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BIODIVERSITY CONSERVATION & RESEARCH STRATEGY 2022-2026

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Dublin Bay Biosphere Partnership

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United Nations Educational, Scientific and Cultural Organization

Dublin Bay Biosphere Reserve since 2015 Man and the Biosphere Programme

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1 INTRODUCTION

1.1 Aims & Scope

The Dublin Bay Biosphere (DBB) received its designation from the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in June 2015, following a periodic review of the pre-existing North Bull Island UNESCO Biosphere (DCC, 2014).

The Dublin Bay Biosphere Partnership (DBBP) was established to facilitate the functions of the DBB. It comprises Dublin City Council (DCC), Dublin Port Company (DPC), Dún Laoghaire-Rathdown County Council (DLRCC), Fáilte Ireland (FI), Fingal County Council (FCC) and the National Parks & Wildlife Service (NPWS) of the Department of Housing, Local Government and Heritage. The DBBP works with scouting and community groups, NGOs, local businesses, third level institutions and schools.

The preparation and implementation of the Dublin Bay Biosphere Biodiversity Conservation and Research Strategy 2022-2026 is an objective of the Periodic Review of the North Bull Island UNESCO Biosphere (DCC, 2014), which states:

> ***"Develop and implement a five-year Conservation Programme for key sites and species within the Biosphere."***

This document sets out the planned biodiversity conservation and related research actions of the DBBP from 2022-2026. It aims, firstly, to provide a coordinated framework for biodiversity conservation and research activities to be undertaken by the DBBP and; secondly, to provide clarity regarding these planned activities to all stakeholders within the DBB. It builds on the themes and objectives set out in the Periodic Review of the North Bull Island UNESCO Biosphere (DCC, 2014), which sets out the following vision statement:

> ***"Our vision is to celebrate and promote a wider appreciation of the natural and cultural heritage of Dublin Bay, to capture the inherent passion of the community for the Biosphere concept and for the Dublin Bay Biosphere to be an exemplar for a new wave of Biospheres in the world network."***

1.2 Policy Background

Biospheres contribute to the implementation of the Sustainable Development Goals (SDGs) of the United Nations Development Programme and Multilateral Environmental Agreements, including the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity and the Aichi Biodiversity Targets.

The policy framework to guide the UNESCO Man and the Biosphere (MAB) Programme and the World Network of Biosphere Reserves is provided by the MAB Strategy 2015-2025 and associated Lima Action Plan 2016-2025 (UNESCO, 2016a). The Strategic Objectives set out in the MAB Strategy 2015-2025 are to:

1. Conserve biodiversity, restore and enhance ecosystem services, and foster the sustainable use of natural resources.
2. Contribute to building sustainable, healthy and equitable societies, economies and thriving human settlements in harmony with the Biosphere.
3. Facilitate biodiversity and sustainability science, education for sustainable development and capacity building.

4. Support mitigation and adaptation to climate change and other aspects of global environmental change.

Biospheres are 'Science for Sustainability support sites' - places for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity (UNESCO, 2016b).

This Dublin Bay Biosphere Biodiversity Conservation and Research Strategy 2022-2026, and the consultation process underpinning it, is aligned with the Lima Action Plan, and the following actions in particular:

- **A1.4.** Use Biospheres as priority sites/observatories for climate change research, monitoring, mitigation and adaptation, including in support of the UNFCCC COP21 Paris Agreement.
- **A1.6.** Undertake research and ensure the long-term conservation of the socio-ecological systems of Biospheres, including the restoration and appropriate management of degraded ecosystems.
- **A4.1.** Establish partnerships with universities/research institutions to undertake research, especially UNESCO Chairs and Centres.
- **A4.4.** Identify and disseminate good practices for sustainable development, and identify and eliminate unsustainable practices in Biospheres.
- **A4.5.** Encourage managers, local communities and Biosphere stakeholders to collaborate in designing and implementing projects that inform the management and sustainable development of their Biosphere.

Furthermore, the Convention on Biological Diversity, signed by Ireland in 1992, required the preparation of a National Biodiversity Plan. Ireland's National Biodiversity Plan 2017-2021 requires Local Authorities to review and update their Biodiversity and Heritage Action Plans. The objectives of this Dublin Bay Biosphere Biodiversity Conservation and Research Strategy 2022-2026 are in line with those of the relevant Local Biodiversity Action Plans of DCC, DLRCC and FCC.

1.3 Periodic Review Process

The Biosphere designation must be re-evaluated through the periodic review process every 10 years. The periodic review examines the functioning, zoning, and scale of the Biosphere as well as the involvement of the populations living in the site. Periodic reviews must be prepared by the concerned authority and submitted to the UNESCO MAB Secretariat for consideration by the Advisory Committee for Biosphere Reserves for recommendation to the International Co-ordinating Council. Following the periodic review of the pre-existing North Bull Island Biosphere (DCC, 2014), a periodic review of DBB will be prepared by the DBBP and submitted in 2024.

1.4 The Planning, Development & Local Policy Context

The Biosphere designation itself brings no new regulations; its aims are achieved by people working together within the existing national and international legislative framework.

Development in the DBB is subject to an existing comprehensive legislative and policy planning framework implemented by all levels of government. The Biosphere is an internationally recognised designation which does not alter these existing frameworks. The DBBP is not a planning reference body involved in land use planning decisions or discussions. While it remains neutral on individual developments, the DBBP may make information available to inform evidence-based discussion, where appropriate.

While the designation of the DBB brings no new regulations, DBB has been integrated into local policy. Actions to support the objectives of the DBB have been incorporated into the Development Plans for DLR, FCC and DCC, the Climate Change Action Plans for the Dublin Local Authorities (Codema, 2016) and Local Biodiversity Action Plans.

1.5 Key Sites & Themes

The Periodic Review of North Bull Island UNESCO Biosphere (DCC, 2014) identified key sites (Fig. 1.1) and themes for the Dublin Bay Biosphere. The key sites are as follows:

- Baldoyle Bay
- Ireland's Eye
- Howth Head
- North Dublin Bay including North Bull Island
- Tolka Estuary
- South Dublin Bay
- Dalkey Islands

The designation status of the key sites is presented in Table 1.1. The key sites are designated as Special Protection Areas (SPAs) and/or Special Areas of Conservation (SACs) under the EU Birds Directive (2009/147/EC) and Habitats Directive (92/43/EEC) respectively. The Birds and Habitats Directives are transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011-2021, the Wildlife Acts 1976 to 2021 and, in part, by the Planning and Development Act 2000, as amended.

A relatively small portion of the Rockabill to Dalkey Island SAC is also located within the DBB. Its qualifying interests (i.e. the protected habitats and species for which the site was designated) are Reefs and Harbour Porpoise (Phocoena phocoena).

With a resident population of over 330,000 people (DCC, 2014), DBB is one of few highly urbanised Biospheres in the world. It is the world's only Biosphere to include substantial areas of a capital city. The presence of species and habitats of high conservation importance within and in close proximity to highly urbanised areas resulted in the following key themes being identified during the periodic review process (DCC, 2014):

- Island and coastal biodiversity
- Urban resilience and urbanisation impacts on ecosystem services
- Climate change and conservation of species and habitats
- Conservation of rare species to preserve local landscape histories

1.6 Management Zonation

Biospheres contain three interrelated zones, with differing management objectives, which aim to fulfil three complementary and mutually reinforcing functions (Figure 1):

1. The core zone consists of a strictly protected ecosystem that contributes to the conservation of landscapes, ecosystems, species and genetic variation. The key sites listed in Section 1.5 comprise the core zone of DBB, which covers 50 km^2.

2. The buffer zone surrounds or adjoins the core zone. It is managed to support the objectives of the core zone. Scientific research, monitoring, training, education and other environmentally sustainable activities are encouraged here. The buffer zone of DBB consists of 82 km^2 of public and private green spaces such as parks and greenbelts.
3. The transition zone is where the greatest level of economic and development activity takes place. Sustainable social and economic development is strongly promoted here (UNESCO, 2016b). The transition zone of DBB comprises 173 km^2 and includes residential neighbourhoods, harbours, ports and industrial and commercial areas.

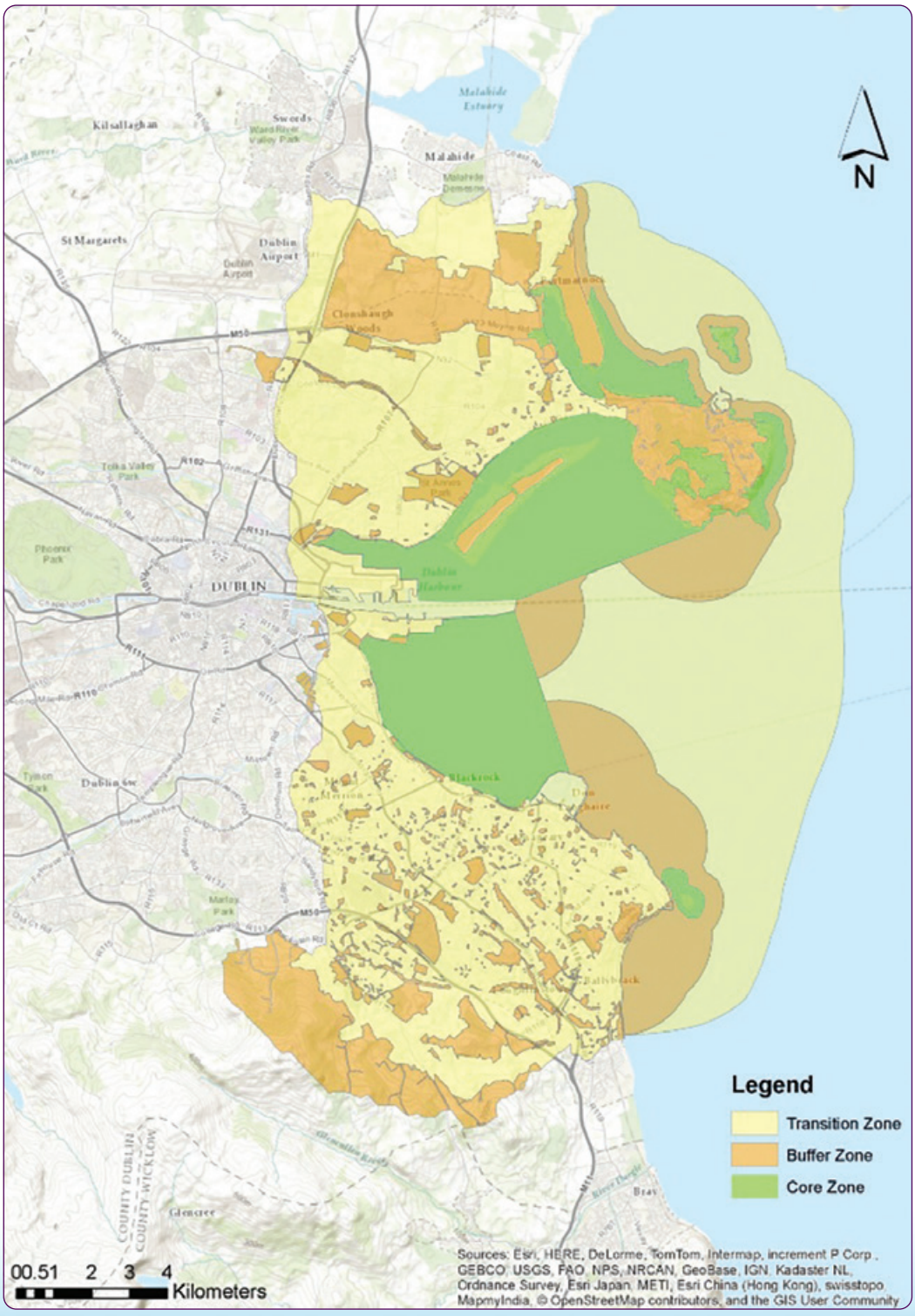

Figure 1: *Zonation map of Dublin Bay Biosphere.*

Table 1.1
Current Status of Conservation Objectives & Management Planning for Key Sites

Site	Designation						Conservation Objectives		Management Planning
	SAC	SPA	pNHA	NNR	SAAO	Ramsar Wetland	Site-specific	Generic	
Ireland's Eye	√	√	√				SAC (2017)	SPA (2016)	Ireland's Eye Management Plan 2018-2022
Howth Head	√	√	√		√		SAC (2016)	SPA (2016)	Howth SAAO Operational Plan 2021-2025
North Dublin Bay & North Bull Island	√	√	√	√	√	√	SAC (2013) SPA (2015)		North Bull Island Management Plan 2020-2025
Dalkey Islands	√	√	√				SAC (2013)	SPA (2016)	Dalkey Islands Conservation Plan 2013-2023
Baldoyle Bay	√	√	√	√		√	SAC (2012) SPA (2013)		
South Dublin Bay & River Tolka Estuary	√	√	√			√	SAC (2013) SPA (2015)		

1.7 Management planning

The existing Biodiversity Action Plans published by local authorities within DBB are as follows:

- Dublin City Biodiversity Action Plan 2021-2025
- Dun Laoghaire-Rathdown Biodiversity Plan 2021-2025
- Fingal Biodiversity Action Plan 2022-2030

The status of site-specific conservation management planning, including the setting of conservation objectives, for key sites is summarised in Table 1.1. Site-specific conservation objectives have been developed by DHLGH for all SACs and three SPAs within the DBB. Generic conservation objectives are available for the remaining three SPAs, namely Ireland's Eye SPA, Howth Head Coast SPA and Dalkey Island SPA. Site-specific management or conservation plans have been developed by the relevant local authorities for the Howth Special Amenity Area (SAAO), Irelands Eye, the Dalkey Islands and North Bull Island. At present, conservation management plans are not in place for Baldoyle Bay and South Dublin Bay, including the River Tolka Estuary.

1.8 Qualifying interests of SACs and SPAs

The qualifying interests of SACs and SPAs (i.e. the EU protected habitats and species for which the sites were designated) within DBB are presented in Tables 1.2 and 1.3 respectively. Site-specific conservation objectives have been or are due to be developed for these qualifying interests. Qualifying interests applicable to two or more SACs or SPAs have been highlighted to assist in identifying shared conservation priorities.

It should be noted that while other EU protected habitats and species may be present within these SACs and SPAs, they are not necessarily considered qualifying interests for the designation of the site, e.g. the Marsh Fritillary butterfly (Euphydryas aurinia) is listed on Annex II of the EU Habitats Directive and occurs on North Bull Island, but is not listed as a qualifying interest of the North Dublin Bay SAC.

Figure 2: *Dry Heathland and scrub at Redrock on Howth (Howth Head SAC).*

Table 1.2
Qualifying Interests of SACs within Dublin Bay Biosphere

Qualifying Interests	Ireland's Eye	Howth Head	Baldoyle Bay	North Dublin Bay	S. Dublin Bay & River Tolka Estuary	Rockabill - Dalkey Island
HABITATS						
1140 Mudflats & Sandflats			√	√	√	
1170 Reefs						√
1210 Annual Vegetation of Drift Lines				√		
1220 Perennial Vegetation of Stony Banks	√					
1230 Vegetated Sea Cliffs	√	√				
1310 Salicornia & Other Annuals Colonising Mud & Sand			√	√	√	
1330 Atlantic Salt Meadows			√	√		
1410 Mediterranean Salt Meadows			√	√		
2110 Embryonic Shifting Dunes				√		
2120 Shifting Dunes Along the Shoreline with White Dunes *(Ammophila Arenaria)*				√		
*2130 Fixed Coastal Dunes with Herbaceous Vegetation (Grey Dunes)				√		
2190 Humid Dune Slacks				√		
4030 European Dry Heaths		√				
SPECIES						
1351 Harbour Porpoise *(Phocoena Phocoena)*	√	√	√	√	√	√
1395 Petalwort *(Petalophyllum Ralfsii)*	√	√	√	√	√	√

** Denotes a priority habitat*

While qualifying interests are important in establishing priorities for conservation management in the core zones, it must be remembered that there are numerous other habitats and species present within DBB which are of conservation value. Nationally, regionally or locally rare species may not be listed under the Annexes of the Habitats and Birds Directives but may be very important in the context of DBB. For example, the Gannet *(Morus Bassanus)* is not listed under the Annexes of the Birds Directive but the combined Gannet colony on Ireland's Eye and Lambay, is one of only six in Ireland (Grecian et al. 2012), is nationally important. The knowledge of local authority staff, NGOs, volunteer recorders and professional ecologists is invaluable in identifying conservation priorities that are outside the focus of the SAC and SPA network.

Table 1.3
Qualifying Interests of SPAs within Dublin Bay Biosphere

Features of Interest	Ireland's Eye	Howth Head	Baldoyle Bay	North Dublin Bay	S. Dublin Bay & R. Tolka Estuary	Dalkey Island
A017 Cormorant *(Phalacrocorax Carbo)*	√					
A046 Light-Bellied Brent Goose *(Branta Bernicla Hrota)*			√	√	√	
A048 Shelduck *(Tadorna Tadorna)*			√	√		
A052 Teal *(Anas Crecca)*				√		
A054 Pintail *(Anas Acuta)*				√		
A056 Shoveler *(Anas Clypeata)*				√		
A130 Oystercatcher *(Haematopus Ostralegus)*				√	√	
A137 Ringed Plover *(Charadrius Hiaticula)*			√		√	
A140 Golden Plover *(Pluvialis Apricaria)*			√	√		
A141 Grey Plover *(Pluvialis Squatarola)*			√	√	√	
A143 Knot *(Calidris Canutus)*				√	√	
A144 Sanderling *(Calidris Alba)*				√	√	
A149 Dunlin *(Calidris Alpina)*				√	√	
A156 Black-Tailed Godwit *(Limosa Limosa)*				√		
A157 Bar-Tailed Godwit *(Limosa Lapponica)*			√	√	√	
A160 Curlew *(Numenius Arquata)*				√		
A162 Redshank *(Tringa Totanus)*				√	√	
A169 Turnstone *(Arenaria Interpres)*				√		
A179 Black-Headed Gull *(Chroicocephalus Ridibundus)*				√	√	
A184 Herring Gull *(Larus Argentatus)*	√					
A188 Kittiwake *(Rissa Tridactyla)*	√	√				
A192 Roseate Tern *(Sterna Dougallii)*					√	√
A193 Common Tern *(Sterna Hirundo)*					√	√
A194 Arctic Tern *(Sterna Paradisaea)*					√	√
A199 Guillemot *(Uria Aalge)*	√					
A200 Razorbill *(Alca Torda)*	√					
A999 Wetland & Waterbirds			√	√	√	

2 PREPARATION OF DBB BIODIVERSITY CONSERVATION & RESEARCH STRATEGY 2022-2026

This strategy is the second Conservation and Research strategy that has been prepared by the DBBP. The first strategy covered the period 2016-2020 and mainly focussed on undertaking field survey work to increase our understanding of the plants and wildlife that occur within the Bay and aid with the preparation of management plans for some of the designated sites. This new strategy will focus on undertaking practical nature conservation measures throughout Dublin Bay and increasing our understanding of the flora and fauna of the marine environment of the Bay. The lack of Dublin Bay wide actions has been raised over the years and this strategy addresses this issue by identifying several Dublin Bay wide actions that the DBBP will pursue over the next 5 years.

2.1 Actions & Implementation

Biodiversity conservation and research actions have been identified by the partnership for key sites and the wider Biosphere and are presented in Tables 2.1 to 2.9 below. For each action, specific objectives, target habitats/species/taxonomic groups and responsible agencies and suggested timelines have been identified.

The conservation and research projects are presented in order of priority based on the following criteria:

- The greatest need for action for a threatened site, habitat or species
- The capability of DBBP to implement a given action
- The likelihood of success given known constraints and opportunities

Figure 3: *Moon Jellyfish in Dublin Bay. © copyright Nigel Moyter.*

In total, there are 74 actions to be delivered, of which 39 relate to conservation management actions and 35 to research. The conservation management actions deal with the main issues affecting key sites and relate to the preparation and implementation of management plans and practical conservation activities. The research actions include numerous field studies, the results of which will give DBBP improved understanding of the biodiversity of DBB. The ultimate aim of the field studies is to support the development of a spatial database, identifying key habitats, flora sites, nesting sites, roosting sites, feeding sites etc. for a wide range of species, which will be instrumental in good conservation planning and decision-making. The field studies will also provide baseline data against which future monitoring results can be compared to evaluate the conservation management of DBB.

Table 2.1
Site-Specific Biodiversity Conservation & Research Actions for Ireland's Eye

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Implement conservation actions in management plan for Ireland's Eye SAC/SPA.	To manage the pathway network on the island, install ropes and signage near seabird colonies, remove litter and invasive species.	Birds, flora, mammals	FCC, BWI, DNFC, NPWS, ISS, landowner, boat operators	2022-2026
2	Introduce grazing in Ireland's Eye.	To manage the rank vegetation on the island.	Bramble, nettles and hogweed	FCC, Goat Society	2022
RESEARCH					
3	Conduct study of impact of recreational use on breeding bird colonies.	To assess the impact of recreational usage on seabird colonies and identify potential visitor routes to avoid disturbing seabird colonies.	Seabirds, particularly gulls	FCC, BWI	2022

Figure 4: *It is proposed to graze Ireland's Eye to establish whether it can be made more attractive to breeding seabirds.*

Table 2.2
Site-Specific Biodiversity Conservation & Research Actions for Baldoyle Bay

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Develop ecological management plans for golf courses.	To enhance the biodiversity value of the golfcourse.	Sand dune vegetation	FCC & golfcourses	2022-2023
2	Prepare masterplan for the Mayne and Turnapin Rivers and immediate surroundings.	To protect and enhance the nature conservation and recreational value of the Mayne River corridor.	Flora and fauna of river habitats	FCC, DCC, IFI, IWT, NPWS, BWI, local community groups	2023
3	Prepare and implement masterplan for Baldoyle Estuary SAC/SPA.	To protect and enhance the nature conservation and recreational value of the area.	Migratory birds including Terns; Meadow Barley *(Hordeum Secalinum),* Borrer's Saltmarsh Grass *(Puccinellia Fasciculata)*	FCC, BWI, CWI, NPWS, DNFC, local community groups	2024
4	Remove Sea-buckthorn *(Hippophae Rhamnoides)* from dunes at Portmarnock.	To prevent the spread of this invasive non-native species and restore native dune vegetation.	Sand dune vegetation	FCC & golfcourse	2025
RESEARCH					
5	Conduct an ecological study of the Mayne and Turnapin Rivers.	To determine which species of flora and fauna can be found along the river, the conservation status of the river and what works are required to restore the river to good ecological status.	Flora and fauna of river habitats	FCC, DCC, IFI, IWT, NPWS, BWI, local community groups	2022
6	Conduct repeat study of winter bird use of lands adjacent to the estuary every 2-3 years.	To identify and protect roosting and feeding sites.	Wintering wildfowl and waders	FCC, BWI	2022
7	Conduct feasibility study for bird conservation projects at the tip of Portmarnock dunes.	To assess the potential for reinstatement of a Little Tern and Ringed Plover colony.	Little Tern *(Sterna Albifrons)*, Ringed Plover *(Charadrius Hiaticula)*	FCC, BWI, golf clubs	2023
8	Conduct detailed bat survey.	To determine which bat species occur there.	All bats	FCC, BCI	2023

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
9	Conduct botanical survey and monitor cattle grazing impacts at Racecourse Park.	To determine the response of the flora to grazing and select the most appropriate form of grazing management.	Flora	FCC	2024
10	Monitor breeding birds annually and monitor cattle grazing impacts at Racecourse Park.	To determine the response of birdlife to grazing and select the most appropriate form of grazing management.	Breeding birds	FCC, BWI	Ongoing

Figure 5: *The sports pitches at the Racecourse Park next to Baldoyle Bay is an important feeding site for overwintering migratory birds such Light-bellied Brent Geese.*

Table 2.3
Site-Specific Biodiversity Conservation & Research Actions for Howth Head

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Run 3-year goat grazing trial and monitor results.	To assess the effects of grazing the wildfire breaks, gorse vegetation and heathland vegetation.	Dry Heath, Old Irish goat	FCC, Goat Society	2021-2023
2	Implement wildfire strategy.	To manage the fires on Howth Head and reduce their impact on land holdings and wildlife.	Dry heath	FCC, Fire Brigade, Howth SAAO Committee, landowners, NPWS	2022-2026
3	Control invasive alien species.	To prevent the spread of invasive alien species and protect native biodiversity.	Rhododendron *(Rhododendron Ponticum),* Hottentot fig *(Carpobrotus Edulis)* and other garden escapees	FCC, CVI, DNFC, NPWS	2022-2026
4	Develop woodland management plan Howth Demesne.	To manage and rejuvenate the woodlands at Howth Demesne within the Howth Head SAC.	Woodland	FCC, Tetrarch & SAAO committee	2022
5	Develop Management Plan for Howth Head SAC/SPA.	To protect and enhance the nature conservation and recreational value of the SAC & SPA.	Dry Heath, sea cliffs, woodland, wetland	FCC, SAAO committee, NPWS, landowners	2023
6	Implement wetland study recommendations.	To restore key wetlands and stream on Howth with a key focus on the Bog of Frogs, Nose of Howth and Kilrock quarry.	Wetlands	FCC	2023-2026
RESEARCH					
7	Conduct bryophyte study in wetland areas.	To describe the bryophyte flora of the wetland areas and determine if species of conservation importance are present.	Bryophytes	FCC, NPWS, Consultant bryologist	2023
8	Conduct newt and frog survey of wetlands.	To establish baseline condition of newts and frog populations in Howth wetlands.	Common Frog *(Rana Temporaria)*	FCC, HSI	2023
9	Oral history project on heathland farming on Howth in the last 100 years.	To give a historical context for the heathland management on Howth.	Dry Heath	FCC & SAAO committee	2023

Figure 6: *A herd of goats with a herder was introduced in 2021 to graze the wildfire breaks on Howth.*

Table 2.4
Site-Specific Biodiversity Conservation & Research Actions for Dublin Port

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Install and maintain nesting rafts for breeding terns.	To provide additional nesting opportunities and improve the conservation status of the tern population.	Common Tern *(Sterna Hirunda)*, Arctic Tern *(S. Paradisaea)*	DPC, BWI	2022-2026
2	Use pollinator-friendly species in planting at Dublin Port Centre.	To provide food for pollinators, promoting pollinator conservation in line with the All-Ireland Pollinator Plan (NBDC, 2020).	Insect pollinators	DPC	2022-2026
RESEARCH					
3	Continue breeding tern colony monitoring including colour-ringing and re-sighting in Dublin Port and Tolka Estuary.	To evaluate the success of conservation management actions and investigate movement of birds between areas.	Common Tern *(Sterna Hirunda)*, Arctic Tern *(S. Paradisaea)*	DPC, BWI, NPWS	2022-2026

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
4	Continue tern flock monitoring on Sandymount Strand.	To generate data on tern numbers, identify trends over time and evaluate the success of conservation management actions.	Common Tern *(Sterna Hirunda)*, Arctic Tern *(S. Paradisaea)*	DPC, BWI, NPWS	2022-2023
5	Continue researching the effects of human-related activities on waterbirds at Sandymount Strand.	To determine the effects of human-related activities on the behaviour and distribution of wintering waterbirds.	Waterbirds	DPC, BWI, NPWS	2022-2023
6	Facilitate EcoEngineering research on sea walls in Dublin Port.	To enhance native biodiversity on artificial structures.	Marine biodiversity	DPC, UCD	2022-2025

Figure 7: *Counting Tern nests on dolphin in Dublin Port. © copyright Brian Burke.*

Table 2.5
Site-Specific Biodiversity Conservation & Research Actions for South Dublin Bay and the Tolka Estuary

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Prepare a conservation management plan for South Dublin Bay.	To protect and enhance the biodiversity of the area in balance with its amenity functions.		DCC, NPWS, DBBP, DLRCC, SDCC	2024
2	Conduct control of the Invasive American Mink *(Neovison Vison)* along the Tolka River.	Control American Mink numbers.	American Mink	DHLHG, DCC	2022-2025
3	Continue researching the effects of human-related activities on waterbirds and the seagrass beds at Sandymount Strand.	To determine the effects of human-related activities on the behaviour and distribution of wintering waterbirds and the distribution of the seagrass beds.	Waterbirds, Seagrass *(Zostera Spp.)*	DCC, CWI	2022
4	Investigate the potential for a seagrass *(Zostera Spp.)* restoration project at Sandymount and Merrion Gates.	Protect sites that have conservation value for biodiversity using evidence-based research.	Seagrass *(Zostera Spp.)*	Third level, CWI	2024-2025
5	Monitor and prepare report on the seagrass *(Zostera Spp.)* beds at Sandymount and Merrion Gates to inform conservation management of this area.	To protect sites that have conservation value for biodiversity using evidence-based research.	Seagrass *(Zostera Spp.)*	DCC, DBBP, NPWS, NUIG, CWI	2023
6	Investigate detection and monitoring of IAS species using eDNA in combination with biological survey approaches in aquatic habitats in accordance with the NBAP.	To protect biodiversity from Invasive Alien Species using evidence-based research.	Invasive Alien Species	DHLGH, UCD, DCC, NPWS	2022

Figure 8: *Scientists from National University of Ireland Galway conducting scientific research at Dublin Bay. © Anthony Woods.*

Table 2.6
Site-Specific Biodiversity Conservation & Research Actions for North Bull Island

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Implement the North Bull Island Nature Reserve Action Plan.	Conservation of the island's biodiversity in balance with the island's amenity functions.	See Appendix I for full list of actions in the North Bull Island Nature Reserve Action Plan	DBBP, NPWS, NBI Oversight Forum	2022-2026
2	Remove and control of Sea-buckthorn on Bull Island, with regard to the Wildlife Act and sensitive habitats.	To eradicate invasive alien species to protect designated sites for nature conservation in Dublin City.	Dunes, dune grassland, dune slacks	DCC, NPWS, volunteers	Ongoing on an annual basis

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
3	Remove and control invasive alien species identified in *The Flora and Vegetation of North Bull Island.*	To eradicate invasive alien species to protect designated sites for nature conservation in Dublin City.	See Appendix II for full species lists	DCC, NPWS, volunteers	Ongoing on an annual basis
4	Develop and deliver a dog owner outreach and education programme.	To develop a code of practice to prevent disturbance to wildlife.	Short-term: Grey seal *(Halichoerus Grypus),* Common seal *(Phoca Vitulina),* birds Long-term: Irish Hare *(Lepus Timidus Hibernicus)* and potentially Little Tern *(Sterna Albifrons)*	DCC, Dogs Trust, ISS, BWI, NPWS, NBI Oversight Forum	2023
5	Conduct seal post-mortems, where appropriate.	To identify cause of death.	Grey seal *(Halichoerus Grypus),* Common seal *(Phoca Vitulina)*	DCC, NPWS, ISS, UCD	As app-ropriate
6	Continue to support the volunteer programme on North Bull Island.	To empower citizens to take positive action for biodiversity and promote the ecological and cultural importance of the island to fellow site users.	Various	DBBP, NBIV, BIAG, DAG, NGOs, CVI, DNFC	2022-2026
7	Produce and install improved signage at NBI Nature reserve.	To highlight the importance of the habitats, flora and fauna of NBI and encourage conservation of the site.	Various	DCC	2023
8	Conduct systematic survey of breeding bird populations on NBI, targeting .	To establish range of breeding bird species and abundance data for each breeding species on NBI.	Little Terns *(Sternula Albifrons),* Ringed Plover *(Charadrius Hiaticula),* Skylark *(Alauda Arvensis)* and Meadow Pipit *(Anthus Pratensis).*	DHLGH, DCC, BWI	2022
9	Update wildlife impact surveys on North Bull Island.	Monitor and conserve legally-protected species using evidence-based research.	Grey seal *(Halichoerus Grypus),* Harbour seal *(Phoca Vitulina),* waterbirds	DBBP, BWI, HSI	2023-2025

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
		RESEARCH			
10	Conduct biodiversity surveys on NBI golf courses and implement measures for biodiversity.	Identify and protect sites that have conservation value for biodiversity using evidence-based research.	Various	DNFC, NGOs	2023-2024
11	Continue to conduct long-term annual monitoring of Marsh Fritillary.	To develop detailed, evidence-based, site-specific management recommendations.	Marsh Fritillary *(Euphydryas Aurinia)*	DCC, NPWS, NBDC	Ongoing
12	Continue to support student research programmes at North Bull Island.	Protect designated sites for nature conservation in accordance with the Conservation Management objectives for Natura 2000 sites and proposed Natural Heritage Areas in Dublin City.	Various	DCC, Third level	2022-2026
13	Prepare and publish *The Flora of Bull Island.*	To map, classify and describe the island's flora and disseminate the findings.	Flora, including FPO species Lesser Centaury *(Centaurium Pulchellum)*	DCC, DNFC	2024

Figure 9: *North Bull Island Nature Reserve is the most designated site for biodiversity nationally and supports nine habitats and numerous protected species.*

Table 2.7
Site-Specific Biodiversity Conservation & Research Actions for Dalkey Islands

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Erect signage at appropriate locations.	To communicate responsible recreational practices to visitors and provide interpretation.	Birds, seals	DLRCC	2022
2	Support Roseate Tern project - post EU Life funding which expires 2021.	To supplement the gap in funding left from the EU Life project. To improve the conservation status of the tern population and pay for Tern Warden.	Artic Tern *(Sterna paradisaea),* Common Tern *(Sterna hirundo),* Roseate tern *(Sterna dougallii)*	BWI, DLRCC	Ongoing
3	Continue tern nesting monitoring and produce annual reports.	To maintain a sustainable tern population on the islands.	Artic Tern *(Sterna paradisaea),* Common Tern *(Sterna hirundo),* Roseate tern *(Sterna dougallii)*	BWI, DLRCC, NPWS	Ongoing
4	Investigate alternative tern nesting sites and take appropriate action.	To provide additional nesting opportunities and improve the conservation status of the tern population.	Artic Tern *(Sterna paradisaea),* Common Tern *(Sterna hirundo),* Roseate tern *(Sterna dougallii)*	BWI, DLRCC, NPWS	Ongoing
5	Minimalist intervention in vegetation management.	To maintain the island's vegetation. Control of bracken. Survey bird nesting in bracken.	Semi-natural grassland, dense bracken, granite outcrops, rocky shores, seacliffs	DLRCC	Ongoing
6	Eradicate the brown rat *(Rattus norvegicus)* on the Dalkey Islands.	To reduce predation on birds.	Breeding birds, particularly terns	DLRCC	Ongoing
7	Annual monitoring and management of rabbits on Dalkey Island.	To maintain island habitats and vegetation and to protect the goats. Also to improve visitor access and halt deterioration of ground due to rabbit burrows.	Habitats, flora and goats	DLRCC	Ongoing
RESEARCH					
8	Conduct a study of rabbit damage to Dalkey Island habitats.	To maintain island habitats and vegetation and to protect the goats.	Habitats, flora and goats	DLRCC	2022-2024

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
9	Monitor vegetation every 5 years.	To identify trends in vegetation composition over time.	Semi-natural grassland, dense bracken, granite outcrops, rocky shores, seacliffs, Bird's-foot Clover *(Trifolium Ornithopodioides)*, Western Clover *(T. Occidentale)*, Rough Clover *(T. Scabrum)*	DLRCC	Ongoing every 5 years - next 2023
10	Conduct repeat monitoring of visitor numbers and behaviour.	To assess the impact of visitors to the island on breeding birds, habitats and goats and to install a footfall counter.	Birds and habitats	DLRCC	Ongoing
11	Conduct annual monitoring of bird species.	To identify trends over time and inform site management.	Birds	DLRCC, BWI	Ongoing

Figure 10: *Common tern at Dalkey Island.*

Table 2.8
Site-Specific Biodiversity Conservation & Research Actions for Dun Laoghaire-Rathdown County

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
CONSERVATION MANAGEMENT					
1	Review and update Management Plan (including surveys) for Killiney Hill and Roches Hill.	To protect and enhance the nature conservation and recreational value of the area.	Dry Heath, sea cliffs, woodland, wetland	DLRCC, NPWS, landowners	2022
2	Produce woodland management plans for Loughlinstown Woods pNHA and Fitzsimons Woods pNHA.	To inform biodiversity management.	Annex Habitats and protected species such as newts	DLRCC	2022-2025
3	Prepare a Management Plan for Shanganagh Cliffs (including surveys).	To manage the ongoing threat of climate change and any coastal protection pressures. To protect the nesting Sand martin colony and Annex Tufa Springs habitat.	Coastal grassland, nesting Sand Martins, Tufa Springs	DLRCC, NPWS	2022- 2025
4	Liaise with DLR Parks to produce a wildfire management strategy plan for Roches Hill pNHA.	To manage the threat of fires on Roches Hill and reduce their impact on land holdings and wildlife.	Dry heath	DLRCC Parks, Fire Brigade, landowners, NPWS	2023-2025
5	Locate and remove or control invasive species posing a threat to biodiversity on DLRCC land.	To prevent the spread of invasive alien species and protect native biodiversity.	Giant Hogweed *(Heracleum Mantegazzianum),* Japanese Knotweed *(Reynoutria Japonica),* Three cornered Leek *(Allium Triquetrum),* American Skunk Cabbage *(Lysichiton Americanus),* Himalayan Balsam *(Impatiens Glandulifera)*	DLRCC, DHLGH	Ongoing

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
			RESEARCH		
6	Conduct bryophyte studies at Killiney and Dalkey.	To determine if old records of species of conservation importance are extant.	*Microbryum Starckeanum, Campyliadelphus Elodes, Leptodontium Flexifolium, Scleropodium Touretii, Tortula Atrovirens, T. Lanceola, T. Wilsonii, Weissia Longifolia Var. Angustifolia*	DLRCC, NPWS, Consultant bryologist	2022
7	Update 2009 DLRCC report on available biodiversity data on the coastal zone, identify areas for further study.	To determine the current state of knowledge and identify research needs	Coastal habitats and species	DLRCC, DBBCWG	2023
8	Establish the current status and distribution of EU Habitats Directive Annex II species.	To inform conservation management.	Lamprey, Atlantic Salmon, Grey Seal, Harbour Porpoise, Bottlenose Dolphin, Otter surveys completed in 2019	DLRCC, NPWS, IWDG, ISS	2022-2025
9	Collate all available data on the status and distribution of target bird species.	To inform conservation management.	Birds species of conservation concern (red and amber-listed), EU Birds Directive Annex I and migratory species, other regionally important species	DLRCC, NPWS, BWI	2022-2023
10	Monitor Killiney Hill Red Squirrel population as part of ongoing conservation project (commenced 2011).	To identify trends over time and inform management.	Red Squirrel *(Sciurus Vulgaris)*	DLRCC, UCD	Ongoing
11	Establish baseline information regarding other Red Squirrel populations within DLR area of DBB.	To provide baseline data on abundance and distribution and inform management.	Red Squirrel *(Sciurus Vulgaris)*	DLRCC, UCD	Ongoing

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved	Timeline
12	Identify and map locally important biodiversity areas for habitats and species and update as necessary.	To inform biodiversity management.	Annex Habitats, new pollinator areas or created habitats, small wetlands, woodlands, grasslands etc.	DLRCC	Ongoing
13	Complete the Ecological Network Map of DLR and update as necessary.	To inform biodiversity management.	Protected areas, Annex habitats, locally important biodiversity areas, pollinator areas, wildlife corridors	DLRCC	Ongoing
14	Complete surveys of important species that are not Annex species.	To inform biodiversity management.	Badgers, hedgehogs, invertebrates etc.	DLRCC	Ongoing

Figure 11: *Birdwatching at Booterstown Marsh.*

Table 2.9
Biodiversity Conservation & Research Actions at the Dublin Bay Biosphere Scale

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved *(Lead Agency in Bold)*	Timeline
CONSERVATION MANAGEMENT					
1	To prepare a strategy for the management of Brent Goose feeding and roosting sites outside designated sites.	To identify how to manage ex situ sites for Light-bellied Brent Geese and to prepare management guidelines for grasslands used by Brent Geese.	Light-bellied Brent Geese *(Branta Bernicla Hrota)*	IBGRG, NPWS, DCC, DLRCC, **FCC**, BWI	2022-2023
2	Produce signage highlighting the presence of Brent geese and the impact of disturbance.	To protect Light-bellied Brent geese from being disturbed at key roosting and feeding sites.	Brent Geese and other waders & wildfowl	DLRCC, DCC, **FCC**, NPWS and BWI	2022-2023
3	Create a database and map of the feeding and roosting sites of Light-bellied Brent Geese within Co. Dublin.	To inform development and protect sites of conservation value for the Light-bellied Brent Geese *(Branta Bernicla Hrota).*	Light-bellied Brent Geese *(Branta Bernicla Hrota)*	DBBP, DLRCC, **FCC**, UoE, IBGRG	2022-2023
4	Develop and implement a list of marine ecosystem research and restoration projects.	To identify the current status of marine ecosystems in Dublin Bay and to assess the impact of shellfish harvesting, razorshell fishing and bait digging in DBB.	Shellfish beds, former oysterbeds, sea grass stands, fish	DBBP, DCC, DLRCC, **FCC**, DPC, NPWS, MI, UCD, TCD, NUIG	2023-2026
5	Conduct a bay-wide grey seal *(Halichoerus Grypus)* tagging and monitoring survey.	To identify haul-out and breeding sites, feeding and foraging behaviour, and temporal and spatial distribution.	Grey seal *(Halichoerus Grypus)*	DBBP, DCC, DLRCC, DPC, **FCC**, NPWS, ISS	2024
6	Conduct Common Cord-grass monitoring, focusing on Baldoyle Bay, North Bull Island, and Sandymount and Merrion Gates.	To determine the extent of Common Cord-grass in both estuaries.	Common Cordgrass *(Spartina Anglica)*	FCC, **DCC**, NPWS, NBDC	2024
RESEARCH					
7	Develop an agreed approach to recording seal mortality within Dublin Bay.	Agree methodology for recording seal mortality.	Grey Seal *(Halichoerus Grypus)* & Common seal *(Phoca Vitulina)*	DBBP, **DCC**, ISS, SRI, NPWS	2022
8	Assess causes and impacts of Ectocarpus brown algal growth in Dublin Bay.	To determine the change in extent of Ectocarpus over time, verify the species requiring management, and test various management techniques.	Ectocarpus *(Ectocarpus Siliculosus)*	**NUIG**, DCC	2022-2023

No.	Action	Objective	Target Groups, Species & Habitats	Agencies Involved *(Lead Agency in Bold)*	Timeline
9	Ecological impact study of recreational use of Dublin Bay.	To identify impact of recreational use (hiking, jet ski's, boating, fishing, swimming, diving & kayaking) on the ecology of Dublin Bay and to identify gaps in current knowledge and recommend list of further studies.	Breeding/ wintering birds, rare/protected flora, seals, otters, Harbour Porpoise	DBBP, **DCC**, **DLRCC**, DPC, **FCC**, NPWS, BWI, ISS, IWT, Consultants	2023-2025
10	Prepare a bibliography and online repository of published and grey literature on DBB.	To provide a comprehensive overview of existing information available and make data and reports publicly available.		**DBBP**, DCC, DLRCC, DPC, FCC, NPWS	2023-2026
11	Update the 2018 grey seal and common seal census of Dublin Bay.	To provide update on seal numbers of Dublin Bay.	Grey Seal *(Halichoerus Grypus)* & Common seal *(Phoca Vitulina)*	DBBP, **DCC**, ISS, NPWS	2025
12	Compile and publish a list of relevant Citizen Science opportunities in DBB.	To support research by encouraging participation by citizens in data gathering, where appropriate.	Coastal and wetland habitats and species, invasive alien species	**DBBP**, NGOs, community groups	Ongoing
13	Compile and publish a list of relevant volunteering opportunities in DBB.	To encourage participation in conservation management volunteering.	Coastal habitats, rivers, invasive alien species	**DBBP**, NGOs, community groups	Ongoing
14	Monitor the emerging lagoon and saltmarsh development at Merrion Strand.	To determine whether coastal changes are occurring at the southern end of Merrion Strand to inform management.	Coastal habitats	**DLRCC**, **DCC**, Universities, NGOs	2023-2024

Figure 12: *The Biosphere Partnership wishes to conduct a bay-wide grey seal tagging and monitoring survey. © Nigel Motyer.*

3 FUNDING & RESEARCH PARTNERSHIPS

DCC, DLRCC, DPC and FCC have committed a total of €90,000 per annum to the core budget of DBBP. In addition, it is estimated that the member organisations of DBBP will spend over 2 million euros from 2022 to 2026 in implementing the actions set out in Section 2. The costs of the Dublin Bay wide actions (approx. €500,000) are to be funded through the Biosphere partnership.

While DBBP and/or its member organisations will fund the majority of the actions set out in Section 2, not all of the actions to be undertaken can be financed in this way, particularly the larger-scale actions. DBBP seeks to partner with other organisations to co-fund these actions or develop funding applications for suitable research projects. In line with Action A4.1 of the Lima Action Plan 2016-2025, there is significant potential to establish partnerships with universities and research institutions, either through student projects or by jointly developing funding proposals for new projects. Potential sources of funding for biodiversity research and conservation management projects include, but are not limited to, the EU LIFE Programme, INTERREG, Horizon 2020, the Environmental Protection Agency, the Irish Research Council, the Heritage Council, Community Gain Funds and the Local Agenda 21 Community Environment Action Fund. To promote the establishment of research partnerships, DBBP can provide the following supports (subject to budgetary and staff time constraints):

- Cross-disciplinary networking for researchers and policymakers
- Funding/co-funding for research that meets the objectives of DBBP
- Non-financial support e.g. staff time, hosting events, promotional support, research communication opportunities
- Letters of support for relevant funding applications/awards
- Links with the UNESCO World Network of Biosphere Reserves and associated research consortia
- Potential to incorporate research into local policy and site management
- Access to datasets held by DBBP and/or or its member organisations

Monitoring Progress

The DBB Conservation Working Group proposes to meet annually to review the DBBP's progress in implementing the Dublin Bay Biosphere Biodiversity Conservation and Research Strategy.

4 ABBREVIATIONS

BCI	Bat Conservation Ireland
BWI	Birdwatch Ireland
COP21	Conference of Parties 21 (also known as the 2015 Paris Climate Conference)
CVI	Conservation Volunteers Ireland
CWI	Coastwatch Ireland
DHLGH	Department of Housing, Local Government and Heritage
DBB	Dublin Bay Biosphere
DBBCWG	Dublin Bay Biosphere Conservation Working Group
DBBP	Dublin Bay Biosphere Partnership
DCC	Dublin City Council
DLRCC	Dún Laoghaire-Rathdown County Council
DNFC	Dublin Naturalists' Field Club
DPC	Dublin Port Company
EPA	Environmental Protection Agency
FCC	Fingal County Council
FI	Fáilte Ireland
FPO	Flora Protection Order
GIS	Geographic Information Systems
HSI	The Herpetological Society of Ireland
IFI	Inland Fisheries Ireland
ISS	The Irish Seal Sanctuary
IWDG	Irish Whale and Dolphin Group
IWT	The Irish Wildlife Trust
LAWCO	Local Authorities Waters and Communities Office
MAB	Man and the Biosphere Programme (of UNESCO)
NBDC	National Biodiversity Data Centre
NGOs	Non-Governmental Organisations
NNR	National Nature Reserve
NPWS	National Parks and Wildlife Service (of DAHRRGA)
pNHA	Proposed Natural Heritage Area
SAAO	Special Amenity Area Order
SACs	Special Areas of Conservation
SPAs	Special Protection Areas
SRI	Seal Rescue Ireland
UCD	University College Dublin
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change

5 REFERENCES

Codema (2016) A Strategy Towards Climate Change Action Plans for the Dublin Local Authorities. Dublin City Council, Dún Laoghaire-Rathdown County Council, Fingal County Council, South Dublin County Council, Dublin.

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DCC (2016) Dublin City Development Plan 2016-2022. Dublin City Council, Dublin.

DCC (2019) Dublin City Parks Strategy 2019-2022. Dublin City Council, Dublin.

Department of Culture, Heritage and the Gaeltacht (2017) National Biodiversity Plan. Dublin.

DLRCC (2021) Dun Laoghaire-Rathdown Biodiversity Action Plan 2021-2025. Dún Laoghaire-Rathdown County Council, Dún Laoghaire.

DLRCC (2014) Dalkey Islands Conservation Plan 2014-2024. Dún Laoghaire-Rathdown County Council, Dún Laoghaire.

DLRCC (2022) Dun Laoghaire-Rathdown County Development Plan 2022-2028. Dún Laoghaire-Rathdown County Council, Dún Laoghaire.

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UNESCO (2016a) Lima Action Plan for UNESCO's Man and Biosphere Programme and its World Network of Biosphere Reserves 2015-2025. United Nations Educational, Scientific and Cultural Organisation, Paris.

UNESCO (2016b) Biosphere Reserves - learning sites for sustainable development. United Nations Educational, Scientific and Cultural Organisation, Paris. www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves Accessed December 1st 2016.

Site synopses and conservation objectives for SACs and SPAs in DBB are available from:
https://www.npws.ie/protected-sites

APPENDIX I:
ACTIONS FROM THE *NORTH BULL ISLAND NATURE RESERVE ACTION PLAN 2020-2025*

1	Continue an evidence-based approach to management of the Nature Reserve by supporting research and monitoring of species and habitats.
2	Plan for the integrated management between North Bull Island Nature Reserve and the other designated sites within the Dublin Bay UNESCO Biosphere Reserve, through the implementation of the Dublin Bay Biosphere Biodiversity Conservation and Research Strategy.
3	To support ongoing hydrology studies to inform management of the island's dune slack habitats.
4	Carry out mapping of the extent of the saltmarsh every 5 years.
5	Implement a 5-year strategy to control sea buckthorn using established best-practice methodologies.
6	Carry out a survey of Common Cordgrass to inform a future management strategy.
7	Engage with St Anne's Golf Club to survey their boundary and propose a fencing solution.
8	Manage the northern end of North Bull Island as a refuge for wildlife by dissuading and restricting public access from this area all year round.
9	Protect important bird roosting and feeding areas on the salt marsh by restricting public access west of the golf courses all year round.
10	Permit dogs to be allowed off-leash on the southern part of the beach from the Causeway to the Bull Wall, outside of the bathing season.
11	Require dogs to be kept on-leash on all parts of dune system and the northern section of the beach all year round.
12	Support the Dublin Bay UNESCO Biosphere Partnership to undertake a Dublin Bay wide seal tagging study.
13	Collaborate with sports/recreational bodies to include provisions for responsible behaviour towards wildlife into recreational codes of practice.
14	Implement a signage and communications strategy for the island that reinforces its status as a National Nature Reserve, promotes sensitive habitats and species and encourages responsible behaviour.
15	Continue beach maintenance in line with the Blue Flag standard, promote the 'Leave no Trace' policy to visitors and continue to support the Bull Island Action Group to keep the island litter free.
16	Monitor traffic levels to the island and promote walking, cycling and public transport.
17	In accordance with the ethos of the UNESCO Biosphere designation, Dublin City Council will establish an Oversight Forum to guide and monitor the implementation of this Nature Reserve Action Plan 2020-2025.
18	Devise a public engagement programme with users of the island to inform a zoning plan, which will minimise recreational disturbance and impacts on wildlife.
19	Continue support for a Volunteer Programme that facilitates the local community to participate in conservation activities and to share their knowledge and passion with visitors to the island.
20	Progress the planning for an accessible Interpretive Centre for education, interpretation, visitor management and research to support the nature conservation objectives of North Bull Island Nature Reserve, the vision of the Dublin Bay UNESCO Biosphere and the goals of UNESCO.

APPENDIX II:
INVASIVE ALIEN SPECIES LIST DETAILED IN TABLE 17 IN THE *FLORA & VEGETATION OF NORTH BULL ISLAND, DUBLIN BAY (2020)*

Phase	Species	Priority	Comment
1	*Hippophae Rhamnoides*	Highest	Eradicate from island.
1	*Carpobrotus Edulis*	High	Extinct on island? Monitor and remove immediately if found.
1	*Lathyrus Latifolius*	High	Eradicate from island.
1	*Clematis Vitalba*	High	Eradicate from island.
1	*Phormium Tenax*	High	Eradicate from island.
1	*Cotoneaster Spp*	High	Eradicate from island.
1	*Calystegia Silvatica*	High	Eradicate from island.
1	*Fallopia Baldschuanica*	High	Eradicate from island.
1	*Syringa Vulgaris*	High	Eradicate from island.
1	*Centranthus Ruber*	High	Eradicate from island.
1	*Crocosmia X Crocosmiiflora*	High	Eradicate from island.
1	*Cordyline Australis*	High	Eradicate from island.
1	*Berberis Sp.*	High	Eradicate from island.
2	*Aesculus Hippocastanum*	Medium	Extinct on island? Monitor and remove immediately if found.
2	*Cupressus Macrocarpa*	Medium	Cut down.
2	*Acer Pseudoplatanus*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Malva Arborea*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Salix Fragilis S.l.*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Quercus Ilex*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Ulmus Cf. Procera*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Armoracia Rusticana*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Iris Foetidissima*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Petasites Pyrenaicus*	Medium	Eradicate; in short term, monitor and remove if spreading.
2	*Oenothera Cambrica*	Medium	Eradicate; in short term, monitor and remove if spreading.
3	*Rosa Rugosa*	Low	Monitor and remove if spreading.
3	*Malus Domestica*	Low	Monitor and remove if spreading.
3	*Juglans Regia*	Low	Monitor and remove if spreading.
3	*Salix Viminalis*[1]	Low	Monitor and remove if spreading.
3	*Linaria Purpurea*	Low	Remove - dig up plants.
3	*Lepidium Draba*	Low	Remove - dig up plants.
3	*Narcissus Spp*	Low	Remove - dig up bulbs.
3	*Hyacinthoides Hispanica*	Low	Remove - dig up bulbs.
3	*Hyacinthoides X Massartiana*	Low	Remove - dig up bulbs.

[1] *Potentially native in Ireland, although not on North Bull Island.*


BITHSFÉIR
Chuan Bhaile Átha Cliath
Dublin Bay
BIOSPHERE