

North Bull Island Nature Reserve

Action Plan 2020-2025 for the Implementation of Management Objectives



**Parks, Biodiversity and Landscape Services
Dublin City Council**

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Introduction

North Bull Island is nestled along the northern edge of Dublin Bay. It is a low-lying sandy spit, with Dollymount Strand on the seaward side of the Island, and salt marsh fringing its mainland side. Between the Island and the mainland are intertidal mud and sandflats. The Island is connected to the mainland at two locations, by Causeway Road and the Wooden Bridge. It is a dynamic environment that is continually changing. It is the only site on the east coast of Ireland where sand dunes are accreting

The fact that the Island, and its 5km beach, is within a capital city and close to the City Centre, makes it a unique and important public amenity. The Island is estimated to cater for up to 1.4 million visitors a year, including walkers, bathers, beachgoers, bird-watchers, nature enthusiasts, kite-surfers and many other interest groups from the local area. There are also two golf courses located on the Island, St Anne's Golf Club and the Royal Dublin Golf Club.

The Island is also visited by schools, universities and visitors, from Ireland and abroad, who are keen to experience the accessible examples of ecological succession between nationally and internationally important habitats, and to understand the intricate stories which sets the North Bull Island Nature Reserve at the heart of a UNESCO Biosphere Reserve, and part of a world network of Biosphere Reserves.

The Island and Nature Reserve are managed by the Parks, Biodiversity and Landscape Services of Dublin City Council, in collaboration with the National Parks and Wildlife Service. Dublin City Council's vision for North Bull Island as first stated in the 'North Bull Island Management Plan, 2001' is "*to conserve the environmental qualities and scientific importance of the Island, while balancing its amenity and recreational potential for the benefit of the local community and visitors*". This vision is still valid today.

In 2009, 'A Management Plan for North Bull Island' was published in compliance with the National Special Amenity Area Order. This set out in comprehensive detail the management issues which were perceived as the challenge to maintaining the conservation status of the island.

<https://www.dublincity.ie/sites/default/files/content/RecreationandCulture/DublinCityParks/VisitaPark/Documents/North%20Bull%20Island%20Management%20Plan%20Final.pdf>)

This report summarises -

- work that has been done to date to address the issues raised in the 2009 Plan,
- current status of each management issue,
- future actions that are intended to achieve long-standing conservation management objectives up to 2025.

Flora and Fauna

The conservation designations for the island and surrounding wetlands (Ramsar) are well documented in the 2009 Management plan and other published work so it is not intended to repeat that information in detail in this report. It is sufficient to state that the importance of the Island was first acknowledged in 1914 and since then it has accumulated the most conservation designations of any site on the island of Ireland.

The Island supports nine habitats and a range of species protected under the EU Habitats Directive, including Petalwort (*Petalophyllum ralfsii*) a species of liverwort, Marsh Fritillary Butterfly, two species of seal (Harbour and Grey), and at least three species of bat (Common Pipistrelle, Soprano Pipistrelle, and Leisler's). In addition, the Island supports three bryophyte (moss) species, (*Bryum intermedium*, *Bryum uliginosum*, and *Bryum warneum*) and one species of plant, Lesser Centaury (*Centaureum pulchellum*), which are legally-protected under the Flora (Protection) Order, 2015.

The Island is recognised by Bird Life International as a key part of the East Atlantic Flyway for migrant birds travelling from the Canadian Arctic to the Mediterranean region and Africa. It also supports a range of overwintering wildfowl and wading birds protected under the EU Birds Directive. Three species regularly occur in internationally important numbers during the winter period (Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit), with a further fourteen species regularly occurring in nationally important numbers (Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Grey Plover, Golden Plover, Knot, Sanderling, Dunlin, Curlew, Redshank, Turnstone and Black-headed Gull). The Island also supports significant numbers of birds during the summer period, with some species occurring in nationally important numbers. The Island also supports species which migrate between Ireland and Africa and breed in Ireland such as sand martins, swifts and swallows.

The following is a list of studies, surveys and reports which have been carried out since the 2009 Management Plan and which inform the new Action Plan.

- Conservation Objectives: North Dublin Bay SAC, 2013 by NPWS
 - Sets out the attributes, measures and targets for the conservation of the site's Qualifying Interests.
- Evaluation of the Status of Native Herpetofauna on North Bull Island, 2014-2016 by Herpetological Society of Ireland, commissioned by DCC.
 - Significant populations of common frogs and common lizards occur on the island, with an estimated 561 adult frogs and 102 adult/sub-adult lizards recorded within the survey sites.
 - Hydrology of the dune slacks and disturbance are main threats to these species.
- Conservation Objectives: North Bull Island SPA, 2015 by NPWS

- Sets out the attributes, measures and targets for the conservation of the site's Qualifying Interests.
- North Bull Island hare survey, 2016 by U.C.D and commissioned by DCC:
 - Concluded that no viable population currently exists on North Bull Island, and any translocation attempts must be preceded by an effective change in disturbance management although anecdotally, previous populations were artificially sustained by coursing organisations.
- Marsh fritillary survey of North Bull Island, 2017 by National Biodiversity Data Centre supported by DCC.
 - As part of the All-island Marsh Fritillary Monitoring Scheme
 - Identified 3.33ha of suitable habitat
- Flora and vegetation survey of North Bull Island, 2017-2019 by Dublin Naturalists Field Club commissioned as part of the DCC Biodiversity Action Plan.
 - Provides an important baseline for further monitoring
 - An additional 16 plant species identified.
 - Total of 333 vascular plants and 28 bryophytes recorded.
 - 46 floristically significant species identified (due to their legal protection and/or rarity regionally and nationally), including two species previously unknown in the east of Ireland.
 - Main threats included changes to the Island's hydrology, disturbance levels, and invasive species encroachment
- Disturbance of grey and harbour seals on North Bull Island, 2018, by Irish Whale and Dolphin Group and commissioned as part of the DCC Biodiversity Action Plan (part funded by NPWS)
 - Concluded high levels of disturbance events, with a high impact from walkers, with or without dogs.
- Dublin Bay Seal Survey, 2018 by The Irish Seal Sanctuary and commissioned by the Dublin Bay Biosphere Partnership.
 - Population estimated at 92-111 grey seals and 5-7 harbour seals, with the latter occurring predominantly at the northern end of Bull Island.
- Dublin Bay Birds Project by Birdwatch Ireland and funded by Dublin Port Company (ongoing)
 - Breaks down in detail how individual waterbird species use different parts of the island for different purposes (i.e. feeding, roosting, breeding).
 - The majority of qualifying interest wildfowl occur from early autumn to late spring only, while the majority of waders occur year-round, with many occurring in nationally importance numbers during the summer period.

The Flora and Vegetation Survey (2017-2019) by the Dublin Naturalists Field Club will lead to a book on the Flora of North Bull Island to be published by DCC in 2021. This will be a valuable source of information for education.

Action 1: Continue an evidence-based approach to management of the Nature Reserve by supporting research and monitoring of species and habitats.



Dublin Bay UNESCO Biosphere

The one designation that has changed since the 2009 Management Plan is the UNESCO Biosphere status which was originally granted to the North Bull Island in 1981. Following the submission of a 10 year 'Periodic Review' by DCC to UNESCO in 2014, which recommended expansion of the designation, the Biosphere designation was extended by UNESCO to the entirety of Dublin Bay in 2015, reflecting its environmental and cultural significance and as a model for sustainable development.

The extended Biosphere now incorporates Baldoyle Estuary, Howth Peninsula, Ireland's Eye, Dalkey Island, and Killiney Hill. The designation is managed by a Partnership led by Dublin City Council, and including Fingal County Council, Dún Laoghaire-Rathdown County Council, Dublin Port Company, National Parks and Wildlife Services, and Failte Ireland.

In 2016, the Biosphere published a 'Dublin Bay Biosphere Biodiversity Conservation and Research Strategy' to provide a coordinated framework for biodiversity conservation and research activities, and clarity regarding these planned activities to all stakeholders within Dublin Bay Biosphere (www.dublinbaybiosphere.ie)

Action 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



Management Issues and Action Plan

Management issues for the Island were identified in “A Management Plan for North Bull Island, 2009”. These issues have been summarised below, outlining the actions that have been implemented to date, the status of each management issue, and the future actions for implementation up to 2025.

1. Impacts on the Hydrology of the Island:

Hydrology plays a significant role in the ecology of the Island, particularly with regard to the Humid Dune Slacks. The Island has a lens of fresh groundwater that develops immediately below the ground surface and extends many metres below the surface. It is dynamic and discharges around the margins of the island. The two golf clubs on the Island extract fresh groundwater for irrigation purposes.

Hydrology is critical to the Island’s Dune Slack habitats (the northern slack is known locally as the Alder Marsh). Maintaining a high water table allows for rare and protected plant species to occur. Changes to the water table are likely to lead to their loss.

As part of a 2008 PhD project (part funded by Dublin City Council and the National Parks & Wildlife Service), two boreholes were created and piezometers used to measure groundwater levels in both the northern and southern dune slacks.

The 2009 Management Plan recommended the continuation of hydrological monitoring on the island, the water tables and the size of the annual recharge to the water table on the island.

Groundwater monitoring at the two boreholes was re-established in 2019 by NPWS, and the scope of a hydrology study for the island and broader water table is currently being progressed by DCC and NPWS.

The Flora and Vegetation Survey of North Bull Island 2017-2019 (Dublin Naturalists Field Club) provides the most accurate and up to date baseline of the Dune Slack vegetation for monitoring purposes. One of the issues raised in the study was the hydrology of the dune slacks, and the potential impact of water extraction/ wastewater treatment by St Anne's Golf club near the Alder Marsh. The permanent solution to this problem would be to provide a supply of water/ wastewater connection from the mainland, which could be accommodated in the context of the project for a new Discovery Centre.

Action 3: To support on-going hydrology studies to inform management of the Island's dune slack habitats.

2. Causeway Road and Sedimentation:

Since the construction of the Causeway Road, there have been ongoing concerns expressed about sedimentation and its impact on ecology. There have been requests to breach the causeway however, several studies (An Foras Forbartha, 1977, 1980, 1984; CAAS 1990; ESB, 1996; and ESB International, 2002) have concluded that there is no ecological imperative to do so.

The 2002 Environmental Impact Assessment (ESB International) concluded that re-opening the causeway would have a minimal or no impact on sedimentation, and that retaining the causeway also prevented any major pollution episode in Dublin Port from directly affecting the intertidal area to the north of the causeway.

The 2009 Management Plan stated that both DCC and the NPWS recommended no significant moves to re-open the Causeway in the absence of evidence indicating a scientific prerogative to do so. This continues to be the policy in 2020.

3. Saltmarsh Accretion and Erosion:

The 2009 Management Plan noted that the Island's Saltmarsh habitat, and the Island itself, was undergoing some changes, particularly at the northern tip of the Island, due to geo-morphological erosional and accretional cycles. It recommended that accretion and erosion of the saltmarsh should be allowed to continue naturally, and to periodically monitor the situation.

In 2018, aerial mapping of the salt marsh by Brady Shipman Martin, Planning consultants comparing 2005 to 2018, indicates that there appears is no discernible

change to the edge of the saltmarsh, while over the same period there has been evident accretion of the sand dunes on the north side of the island.

Action 4: Carry out mapping of the extent of the saltmarsh every 5 years.



4. Management of Invasive Alien Species:

Common Cordgrass (*Spartina anglica*) is a non-native fertile grass species that spreads on mudflats, sandflats and saltmarsh, and covers an extensive area of North Bull Island. Efforts to control Common Cordgrass were undertaken by Dublin Corporation from 1970-1995, but ceased following a reassessment of its control methodology which was based on chemical treatment.

The 2009 Management Plan recommended no intervention as any measurable beneficial impacts of control on conservation status of notable habitats and species would not significantly offset the potential negative impact of the control programme. The 2009 plan recommended monitoring of *Spartina* and this continues to be the policy in 2020.

Several approaches to Sea Buckthorn (*Hippophae Rhamnoides*) control have been trialled on North Bull Island, including the use of volunteers to target smaller plants in the dune system and the removal of berries to prevent the spread of fruit by birds.

Large areas of Sea Buckthorn have been removed since the 2009 Management Plan and the dune habitat is recovering. The most effective method to date, and the one recommended by the 2009 Management Plan, is to use the mechanical bucket of the JCB to pull out the shrub from the loose sandy soil. This method ensures that the root

is also removed, and there are fewer possibilities for regrowth from underground rhizomes. This method requires a permit from NPWS.

DCC published an Invasive Alien Species Action Plan in 2016 which sets out best practice in relation to control and DCC is currently liaising with NPWS to agree a 5-year strategy to target the remaining Sea Buckthorn.

As part of the Flora and Vegetation Survey 2017-2019, 39 invasive species were recorded, and categorised based on their priority for management (short, medium and long term) - see Appendix 1. The management of these species is underway.

Action 5: Implement a 5-year strategy to control sea buckthorn using established best practice methodologies.

Action 6: Carry out a survey of Common Cordgrass to inform a future management strategy.

5. Boundary Issues (with St Anne's Golf Club):

In the 2009 Management Plan, issues were identified in relation to the definition of boundaries between the golf course and the particularly sensitive habitats of the saltmarsh and alder marsh.

Action 7: Engage with St Anne's Golf Club to survey their boundary and propose a fencing solution.

6. Bait Digging:

The regulation of bait digging is the responsibility of the NPWS and as such is not dealt with in this report.

7. Impacts of Recreational Disturbance:

In the 2009 Management Plan there were a number of issues relating to 'Impacts of Dogs on Wildlife' (mammals and birds) as well as specific issues on little terns, seals, rabbits and hares. These have been collated here under 'Impacts of Recreational Disturbance' as recent studies indicate that it is likely to be more effective to manage them collectively rather than individually.

It is clear that into the future while the Nature Reserve will undoubtedly have a greater footfall as the urbanisation of Dublin continues, there is capacity to carry additional footfall and ultimately if necessary this can be controlled using techniques which have proven successful in other nature reserves and sensitive landscapes. The purpose of this Action Plan is to attempt to achieve a balance of user activities which can also guarantee the conservation of the species and habitats that make the island such a special place.

While there are a number of sports activities accommodated in the Nature Reserve, it is also clear from cumulative studies that dogs are the primary cause of disturbance for wildlife in the Nature Reserve.

Dublin City Council has undertaken several research studies to provide an evidence base for a new management approach. These are outlined below:

- Managing the Impact of dogs and dog walkers on the biodiversity of North Bull Island 2017 by EcoEireann:
 - Recommended a zoning approach to management, with an associated signage and education strategy
- An assessment of the effects of kitesurfing and other activities on the waterbirds using Dollymount Strand, 2017-2018 by Birdwatch Ireland:
 - Impacts from kitesurfing occurred mainly on water, predominantly to gull species, and resulted in weak disturbance responses
 - Recommendations to update Code of Practice
 - Other waterbirds using shoreline experienced greater impact from dogs/runners
- An assessment of the effects of recreational and other activities on the waterbirds using the Bull Island saltmarsh 2018-2020 by Birdwatch Ireland:
 - Concluded that activity (particularly walking, with or without a dog) in this area significantly increased during winter months, coinciding with larger bird numbers.
 - Activity and disturbance events were higher to the north of Causeway Road.
 - Concluded that while activity levels were lower than Dollymount Strand, the impact from disturbance events were higher.
- Disturbance of grey and harbour seals on North Bull Island 2018 by the Irish Whale and Dolphin Group:
 - Concluded high levels of disturbance events, with a high impact from walkers, with or without dogs.
- North Bull Island dog tracking project 2018 by the Herpetological Society of Ireland:
 - Demonstrated that dogs covered more area when exercised on the beach, as opposed to the sand dunes or along the saltmarsh.
 - Concluded that the beach was most suitable location on the Island for exercising dogs, and the sand dunes/salt marsh areas limited maximum exercise.

The single most important issue in relation to the disturbance of wildlife is the control of dogs. It is not the presence of dogs per se, rather it is the impact of dogs off-leash and access to sensitive habitats which is the key issue.

Both Dublin City Council and the National Parks and Wildlife Service have endeavoured to implement control measures over a number of years by engaging rangers and the dog warden to enforce Dublin City Council's Parks bye-laws and the Wildlife Act Consolidated (2019) which require dogs on the island to be on a lead at all times. However, this has proven futile, and caused a great deal of aggravation to

dog owners as well as creating an unhealthy work environment for staff engaged in enforcement.

It is accepted that dog ownership has recognised health and well-being benefits, and dog owners have a reasonable expectation of using the Island for their enjoyment and the exercising and socialising of their dogs.

The reality is that of the estimated 1,400,000 visits per annum, a significant percentage of the people exercising on the island, either with or without dogs, do so without the realisation of the sensitive dynamics of the ecosystem in which they are recreating. These are not irresponsible people. They just do not have a full appreciation and understanding of the sensitivities of this particular nature reserve.

The challenge therefore is to engage with all users of the island and Nature Reserve to deliver agreed solutions which can maintain the conservation status of the Nature Reserve.

It is clear that the northern end of the island and the area along the saltmarshes are the most sensitive areas for wildlife.

Harbour Seals and Grey Seals use the northern end of Bull Island for breeding and resting. They are highly sensitive to disturbance from people and dogs. Ringed Plover and Terns breed on the shelly/shingle beach material at the northern end of the Island. Nests are typically well camouflaged, and are therefore easily trodden on or disturbed. The northern end of the Island is also a favoured feeding area for species such as the Curlew, and is regularly used by large concentrations of waterbirds for roosting at high tide.

The intertidal 'lagoons' and saltmarshes are used by birds all year round, with the greatest numbers of birds occurring during the winter period. Birds are spread out across both habitats during low tide, but as the tide rises, the birds fly daily inland and return to the saltmarsh to roost. The birds are accustomed to traffic and pedestrians using Causeway Road and footpath, but are particularly sensitive to people and dogs walking along the salt-marsh edge.

Ground-nesting birds, such as skylarks, stonechats and meadow pipits, breed throughout the sand dunes during summer. Dogs unleashed or on a long leash roaming beyond the existing trails disturb these species.

In acknowledgement of the above, DCC is proposing a 'zoning' plan for the Island (see appendix 2) based on the reports outlined above, and in particular the 2017 study undertaken by EcoEireann (Managing the Impact of dogs and dog walkers on the biodiversity of North Bull Island).

The key recommendations from this report were to

- adopt a zoning approach to public access whereby people, with or without dogs, will be requested not to access the northern end of the Island, and along the saltmarshes;
- require dog walkers to keep dogs on lead within the sand dunes;
- permit the southern end of the beach to be an 'off-leash' area outside the bathing season;
- devise a strategy for signage, communication and awareness raising.

In relation to recreational activities, swimming has become increasingly popular and Dublin City Council support this by improving the bathing shelters and providing water and solar-powered showers to the local groups which use the Bull Wall on a daily basis. Beach buggies/wheelchairs have also been provided for disabled access swimming. Anecdotally, swimming on the beach during the summer months, or off the Bull Wall, has an insignificant impact on the ecology on the island.

Wind-powered recreation, such as kitesurfing, was a relatively new form of recreation when the 2009 Management Plan was produced, but has since become established on North Bull Island.

While such activities are positive in terms of health and well-being, an assessment of the effects of kitesurfing and other activities on waterbirds in 2017-2018 concluded that impacts at the southern end of Dollymount Strand arose more from the concentration of a range of recreational activities including car parking, bathing and walking rather than from any individual activity. Consequently, bird numbers were generally lower in this area than in other parts of the Island. It also concluded that the majority of disturbance events had a low-medium impact (although high impact disturbance events were also recorded) and that the low-medium impact caused by wind-surfing could be minimised further through updating the Codes of Conduct for recreational groups. It also concluded that the speed of activity (i.e. whether a person or dog is walking/running) influenced the scale of impact.

The launching of personal power-crafts from the beach area is not permitted, neither is the use of motorised vehicles (e.g. scramblers), drones, land-yachts or horses.

Action 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.

Action 9: Protect important bird roosting and feeding areas on the salt marsh by restricting public access west of the golf courses all year round.

Action 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.

Action 11: Require dogs to be kept on-leash on all parts of the dune system and the northern section of the beach all year round.

Action 12: Support the Dublin Bay UNESCO Biosphere Partnership to undertake a Dublin Bay wide seal tagging study.

Action 13: Collaborate with sports/recreational bodies to include provisions for responsible behaviour towards wildlife into recreational codes of practice.

Action 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.

8. Sutton to Sandycove cycleway:

This cycleway and pedestrian pavement (termed Greenway as it is primarily through greenspace) has now been constructed with the exception of a link from the coast road along the causeway road to the beach. This section has been included as part of the plans to facilitate the proposed Dublin Bay UNESCO Biosphere Discovery Centre. The extension of the greenway around Dublin Bay is being considered by the National Transport Agency and each local authority as part of a phased programme.

9. Beach Cleaning and its impact on Dune Formation:

While Dublin City Council does not currently apply for Blue Flag status for Dollymount beach, it strives to maintain the beach to this standard. Three weeks prior to the bathing season (which commences 1st June) the beach is mechanically raked from 6.00am each morning, along with a litter pick. This operation is carried out seven days a week throughout the bathing season until 15th September each year. Fifty 'barrel bins' are put in place to accommodate the waste that derives from the use of the beach during the summer months (reduced to 8 bins during the winter months) as well as 2 permanent solar bins on the North Wall.

To safeguard the ecology of the dunes, mechanical beach cleaning is restricted to the area below the embryonic dunes and above the strandline. Only manual cleaning is undertaken outside of this area.

The Bull Island Action Group is a volunteer group which organises monthly clean-ups on the island and they promote the elimination of single use plastics. Their activities make a valuable contribution to the maintenance of the island which is also promoted through the affiliation of Dublin City Council with the 'Leave No Trace' programme.

Ectocarpus siliculosus is a type of seaweed (or macro algae), which washes up in the summer months on Dollymount Strand and emits an unpleasant odour (often mistaken for sewage) as it decays (see Appendix 3: Public Information Sheet on Ectocarpus by DCC). The accepted policy is to collect and pile the algae, let it drain and dry, and deposit it to rehabilitate dune blow-out areas to encourage new dune formation.

Dead animals (i.e. seals and cetaceans) found on the beach are removed and disposed as a matter of priority. Where deemed appropriate and necessary by the Nature Reserve Manager, a post-mortem will be undertaken.

Action 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.

10. Vehicle Access to Dollymount Strand:

Vehicular access on the beach was restricted to specific boulder enclosed areas both from the Causeway and Wooden bridge in 2005 in an effort to control the free-for-all which pertained up to that time. In 2015, a further restriction was imposed from Causeway Road due to public safety concerns on the advice of An Garda Síochána. The existing informal car-parking arrangement on Causeway Road was also redesigned to facilitate traffic flow, improved access for the disabled, a set down for visitors and to maximise the number of car parking slots on the Causeway for peak period of use (school summer holidays coinciding with warm weather). This plan which was approved by way of a Part 8 planning consultation process has yet to be implemented

Access to the beach for vehicles from the North Bull wall is still permitted.

The result of the changes to the management of traffic since 2005 is that the dune system has made a significant recovery from the damage caused by the car free-for-all. This recovery has been beneficial for the structural integrity of the dune system but also the species which inhabit that area. The degree to which the dune system has recovered is clear from aerial photography from 2005 compared to 2018 (see below).



In retrospect, the feedback from visitors in relation to restricting vehicular access has been very positive despite initial objections and concerns raised particularly in 2015.

Action 16: Monitor traffic levels to the island and promote walking, cycling and public transport.

New Initiatives and Actions

Community Engagement:

There is a long history of community engagement on the Island, with the local community spearheading many of the Island's current designations. The story of those individuals who had the vision to advocate for the protection of the island and wetlands, for example, 'Dublin Bay' Loftus in the 1970's, who famously changed his name to promote his passion for protecting the bay and the island from development proposals at that time, would be one of the elements to the interpretation proposed in the Dublin Bay UNESCO Biosphere Discovery Centre.

In 2017, Dublin City Council advertised a volunteer programme and in 2020 there are currently 24 conservation volunteers who regularly contribute two weekend days a month to the North Bull Island Nature Reserve. In 2019, volunteers provided 976 volunteering hours organising and leading family walks, carrying out flora and fauna studies, hosting workshops on otters, local geography, birds, bees, seashell and seaweed identification, satellite imaging of invasive species and land based surveying for whales and dolphins. The workshops alone were attended by 400 people.

DCC also supports the activities of the Bull Island Action Group which facilitates monthly litter collections by volunteers on and around the island.

It is clear however from consultations with the community in 2019 on plans for a new Discovery Centre that there is a deficit of knowledge on the status of management issues pertaining to the Nature Reserve and the significance of the UNESCO Biosphere designation.

The best means to address this is to establish a forum/committee for the sharing of information between DCC, the local communities, environmental NGO's and other interest groups. Representatives from statutory agencies and the DCC North Central Area Committee will also be invited onto the forum/committee.

Action 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.

Action 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.

Action 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.

Education, Interpretation and Accessibility:

The primary means of education programming and raising awareness of the management issues which impact the Nature Reserve and now Dublin Bay is the Interpretive Centre on North Bull Island which was constructed in 1986 by DCC. This building also acts as a depot for maintenance purposes. While this centre has quietly accommodated up to 20,000 visitors a year, and supports the primary science school curriculum, the building is not designed for universal access or to a standard that is acceptable for promotion to visitors. Due to the sensitive nature of its location within the sand dune system it would not be possible to expand or redevelop the existing building (which could not receive planning permission on that site today).

A feasibility study in 2016 for an Interpretive/ Discovery Centre considered multiple alternative sites, and recommended a site at the edge of the island, adjacent to the Causeway road which was landfilled in the 1960s as the most appropriate from an environmental, ecological and logistical perspective.

A contemporary interpretation is considered key to delivering an education and awareness programme to schools, interest groups and other visitors.

The purpose and rationale for a contemporary interpretive and visitor centre are,

- To provide a year round and non-weather dependent experience of the wildlife spectacle (iconic species, such as Brent Geese and Bee Orchids, are only present seasonally).
- To facilitate a virtual experience and understanding of the marine ecosystem of the bay.
- To facilitate an in-depth understanding of the flora and fauna of the nature reserve and other terrestrial areas of the biosphere reserve.
- To facilitate access for everyone regardless of their abilities through the implementation of universal design principles. Heretofore, people with disabilities, older people and people with reduced mobility have not been able to access, appreciate or engage with the Nature Reserve and the Dublin Bay UNESCO Biosphere.
- To act as a receiving centre for cameras located around the biosphere relaying images of various habitats and species which are otherwise inaccessible.

- To act as a receiving centre for cameras located within the nature reserve relaying images of various species along the saltmarsh and the norther tip of the nature reserve where the public are being asked not to enter.
- To act as a portal for universities to collaborate on scientific research and monitoring in Dublin Bay Biosphere and the dissemination of learning into educational programming.
- To act as a forum for local community engagement.
- Raising awareness and educational programming will reinforce and influence responsible behaviour and positive change with respect to the Nature reserve.
- To act as a gateway/marker for the Nature Reserve. While many people at present think of the island as a wild unmanaged space, no one in the future visiting the island could be other than aware of the important national and international standing of the place.
- To facilitate art and cultural activities as a means of engaging people in conservation.
- To achieve the Dublin Bay UNESCO Biosphere vision

“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 Dublin Bay Biosphere to be an exemplar for a new wave of biospheres in the world network”.
- To inspire visitors to support the values of UNESCO in promoting global citizenship.

Action 20: Progress the planning for an accessible Discovery 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.

Table of 2020-2025 Actions

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 on-going 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 Annes 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 the 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 1: Invasive Alien Species list

Phase	Species	Priority	Comment
1	<i>Hippophae rhamnoides</i>	Highest	Eradicate from island
1	<i>Carpobrotus edulis</i>	High	Extinct on island? Monitor and remove immediately if found
1	<i>Lathyrus latifolius</i>	High	Eradicate from island
1	<i>Clematis vitalba</i>	High	Eradicate from island
1	<i>Phormium tenax</i>	High	Eradicate from island
1	<i>Cotoneaster</i> spp	High	Eradicate from island
1	<i>Calystegia silvatica</i>	High	Eradicate from island
1	<i>Fallopia baldschuanica</i>	High	Eradicate from island
1	<i>Syringa vulgaris</i>	High	Eradicate from island
1	<i>Centranthus ruber</i>	High	Eradicate from island
1	<i>Crocasmia x crocosmiliflora</i>	High	Eradicate from island
1	<i>Cordyline australis</i>	High	Eradicate from island
1	<i>Berberis</i> sp.	High	Eradicate from island
2	<i>Aesculus hippocastanum</i>	Medium	Extinct on island? Monitor and remove immediately if found
2	<i>Cupressus macrocarpa</i>	Medium	Cut down
2	<i>Acer pseudoplatanus</i>	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Malva arborea</i>	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Salix fragilis</i> s.l.	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Quercus ilex</i>	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Ulmus</i> cf. <i>procera</i>	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Armoracia rusticana</i>	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Iris foetidissima</i>	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Petasites pyrenaeus</i>	Medium	Eradicate; in short term, monitor and remove if spreading
2	<i>Oenothera cambrica</i>	Medium	Eradicate; in short term, monitor and remove if spreading
3	<i>Rosa rugosa</i>	Low	Monitor and remove if spreading
3	<i>Malus domestica</i>	Low	Monitor and remove if spreading
3	<i>Juglans regia</i>	Low	Monitor and remove if spreading
3	<i>Salix viminalis</i> ^a	Low	Monitor and remove if spreading
3	<i>Linaria purpurea</i>	Low	Remove — dig up plants
3	<i>Lepidium draba</i>	Low	Remove — dig up plants
3	<i>Narcissus</i> spp	Low	Remove — dig up bulbs
3	<i>Hyacinthoides hispanica</i>	Low	Remove — dig up bulbs
3	<i>Hyacinthoides x massartiana</i>	Low	Remove — dig up bulbs

^a Potentially native in Ireland, although not on North Bull Island

Appendix 2: Zoning Plan for Access

