Request for observations on application for Marine Usage Licence ref: MUL240042

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Summary

The Marine Institute were contacted in relation to a MARA application for a Marine Usage Licence (ref: MUL240042), for proposed marine site survey and site investigations including geophysical, geotechnical, environmental, intertidal benthic and marine mammal surveys at Dognose Bank, Corkbeg, Whitegate, Co. Cork. MUL240042 - MARA - The Maritime Regulator

The request was for comments/observations on the impact this project might have on the whole of the seafood sector.

- Located in the River Lee Estuary, Cork, local fishing activities, fish stocks, spawning or juvenile areas or aquaculture operations from the proposed survey works/ site investigations could be negatively affected.
- Potential negative impacts from seismic refraction surveys on commercial crustacean catch rates plus potential to impact juvenile crustaceans and associated habitat, through both changes in behaviour and the potential to cause a mortality event.
- An oyster farm occurs within the local of the proposed works (~4km), geotechnical survey activities could potentially increase water turbidity resulting in a smothering event, with vibrations simultaneously negatively impacting feeding behaviour. This could negatively impact aquaculture productivity.

Background

Operations include:

1. Sub bottom profiler single channel seismic reflection, underwater multichannel analysis of surface waves (UMASW) and seismic refraction surveys.
2. Geotechnical survey to evaluate the nature and mechanical properties of the superficial seabed sediments along the survey corridor. Consisting of approximately 20 boreholes (cable percussive with rotary follow-on) and 20 Cone Penetrometer Tests (CPTs) .
3. Sub-tidal Benthic Survey and Sub-tidal video surveys
4. Intertidal Benthic survey – consisting of single stove-pipe core and single sediment scrapes
5. Marine Mammal Surveys undertaken by a Marine Mammal Observer (MMO) during geophysical and geotechnical surveys to comply with NPWS (2014) guidelines.

Inshore Fisheries

Extent and degree of inshore fishing activity is currently unknown in and around the site. However potting activities for crab and lobster are likely to occur in the area due to known activities recorded via participating fishers in the Marine Institute Sentinel Vessel Programme. These activities could be negatively impacted through reduced catch rates owing to changes in behaviour due to seismic

reflection surveys[1] and in extreme cases potential mortality to both adult and juvenile portions of local stocks depending on proximity and intensity of seismic activity[2].

Native Oyster and Aquaculture

The Marine Institute does not undertake any routine monitoring of any native oyster beds surrounding the proposed areas of works. University College Cork have undertaken seeding work of native oysters in the area, the exact location of this work relative to proposed work site is however unknown. An active oyster aquaculture facility is located approximately ~4km from the proposed site. The proposed geotechnical survey works could result in increased particle suspension, resulting in potential smothering of the oyster beds twinned with impacts on feeding behaviour through seabed vibration[3]. The degree and severity of impact and potential for this to happen is however unknown and would in part be dependent on direction and state of the tidal cycle when works are undertaken.

[1] Day, R.D., McCauley, R.D., Fitzgibbon, Q.P., Hartmann, K. and Semmens, J.M., 2019. Seismic air guns damage rock lobster mechanosensory organs and impair righting reflex. *Proceedings of the Royal Society B*, *286*(1907), p.20191424.

[2] de Lestang, S., How, J., Erbe, C. and Rushworth, K., 2024. Boom, shake the room: Seismic surveys affect behaviour and survival of western rock lobster. *Fisheries Research*, *277*, p.107072.

[3] Roberts L, Cheesman S, Breithaupt T, Elliott M (2015) Sensitivity of the mussel Mytilus edulis to substrate-borne vibration in relation to anthropogenically generated noise. Mar Ecol Prog Ser 538:185-195 https://doi.org/10.3354/meps11468