainability, culture and heritage, recreation, sport and social inclusion, and tourism. Assuming equal distribution of funding among themes, funding for marine conservation is around 15%	https://windfarmcommunityfunds.ie/faqs/

Table A4.2.2. Tourism tax/fee – sizing calculation

Step #	Step description	Step inputs /components	Unit	Min	Mid	Max
1	Estimate annual hotel and other short stay accommodation bednights in Ireland		Bednights/year	29,530,645	29,530,645	29,530,645
		Bednights spent by residents	Bednights/year	14,766,465	14,766,465	14,766,465
		Bednights spent by non-residents	Bednights/year	14,764,180	14,764,180	14,764,180
2	Estimate annual government revenue from new tourism tax		EUR/year	29,530,645	44,295,968	59,061,290
		Ecotourism tax in the form of overnight stay tax (charged per person per night)	EUR/bednight	1.0	1.5	2.0
3	Estimate annual MPA funding from tourism tax in Ireland		EUR/year	2,953,065	8,859,194	17,718,387
		% of Ireland's ecotourism tax revenue allocated for marine protection	%	10%	20%	30%

Legend:**Input to calculation**

Output of calculation

Final output: Estimated annual MPA funding

Rationale/Comments	Source
A bednight is a measure of occupancy of one person assigned to one bed for one night. Using pre-COVID (2019) data for most accurate estimate	Calculation based on other inputs
Based on Eurostat data	https://ec.europa.eu/eurostat/databrowser/view/tour_occ_ninat/default/table?lang=en
Based on Eurostat data	https://ec.europa.eu/eurostat/databrowser/view/tour_occ_ninat/default/table?lang=en
	Calculation based on other inputs
Conservative range based on a sensitivity analysis of tourism tax in various EU countries as a % of respective daily rate of the lodging industry (mainly hotels)	https://www.portugal-accounting.com/post/tourist-tax-in-portugal
	Calculation based on other inputs
Reference: the Protected Areas Conservation Trust (PACT) has charged a tourism tax in the form of conservation fee to all tourists upon their departure from Belize, and 30% of the programmes PACT has financial commitment for are marine protection related	https://www.sciencedirect.com/science/article/abs/pii/S0308597X18300617

Table A4.2.3. Blue Carbon (voluntary market) – sizing calculation

Step #	Step description	Step inputs/components	Unit	Min	Mid	Max
1	Estimate the total annual carbon capture potential of blue ecosystems within Ireland's MPAs		tCO ₂ /year	14,555	22,145	29,736
1A	Estimate the annual carbon capture potential of seagrass within Ireland's MPAs		tCO ₂ /year	5,976	11,431	16,885
1Ai	Estimate the annual carbon sequestration of seagrass within Ireland's MPAs		tCO ₂ /year	2,321.4	2,321.4	2,321.4
		Total coverage of seagrasses in Irish waters	ha	6,200	6,200	6,200
		% of seagrass coverage located within MPAs in Ireland		30%	30%	30%
		Average annual carbon sequestration rate of seagrass	tCO ₂ /ha/year	1.25	1.25	1.25
1Aii	Estimate the annual avoided loss of carbon of seagrass within Ireland's MPAs		tCO ₂ /year	3,654.9	9,109.4	14,563.8
		Total coverage of seagrasses in Irish waters	ha	6,200	6,200	6,200
		Annual rate of seagrass loss	%	1.5%	1.5%	1.5%
		% of seagrass coverage located within MPAs in Ireland	%	30%	30%	30%
		Carbon standing stock of seagrass	tCO ₂ /ha	131	327	522
1B	Estimate the annual carbon capture potential of saltmarshes within Ireland's MPAs		tCO ₂ /year	8,579	10,715	12,851
1Bi	Estimate the annual carbon sequestration of saltmarshes within Ireland's MPAs		tCO ₂ /year	7,156.5	7,156.5	7,156.5
		Total coverage of saltmarshes in Irish waters	ha	10,000	10,000	10,000
		% of saltmarsh coverage located within MPAs in Ireland		30%	30%	30%
		Average annual carbon sequestration rate of saltmarsh	tCO ₂ /ha/year	2.39	2.39	2.39
1Bii	Estimate the annual avoided loss of carbon of saltmarshes within Ireland's MPAs		tCO ₂ /year	1,422	3,558	5,694
		Total coverage of saltmarshes in Irish waters	ha	10,000	10,000	10,000
		Annual rate of saltmarsh loss	%	0.2%	0.2%	0.2%
		% of saltmarsh coverage located within MPAs in Ireland		30%	30%	30%
		Carbon standing stock of saltmarsh	tCO ₂ /ha	237	593.0	949

Legend:

Input to calculation

Output of calculation

Final output: Estimated annual MPA funding

Rationale/Comments	Source
	Calculation based on other inputs
	Calculation based on other inputs
	Calculation based on other inputs
Based on Coastwatch data	http://coastwatch.org/europe/wp-content/uploads/2019/07/CW_Seagrass_Report_June_2019.pdf
Assuming equal distribution of seagrass	Assumption
Referencing the rate in the German Baltic Coast; may be little optimistic	https://www.frontiersin.org/articles/10.3389/fclim.2022.810343/full
Based on Coastwatch data	http://coastwatch.org/europe/wp-content/uploads/2019/07/CW_Seagrass_Report_June_2019.pdf
Referencing the rate in UK. Assumption that of the seagrass in MPAs (30%), MPA management prevents the standard 1.5% annual loss	https://www.sciencedirect.com/science/article/pii/S2212041618300536?via%3Dihub
Assuming equal distribution of seagrass	Assumption
Based on Pendleton report data	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0043542
	Top meter sediment+biomass
	Calculation based on other inputs
	Calculation based on other inputs
Based on Marine Institute Blue Carbon report	https://oar.marine.ie/bitstream/handle/10793/1685/Blue%20Carbon%20in%20Irish%20Waters%20and%20Coastal%20Habitats_Marine%20Institute%20Report_May%202021.pdf?sequence=3&isAllowed=y
Assuming equal distribution of saltmarsh	Assumption
Referencing the rate in Eastern England	https://royalsocietypublishing.org/doi/10.1098/rsbl.2018.0773
	Calculation based on other inputs
Based on Marine Institute Blue Carbon report	https://oar.marine.ie/bitstream/handle/10793/1685/Blue%20Carbon%20in%20Irish%20Waters%20and%20Coastal%20Habitats_Marine%20Institute%20Report_May%202021.pdf?sequence=3&isAllowed=y
Referencing the rate in UK	https://media.mcsuk.org/documents/BlueCarbon_Report.pdf
Assuming equal distribution of saltmarsh	Assumption
Based on Pendleton report data	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0043542
	Top meter sediment+biomass

Table A4.2.3. Blue Carbon (voluntary market) – sizing calculation *cont.*

Step #	Step description	Step inputs/components	Unit	Min	Mid	Max
2	Estimate annual revenue from blue carbon credits		EUR/year	364,162	523,293	661,323
		Voluntary blue carbon credits price	EUR/tCO ₂	27.80	27.80	27.80
		Share of carbon credits placed in the buffer pool (not sold)	%	10%	15%	20%
3	Estimate annual costs of carbon credit monetization		EUR/year	33,646	33,646	33,646
3A	Estimate annual costs of carbon credit monetization for seagrass		EUR/year	12,877	12,877	12,877
		Total carbon credit monetization costs (OPEX + CAPEX ammortized)	EUR/ha/year	7	7	7
		Carbon credit monetization costs - OPEX	EUR/ha/year	5	5	5
		Amortized CAPEX costs	EUR/ha/year	2	2	2
		Total number of years to amortize restoration cost	years	26	26	26
		Carbon credit monetization costs - CAPEX	EUR/ha	50	50	50
		Total coverage of seagrass in MPAs	ha	1,860	1,860	1,860
		% of seagrass coverage located within MPAs in Ireland	%	30%	30%	30%
		Total coverage of seagrasses in Irish waters	ha	6,200	6,200	6,200
3B	Estimate annual costs of carbon credit monetization for seagrass		EUR/year	20,769	20,769	20,769
		Total carbon credit monetization costs (OPEX + CAPEX ammortized)	EUR/ha/year	7	7	7
		Carbon credit monetization costs - OPEX	EUR/ha/year	5	5	5
		Amortized CAPEX costs	EUR/ha/year	2	2	2
		Total number of years to amortize restoration cost	years	26	26	26
		Carbon credit monetization costs - CAPEX	EUR/ha	50	50	50
		Total coverage of seagrass in MPAs	ha	3,000	3,000	3,000
		% of saltmarsh coverage located within MPAs in Ireland	%	30%	30%	30%
		Total coverage of saltmarshes in Irish waters	ha	10,000	10,000	10,000
4	Estimated annual MPA funding from blue carbon in Ireland		EUR/year	330,516	489,647	627,677

Legend:**Input to calculation**

Output of calculation

Final output: Estimated annual MPA funding

Rationale/Comments	Source
Based on data of recent blue carbon credit transaction and expert input	https://www.green.earth/news/landmark-auction-of-250-000-tonne-blue-carbon-credits-at-usd-27.80-per-tonne
Contributions to the pool as insurance are either a standard flat rate that may be subject to change (i.e. 20% for Gold Standard) or determined on a risk-adjusted basis by project with minimum thresholds set by registries (i.e. Verra >10%)	https://www.sylvera.com/blog/carbon-credit-buffer-pools
Assumes that costs of conservation are part of general MPA management costs	Calculation based on other inputs
	Calculation based on other inputs
	Calculation based on other inputs
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Amortizing between 2024-2050	Assumption
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Assuming equal distribution of seagrass	Assumption
Based on Coastwatch data	http://coastwatch.org/europe/wp-content/uploads/2019/07/CW_Seagrass_Report_June_2019.pdf
	Calculation based on other inputs
	Calculation based on other inputs
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Amortizing between 2024-2050	Assumption
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Assuming equal distribution of saltmarsh	Assumption
Based on Marine Institute Blue Carbon report	https://oar.marine.ie/bitstream/handle/10793/1685/Blue%20Carbon%20in%20Irish%20Waters%20and%20Coastal%20Habitats_Marine%20Institute%20Report_May%202021.pdf?sequence=3&isAllowed=y
Revenues (step 2) minus costs (step 3)	Calculation based on other inputs

Table A4.2.4. Blue Carbon (compliance market) – sizing calculation

Step #	Step description	Step inputs/components	Unit	Min	Mid	Max
1	Estimate the total annual carbon capture potential of blue ecosystems within Ireland's MPAs		tCO ₂ /year	14,555	22,145	29,736
1A	Estimate the annual carbon capture potential of seagrass within Ireland's MPAs		tCO ₂ /year	5,976	11,431	16,885
1Ai	Estimate the annual carbon sequestration of seagrass within Ireland's MPAs		tCO ₂ /year	2,321.4	2,321.4	2,321.4
		Total coverage of seagrasses in Irish waters	ha	6,200	6,200	6,200
		% of seagrass coverage located within MPAs in Ireland		30%	30%	30%
		Average annual carbon sequestration rate of seagrass	tCO ₂ /ha/year	1.25	1.25	1.25
1Aii	Estimate the annual avoided loss of carbon of seagrass within Ireland's MPAs		tCO ₂ /year	3,654.9	9,109.4	14,563.8
		Total coverage of seagrasses in Irish waters	ha	6,200	6,200	6,200
		Annual rate of seagrass loss	%	1.5%	1.5%	1.5%
		% of seagrass coverage located within MPAs in Ireland	%	30%	30%	30%
		Carbon standing stock of seagrass	tCO ₂ /ha	131	327	522
1B	Estimate the annual carbon capture potential of saltmarshes within Ireland's MPAs		tCO ₂ /year	8,579	10,715	12,851
1Bi	Estimate the annual carbon sequestration of saltmarshes within Ireland's MPAs		tCO ₂ /year	7,156.5	7,156.5	7,156.5
		Total coverage of saltmarshes in Irish waters	ha	10,000	10,000	10,000
		% of saltmarsh coverage located within MPAs in Ireland		30%	30%	30%
		Average annual carbon sequestration rate of saltmarsh	tCO ₂ /ha/year	2.39	2.39	2.39
1Bii	Estimate the annual avoided loss of carbon of saltmarshes within Ireland's MPAs		tCO ₂ /year	1,422	3,558	5,694
		Total coverage of saltmarshes in Irish waters	ha	10,000	10,000	10,000
		Annual rate of saltmarsh loss	%	0.2%	0.2%	0.2%
		% of saltmarsh coverage located within MPAs in Ireland		30%	30%	30%
		Carbon standing stock of saltmarsh	tCO ₂ /ha	237	593.0	949

Legend:

Input to calculation

Output of calculation

Final output: Estimated annual MPA funding

Rationale/Comments	Source
	Calculation based on other inputs
	Calculation based on other inputs
	Calculation based on other inputs
Based on Coastwatch data	http://coastwatch.org/europe/wp-content/uploads/2019/07/CW_Seagrass_Report_June_2019.pdf
Assuming equal distribution of seagrass	Assumption
Referencing the rate in the German Baltic Coast; may be little optimistic	https://www.frontiersin.org/articles/10.3389/fclim.2022.810343/full
Based on Coastwatch data	http://coastwatch.org/europe/wp-content/uploads/2019/07/CW_Seagrass_Report_June_2019.pdf
Referencing the rate in UK. Assumption that of the seagrass in MPAs (30%), MPA management prevents the standard 1.5% annual loss	https://www.sciencedirect.com/science/article/pii/S2212041618300536?via%3Dihub
Assuming equal distribution of seagrass	Assumption
Based on Pendleton report data	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0043542
	Top meter sediment+biomass
	Calculation based on other inputs
	Calculation based on other inputs
Based on Marine Institute Blue Carbon report	https://oar.marine.ie/bitstream/handle/10793/1685/Blue%20Carbon%20in%20Irish%20Waters%20and%20Coastal%20Habitats_Marine%20Institute%20Report_May%202021.pdf?sequence=3&isAllowed=y
Assuming equal distribution of saltmarsh	Assumption
Referencing the rate in Eastern England	https://royalsocietypublishing.org/doi/10.1098/rsbl.2018.0773
	Calculation based on other inputs
Based on Marine Institute Blue Carbon report	https://oar.marine.ie/bitstream/handle/10793/1685/Blue%20Carbon%20in%20Irish%20Waters%20and%20Coastal%20Habitats_Marine%20Institute%20Report_May%202021.pdf?sequence=3&isAllowed=y
Referencing the rate in UK	https://media.mcsuk.org/documents/BlueCarbon_Report.pdf
Assuming equal distribution of saltmarsh	Assumption
Based on Pendleton report data	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0043542
	Top meter sediment+biomass

Table A4.2.4. Blue Carbon (compliance market) – sizing calculation *cont.*

Step #	Step description	Step inputs/components	Unit	Min	Mid	Max
2	Estimate annual revenue from blue carbon credits		EUR/year	1,309,935	1,882,349	2,378,859
		EU compliance market	EUR/tCO ₂	100	100	100
		Share of carbon credits placed in the buffer pool (not sold)	%	10%	15%	20%
3	Estimate annual costs of carbon credit monetization		EUR/year	33,646	33,646	33,646
3A	Estimate annual costs of carbon credit monetization for seagrass		EUR/year	12,877	12,877	12,877
		Total carbon credit monetization costs (OPEX + CAPEX amortized)	EUR/ha/year	7	7	7
		Carbon credit monetization costs - OPEX	EUR/ha/year	5	5	5
		Amortized CAPEX costs	EUR/ha/year	2	2	2
		Total number of years to amortize restoration cost	years	26	26	26
		Carbon credit monetization costs - CAPEX	EUR/ha	50	50	50
		Total coverage of seagrass in MPAs	ha	1,860	1,860	1,860
		% of seagrass coverage located within MPAs in Ireland	%	30%	30%	30%
		Total coverage of seagrasses in Irish waters	ha	6,200	6,200	6,200
3B	Estimate annual costs of carbon credit monetization for seagrass		EUR/year	20,769	20,769	20,769
		Total carbon credit monetization costs (OPEX + CAPEX amortized)	EUR/ha/year	7	7	7
		Carbon credit monetization costs - OPEX	EUR/ha/year	5	5	5
		Amortized CAPEX costs	EUR/ha/year	2	2	2
		Total number of years to amortize restoration cost	years	26	26	26
		Carbon credit monetization costs - CAPEX	EUR/ha	50	50	50
		Total coverage of seagrass in MPAs	ha	3,000	3,000	3,000
		% of saltmarsh coverage located within MPAs in Ireland	%	30%	30%	30%
		Total coverage of saltmarshes in Irish waters	ha	10,000	10,000	10,000
4	Estimated annual MPA funding from blue carbon in Ireland		EUR/year	1,276,289	1,848,703	2,345,212

Legend:**Input to calculation**

Output of calculation

Final output: Estimated annual MPA funding

Rationale/Comments	Source
Based on EU Compliance market data and expert input	https://tradingeconomics.com/commodity/carbon
Contributions to the pool as insurance are either a standard flat rate that may be subject to change (i.e. 20% for Gold Standard) or determined on a risk-adjusted basis by project with minimum thresholds set by registries (i.e. Verra >10%)	https://www.sylvera.com/blog/carbon-credit-buffer-pools
Assumes that costs of conservation are part of general MPA management costs	Calculation based on other inputs
	Calculation based on other inputs
	Calculation based on other inputs
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Amortizing between 2024-2050	Assumption
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Assuming equal distribution of seagrass	Assumption
Based on Coastwatch data	http://coastwatch.org/europe/wp-content/uploads/2019/07/CW_Seagrass_Report_June_2019.pdf
	Calculation based on other inputs
	Calculation based on other inputs
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Amortizing between 2024-2050	Assumption
Based on proprietary data of Blue Nature Alliance partner	Proprietary data of Blue Nature Alliance partner
	Calculation based on other inputs
Assuming equal distribution of saltmarsh	Assumption
Based on Marine Institute Blue Carbon report	https://oar.marine.ie/bitstream/handle/10793/1685/Blue%20Carbon%20in%20Irish%20Waters%20and%20Coastal%20Habitats_Marine%20Institute%20Report_May%202021.pdf?sequence=3&isAllowed=y
Revenues (step 2) minus costs (step 3)	Calculation based on other inputs

List of Acronyms

AOI	Area of Interest	NBS	Nature Based Solution
BC	British Columbia	NCA	Natural Capital Accounting
BCE	Blue Carbon Ecosystem	NCFF	Natural Capital Finance Facility
Blue SOS	Blue Sustainable Ocean Strategy	NCS	Natural Climate Solution
CAPEX	Capital Expenditure	NGO	Nongovernmental organisation
CBC	CrossBorder Cooperation	NPWS	National Parks and Wildlife Service
CFO	Chief Financial Officer	NRL	Nature Restoration Law
COGS	Costs of goods sold	NTMA	National Treasury Management Agency
COP	United Nations Climate Change Conference	ODA	Official Development Assistance
DCF	Data Collection Framework	OECM	Other effective area based conservation measures
DMAP	Designated Maritime Area Plan	OPEX	Operating Expenditure
EEZ	Exclusive Economic Zone	ORE	Offshore Renewable Energy
EF	Environmental Fund	OREDPA	Offshore Renewable Energy Development Plan
EIB	European Investment Bank	PA	Protected areas
EMFAF	EU Maritime, Fisheries, and Aquaculture Fund	PDP	Peru's Natural Legacy
ENI	European Neighbourhood Instrument	PFP	Project Finance for Permanence
ESB	Electricity Supply Board	PPP	Public Private Partnerships
ESG	Environmental, Social, Governance	RESS	Renewable Electricity Support Scheme
EU	European Union	RISEE	Reinvesting in Shoreline Economies and Ecosystems
FM	Financing mechanism	SAC	Special Areas of Conservation
FTE	Full Time Equivalent	SBEP	Sustainable Blue Economy Partnership
GBF	Global Biodiversity Framework	SDG	Sustainable Development Goal
GBSS	Green, Blue, Sustainability and Sustainability-linked	SPA	Special Protection Areas
GDP	Gross Domestic Product	SPE	Special Purpose Entity
GHG	Greenhouse Gas	SSCO	Sitespecific conservation objectives
GVA	Gross value added	TNC	The Nature Conservancy
HAC	High Ambition Coalition	UK	United Kingdom
HR	Human Resources	UNDP	United Nations Development Programme
IIFB	International Indigenous Forum on Biodiversity	USA	United States of America
IPLC	Indigenous Peoples and Local Communities	VAT	Value Added Tax
ISGB	Irish Sovereign Green Bond	WEF	World Economic Forum
JBE	Japan Blue Economy Association	WI	WAITT Institute
MPA	Marine Protected Area	WWF	World Wildlife Fund
MSP	Marine Spatial Planning		

FAIR SEAS

At Fair Seas, we seek to protect, conserve and restore Ireland's unique marine environment. Our ambition is to see Ireland become a world leader in marine protection, giving our species, habitats and coastal communities the opportunity to thrive.

Fair Seas aims to build a movement of ocean stewardship across Ireland that energises and empowers people, to advocate for ambitious and robust legislation, provide impartial scientific data and research, and propose a network of effective well-managed marine protected areas.

The Fair Seas campaign is led by a coalition of Ireland's leading environmental non-governmental organisations and networks.

