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EU Habitats Directive: Annex IV Risk Assessment

ADCP Deployment: Cork Harbour and environs.

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1. Introduction

Irish Water wish to conduct a strategic modelling study of water currents within Cork Harbour and its environs. The study requires the deployment of up to nine (9) Acoustic Doppler Current Profilers (ADCPs) at various locations within the area to provide the data required to conduct the modelling.

This report provides an assessment of the potential impact that the proposed deployment of up to nine ADCPs might have on Habitats Directive (92/42/EEC) Annex IV species identified as having the potential to be present in the survey area (figure 1) during the deployment, operation and recovery of the nine ADCPS.

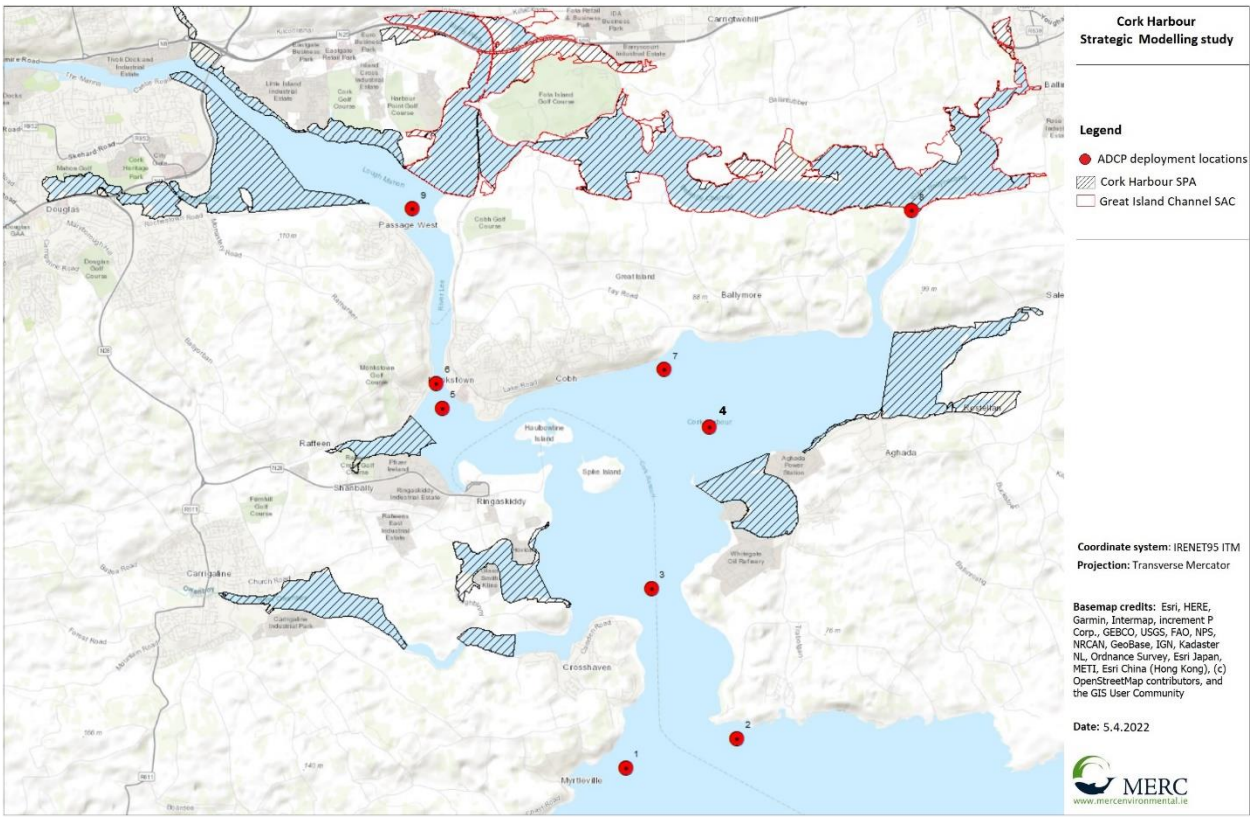

Figure 1. Proposed locations of ADCPs.

2. Scope of work

As per standard protocols for the characterisation of water currents it is proposed that nine Acoustic Doppler Current Profilers (ADCPs) are deployed at various locations within Cork Harbour and its environs. An ADCP is a hydroacoustic current meter used to measure water current velocities over a depth range using the doppler effect of sound waves scattered back from particles within the water column. In the present case ADCPs operating in the range of 600 Khz or 1 Mhz will be used. The instrument emits "pings" of sound at a sampling rate of 1-minute average every 10 minutes.

The ADCP is contained within a trawl resistant bottom mount frame *circa* 1.8m x 1.3m x 0.6m with a weight of approximately 300kg. Figure 2.1 shows an image of a typical Frame within which the ADCP is

contained. The frame is attached to a ground line, a clump weight and to an acoustic release system carrying a rope retrieval system. The frame also houses a recovery line attached to a small rigid buoy which is held in place by an acoustic release, which releases the buoy on command from a deck unit from a boat. Also housed within the frame is lead ballast to secure the frame to the seabed. An acoustic pinger is also mounted on the frame to aid in the recovery of the frame in the event of the acoustic release not firing. The frame is deployed with a grapple hook and floating nylon line to serve as a backup means of recovery.

Figure 2.1 ADCP contained with frame

Deployment

The units will be deployed from the desk of a vessel onto the seabed, at the nine locations shown in figure 1, where they will remain fully submerged throughout the tidal range**.** Deployment is carried out by lifting the ADCP from the deck of the vessel via a deck crane or A-frame and winch.

Operation

During operation the units will emit "pings" of sound in the range of 600 Khz or 1 Mhz at a sampling rate of 1-minute average every 10 minutes. The ADCP will be left *in-situ* for the sampling duration which will be *ca.* 35 days.

Recovery

Recover is facilitated by a hydrostatic release which, on command, sends a ranging ping to the release mechanism which if successful releases a buoy connected to a recovery line. The vessel can then simply move into position over the buoy and recover the ADCP into the boat via the crane. On occasion hydrostatic releases fail. To overcome this issue the ADCPs are also fitted with acoustic pingers which can be activated to aid the location of the ADCP and the acoustic release then attempted again. If the release still fails to work the recovery is then attempted by a grapple recovery. This involves trawling a line with a grapple attached across the seabed in the area where the deployment took place to snag the grapple line between the ADCP and grapple anchor.

3. Legislation

Article 12 of the EU Habitats Directive states:

Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) in their natural range, prohibiting:
(a) all forms of deliberate capture or killing of specimens of these species in the wild;
(b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;
(c) deliberate destruction or taking of eggs from the wild;
(d) deterioration or destruction of breeding sites or resting places.

2. For these species, Member States shall prohibit the keeping, transport and sale or exchange, and offering for sale or exchange, of specimens taken from the wild, except for those taken legally before this Directive is implemented.

3.The prohibition referred to in paragraph 1(a) and (b) and paragraph 2 shall apply to all stages of life of the animals to which this Article applies.

4. Member States shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV (a). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

4. Annex IV Species

4.1 Cetaceans

Under Article 12 of the Directive, all cetaceans should receive strict protection within the Exclusive Economic Zone. The shallow nature of much of Cork Harbour (north of Rams Head/Carlisle Fort) make it unsuitable for the majority of marine mammals. Bottle-nosed Dolphin (*Tursiops truncatus*) are recorded from the mouth of Cork Harbour (location of ADCPs 1 and 2) and while there are some records for small groups having moved further into the Harbour this is not a common occurrence. Similarly, Harbour Porpoise (*Phocoena phocoena*) are recorded in the deeper waters south of Rams Head/Carlisle Fort and sporadic records for this species within Cork Harbour, where depths permit also exist.

4.2 Pinnipeds

Records for both Common Seal (*Phoca vitulina*) and Grey seal (*Halichoerus grypus*) within Cork Harbour and its environs are rare with only very occasional sightings of single live animals recorded. No haul out, resting or breeding places occur within the area.

4.3 Otter

NPWS mapping (NPWS, 2011) does not indicate that any part of Great Island Channel SAC (the location of ADCP number 8) as providing otter commuting habitat. Coastal otters are known to utilise the marine

habitat for foraging feeding a variety of fish and shellfish species depending on the time of year. Otters utilising the marine environment appear to require access to nearby freshwater habitats to drink and bathe (Reid *et al*. 2013). It is therefore considered that the rivers draining into Cork Harbour and their associated estuaries are likely to be used by otters, although this is likely to be limited due to the highly modified nature of the shoreline and busy nature of Cork Harbour and most of its environs. The Biodiversity Data Centre records indicate otter presence at a number of locations around Cork Harbour and environs. The majority of these records date back to the 1980s and 1990s. Approximately 8 more recent records (2013 to 2018) are indicated for the Owenboy River and its associated estuary with an additional 2 records off Roches Point.

4.4 Reptiles (marine turtles)

Leatherback sea turtle (*Dermochelys coriacea*) are recorded from time to time around the entire coast of Ireland. The Biodiversity Data Centre holds 7 records for Leatherback Sea turtle within Cork Harbour and its environs during the period 1984-2000.

5. Risk assessment

The main threat to Cetaceans is incidental capture in fishery gear, especially set gillnets but also drift nets and also underwater noise disturbance and auditory damage depending on its frequency. The vessel activity within the area will be confined to a maximum of 2-3 days for deployment and recovery and the noise level generated would be no more than other small vessel movements in the area. The vessel will be either stationary (when deploying/recovering the ADCPs) or moving at the very slow speeds required to navigate the shallows in the areas of deployment. NPWS (2014) provides a list of Marine mammal functional groups relative to hearing at different sound frequencies. The proposed ADCPs will be operating in the range of 600 Khz or 1 Mhz and as such are outside of the recorded auditory range of marine mammals indicated by NPWS. Cork Harbour is a busy shipping area and the proposed vessel will not significantly increase vessel disturbance within the area. Therefore no potential for impact is predicted on any marine mammal as a result of underwater noise or disturbance.

Disturbance to Grey seals, or other pinniped species, is not possible. As described above for cetaceans, noise and vessel related activities are too minor to adversely affect pinniped species. There are no haul out or breeding sites for any pinniped species within Cork Harbour or its environs. Therefore the proposed project does not have the potential to adversely affect any pinniped species including their breeding and haul out sites.

While, otter may occasionally utilise the area within and adjacent to the proposed ADCP deployment stations only temporary disturbance would be possible.

Relative to the scale and scope of the project and the low number of recorded marine reptiles (marine turtles) in the proposed project area, impacts on marine reptiles are not considered possible.

6. Conclusion

It is concluded that the proposed project does not have the potential to give rise to Likely Significant Effects (LSE) as a consequence of any project related pressures on any Annex IV species that may be present within the Zone of Influence of the proposed project during the proposed benthic sampling.

7. References

Biodiversity Data Centre species Map Viewer. Available at: http://maps.biodiversityireland.ie/#/Map. Accessed March 24rd 2022.

NPWS (2014) Conservation Objectives: Great Island Channel SAC 001058. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS Species GIS layers: Conservation Objectives (Otter Commuting habitat). Version date: 2021.

NPWS (2014). Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Department of arts, Heritage and the Gaeltacht.

Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A. & Montgomery, W.I. (2013) National Otter Survey of Ireland 2010/12. Irish Wildlife Manuals No. 76. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.