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15 December 2025

IWDG comments on Application for a Maritime Usage Licence ref 250010 under the Maritime Area Planning Act 2021

The Irish Whale and Dolphin Group

The Irish Whale and Dolphin Group (IWDG) was established in December 1990 and is an all-Ireland group dedicated to the conservation and better understanding of cetaceans (whales, dolphins and porpoise) in Irish and other waters through increasing awareness, research, education, welfare activities and collaboration (see http://iwdg.ie).

The IWDG welcomes the opportunity to comment on this application for a MUL by Gas Networks Ireland for site survey works in the Lower River Shannon SAC.

The following application documents have been read in support of this submissions: Risk Assessment for Annex IV Species; Natura Impact Statement (NIS); Supporting Information for Screening for Appropriate Assessment (SISAA) Report. Given the high degree of repetition in the documents, this submission will take the Risk Assessment for Annex IV species as being representative. Italics will be used when quoting directly. General comments and recommendations follow.

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Risk Assessment for Annex IV Species

Table 2.1 Description of proposed works

SBP is used to develop an image of the subsurface, identifying different strata encountered in the shallow sediments. The Innomar "standard" Sub-Bottom Profiler is an indicative example of a parametric system with a primary and secondary frequency range of 85-115kHz and 2-22kHz, respectively, and sound pressure levels of up to 232 dB (typically operated at <200dB) re1µPa @ 1m, which would be used in both nearshore and offshore areas.

Innomar's website describes their "standard" SBP as having a PHF Source Level / Acoustic Power >240 dB with a total frequency of 2 – 22 kHz (Innomar 2025).

4.1.2 Underwater noise

There is potential for effects as a result of the underwater noise emitted by the SI works.

When assessing the potential impact of underwater noise sources on the marine environment a range of variables such as source level, frequency, duration, and directivity influence received sound levels. Increasing the distance from the sound source usually results in attenuation with distance. The factors that affect the way noise propagates underwater include; water column depth, pressure, temperature gradients, salinity, as well as water surface and seabed type and thickness. When sound encounters the seabed the amount of noise/sound reflected back depends on the composition of the seabed, i.e., mud or other soft sediment will reflect less than rock. The water depth within the proposed MUL Area ranges up to 50 m below chart datum with a mixed substrate type, of muds, sands, coarse gravels, and exposed bedrock. All factors listed above reduce the propagation of the sound, decreasing the zone of influence of the geophysical surveys, seismic and sonic drilling.

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This is a simplification of the behaviour of noise in riverine systems. Complex bathymetries as described may channel sound, allowing it to propagate in unexpected ways and over greater distances than are predicted by traditional models applied to shallow waters, and model selection can therefore be challenging (Oliveira et al. 2021). Variations in salinity and current also contribute to an acoustically complex system (Reeder 2013). A site-specific noise modelling exercise would be necessary to determine predicted received levels for cetaceans from SBP and marine refracted seismic.

5 NPWS Assessment

Is the plan or project likely to result in death, injury or disturbance of individuals?

The activities proposed during SI works comprise boring, cone penetration tests, grab sampling, intertidal walkover and core sampling, ADCP, side-scan sonar, magnetometer and sub-bottom profiler surveys. It is possible that noise generated will be capable of causing disturbance or temporary hearing injury to a marine mammal without mitigation.

The SBP described in the application is capable of 232 dB source level (and the same device can output >240dB according to the manufacturer (Innomar 2025)), which exceeds the 198 dB PTS threshold for bottlenose dolphins, far beyond the temporary injury threshold (TTS). Marine refractive seismic, which is scheduled but omitted from this list of sound sources, is described as having predicted source levels within the range of 186-220dB re 1µPa @1m, again capable of causing permanent injury.

IWDG Comments and Recommendations

Habitat use

The Shannon Estuary is home to a genetically discrete resident population of around 145 bottlenose dolphins *Tursiops truncatus* (Berrow et al. 2022). The population shows strong site-fidelity within the estuary and upriver using the area for feeding

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(Carmen et al. 2021) and calving (Ingram 2000; Baker et al. 2018). The Lower River Shannon SAC has bottlenose dolphins as a Qualifying Interest, and is designated for their protection under the EU Habitats Directive. The Conservation Objectives for the SAC can be summarised as follows:

Access to suitable habitat: range within the site should not be restricted by artificial barriers; Critical areas: should be maintained in natural condition; and Disturbance: human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site.

The resident population of bottlenose dolphins in the Shannon is acknowledged throughout the MUL application documents, and their use of the habitat is described. Research using C-POD acoustic devices to detect dolphins by Carmen et al (2021) is particularly pertinent to this application, but was not referenced in the MUL documents. A device was deployed at Foynes within the MUL application area; over a five-year period, 1428 days were monitored, with dolphins detected on 38% of those days. Night-time activity accounted for 64% of detections, and feeding activity was recorded. This indicates a very high probability that the proposed geophysical and geotechnical survey will encounter bottlenose dolphins, and will have to mitigate for their presence accordingly.

Mitigation zone

The IWDG proposes that in the absence of detailed site-specific sound modelling, the greater monitoring distance of 1000m be applied both to the marine refracted seismic, as is required by the guidance (DAHG 2014), and to the parametric SBP device. Parametric sub-bottom profilers, capable of extremely high source levels (>240dB), are unfortunately treated in the guidance as equivalent to low energy, high frequency devices such as MBES, SSS etc, and are described as “pinger or chirp systems”. This consideration reflects the out-of-date nature of the document, and the advances in survey equipment technology in the intervening years. In open water this may not be as significant, but in the enclosed waters of the Lower River

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Shannon SAC, where bottlenose dolphins are strictly protected, a more precautionary approach should be taken.

Passive acoustic monitoring

The use of passive acoustic monitoring (PAM) in addition to visual watches by MMOs would greatly increase the survey's ability to detect vocalising bottlenose dolphins, thereby preventing acoustic injury to protected species. The DAHG (2014) guidance states: *"In some cases involving the persistent significant risk of injury to marine mammals in Ireland (e.g., during explosive blasting works), the supplementary use of passive acoustic monitoring may be recommended or required as part of the licence/consent conditions in order to optimise marine mammal detection around the site of a plan or project. PAM is currently used primarily as a cetacean detection and localisation tool. Trained PAM operators may accompany international offshore seismic surveys or undertake site monitoring during certain coastal and marine plans or projects in Europe and elsewhere in order to provide an additional means of detecting and estimating the distance to cetaceans."*

The guidance is clear that PAM is not an acceptable alternative to visual watches undertaken in conditions of good visibility, and in this case the IWDG recommends it only as an additional detection method to be used contemporaneously with visual methods. Bottlenose dolphins are relatively easily detectable by PAM, and it is a powerful tool which may overcome line-of-sight issues in the river channel.

Device shutdown

The ongoing survey operations will potentially exclude bottlenose dolphins from the survey area, as they seek to avoid acoustic injury and disturbance. This would create a barrier, trapping animals and preventing their passage either up or downstream, and denying them access to sufficient food resources. To avoid this, a shutdown should be incorporated into the marine mammal mitigation protocol for marine refracted seismic and parametric SBP, over and above the DAHG (2014) guidance. In the event that animals are detected within the 1000m mitigation zone,

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either visually or acoustically with PAM, the named devices must be shut down immediately, and a full pre-watch and soft-start procedure initiated according to the guidance after the animals are no longer detected in the 1000m mitigation zone. This mitigation procedure will have the benefit of preventing the barrier effect which is expressly precluded by the Conservation Objectives for the Lower River Shannon SAC.

The use of a shutdown protocol will also reduce disturbance and may prevent acoustic injury to bottlenose dolphin which are strictly protected in Ireland under both Annex II and Annex IV of the EU Habitats Directive. Notably a shutdown during geophysical surveys is a requirement in many European jurisdictions, e.g. France, Spain, Portugal, the Mediterranean and Black Sea States, and further afield in the waters of the USA, Greenland, Australia, New Zealand and others.

Sound monitoring

Industrial development in the Shannon Estuary is ongoing, and is expected to grow over time (Shannon Foynes Port Company 2013; Shannon Estuary Economic Taskforce 2024). The opportunity should be taken to deploy calibrated broadband sound recorders in the survey area to gather empirical evidence for received levels during geophysical and geotechnical surveys in this complex riverine environment. Systematic data gathering will allow more accurate prediction of impacts from these activities which are likely to become more frequent. This will allow mitigation protocols for marine mammals to be tailored accurately to minimise impacts on protected species, and may well result in less onerous demands on surveys.

Yours faithfully

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