

DYE

1. Please confirm that only Rhodamine WT dye is to be used and, if so, at what concentrations.

Supporting Information for Screening for Appropriate Assessment page 28 states: "Dye tracing will be carried out with Rhodamine WT below the maximum allowable concentration quality standard set out in Skjolding et al., 2021 of >910 µg/L. The effects of the microbial dye tracing are considered to not be significant and are therefore screened out for further assessment." No other dye is proposed.

The Assessment of Impacts of the Maritime Usage Report page 13 states: "The dye to be utilised in the microbial dye tracing survey, Rhodamine WT, has been chosen due to its low environmental impact. The dye tracing survey will be carried out with dye concentrations below the maximum allowable concentration of >910 µg/L, as stated in Section 6.2 of the Supporting Information for the Screening for Appropriate Assessment report (SISAA)."

2. Provide information on how often the dye is to be used and where (map should be provided in line with MARA Technical Guidance).

Supporting Information for Screening for Appropriate Assessment page 23 states: "Dye will be released from the baseline discharge locations and will be undertaken during the ebb of spring and neap tides on at least three occasions".

The dye release point would be the existing WWTW outfall location 229100414-MMD-Fal-00-DR-C-2007 attached.

Supporting Information for Screening for Appropriate Assessment page 23 states: "Dye will be released from the baseline discharge locations and will be undertaken during the ebb of spring tides and neap tides on at least three occasions". It is envisaged that a dye tracing study will be successfully completed once in an ebb tide and once in neap tide. The duration of the study is the tidal cycle when dye is released (one release to be observed for 24 to 48 hours per study). Contingency is being made by stating "on at least three occasions" to allow for a single survey run being unsuccessful. The intention would be to minimise the number of surveys completed to minimise time, cost, and presence on site.

3. Provide information on potential impacts on marine species and habitats including degradation time in the marine environment, bioaccumulation risk and the relevant environmental thresholds for QI's of European sites, including habitats, where known.

The Assessment of Impacts of the Maritime Usage Report page 13 states: "The dye to be utilised in the microbial dye tracing survey, Rhodamine WT, has been chosen due to its low environmental impact. The dye tracing survey will be carried out with dye concentrations below the maximum allowable concentration of >910 µg/L, as stated in Section 6.2 of the Supporting Information for the Screening for Appropriate Assessment report (SISAA)."

Supporting Information for Screening for Appropriate Assessment page 28 states: "Rhodamine WT will be used in this study because of its low environmental impact. Field, 2005 studied the ecotoxicity of fluorescent dyes, including Rhodamine WT, and found low levels of concern for concentrations under 22mg/L, and Skjolding et al., 2021 found no statistically significant effects were observed (p<0.05) at tested concentrations (up to 91, 100 and 200 mg/L for algae, crustaceans and fish embryos, respectively). Earlier work by Parker, 1973 tested the toxicity of Rhodamine WT dye on the larval development of oysters and on juvenile salmon and trout; with concentrations up to 10mg/L over 48 hours for oysters and 375mg/L over 17.5 for fish, no mortalities or abnormalities were observed. The fish remained healthy in dye-free water when last checked a month after the test. Dye tracing will be carried out with Rhodamine WT below the maximum allowable concentration quality standard set out in Skjolding et al., 2021 of >910 µg/L. The effects of the microbial dye tracing are considered to not be significant and are therefore screened out for further assessment."

Rhodamine WT is not listed as a priority or hazardous substance under the EU Water Framework Directive or OSPAR, and as such, no statutory environmental quality standard (EQS) applies to its use. It is widely employed as a water tracer because even very low concentrations it is easily detectable, allowing applications to remain well below levels of ecotoxicological concern. Once released into surface waters, Rhodamine WT is subject to photolytic

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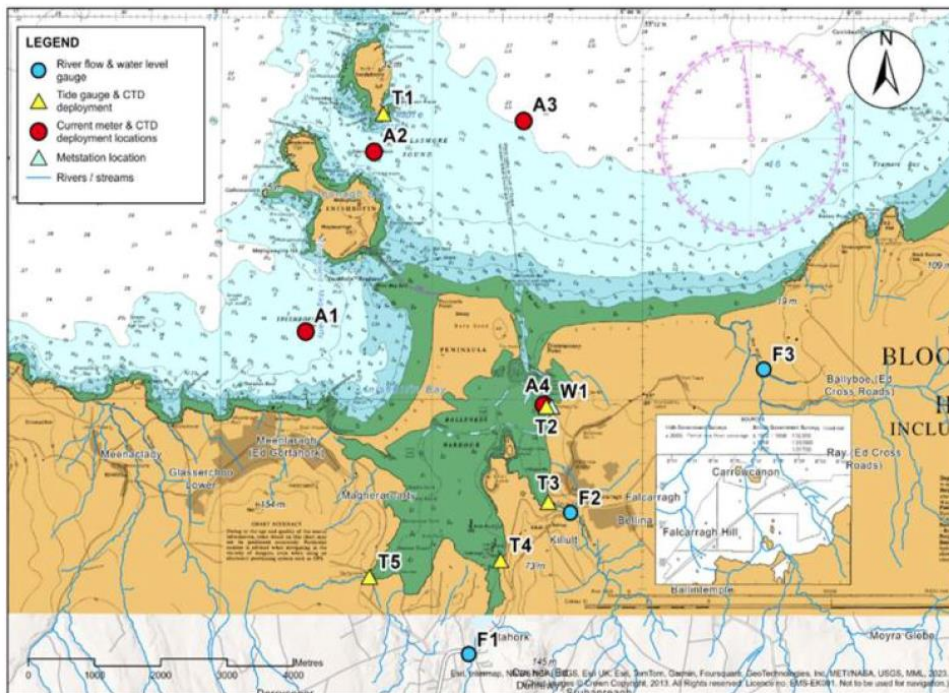
degradation, with rate coefficients in natural sunlight ranging from approximately $0.0316\text{--}0.0477\text{ day}^{-1}$, corresponding to half-lives of only 1–3 weeks depending on season and latitude (Smart & Laidlaw, 1977; Wilson et al., 1986; Tai & Rathbun, 1988). The dye's high-water solubility and low lipophilicity mean that it does not readily partition into sediments or organisms, and empirical evidence from structurally related compounds indicates very low bioconcentration potential (Environment and Climate Change Canada, 2010). In the context of Ballyness Bay SAC, these properties indicate that Rhodamine WT poses no plausible pathway for accumulation in mudflat or estuarine communities, nor in food-web species such as infaunal invertebrates or fish. Marine mammals using the bay are not expected to be affected, as exposure concentrations will be several orders of magnitude below known toxic thresholds and the dye has no bioaccumulation potential. Any visual dye plume is expected to be temporary and locally confined, dissipating with tidal mixing, and thus would not compromise conservation objectives related to habitat integrity, community composition, or species health.

ANCHORING / PONTOON

4. Submit a map showing the locations of the proposed water sampling pontoons and other moored equipment including ADCPs, tidal gauges, meters in relation to sensitive Annex II habitats that form part of any overlapping European sites (map should be provided in line with MARA Technical Guidance).

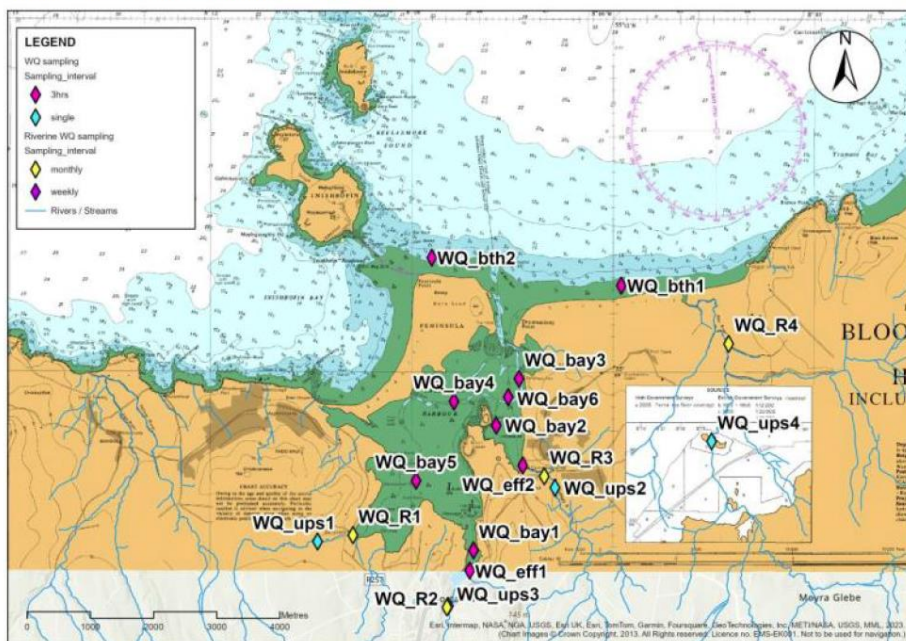
The proposed locations of moored equipment were provided in Supporting Information for Screening for Appropriate Assessment page 2 and 3 figure 1-2 and figure 1-3, inserted below for reference. Supplementary overlays with habitat mapping provided overleaf.

Figure 1.2: Locations of survey instrumentation



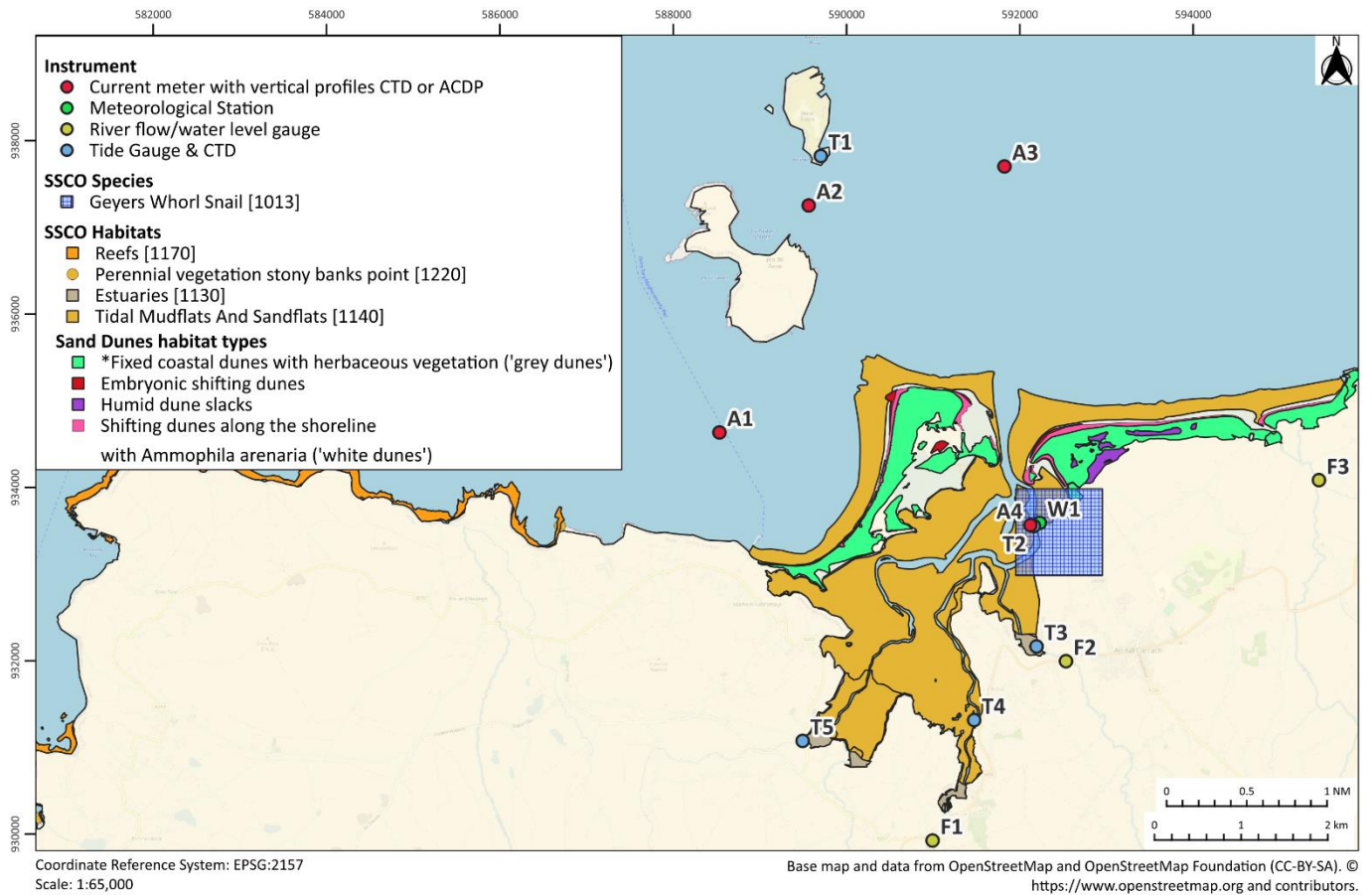
Source: Admiralty Charts Image © British Crown and OceanWise, 2022. All rights reserved.
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Figure 1.3: Water sampling locations

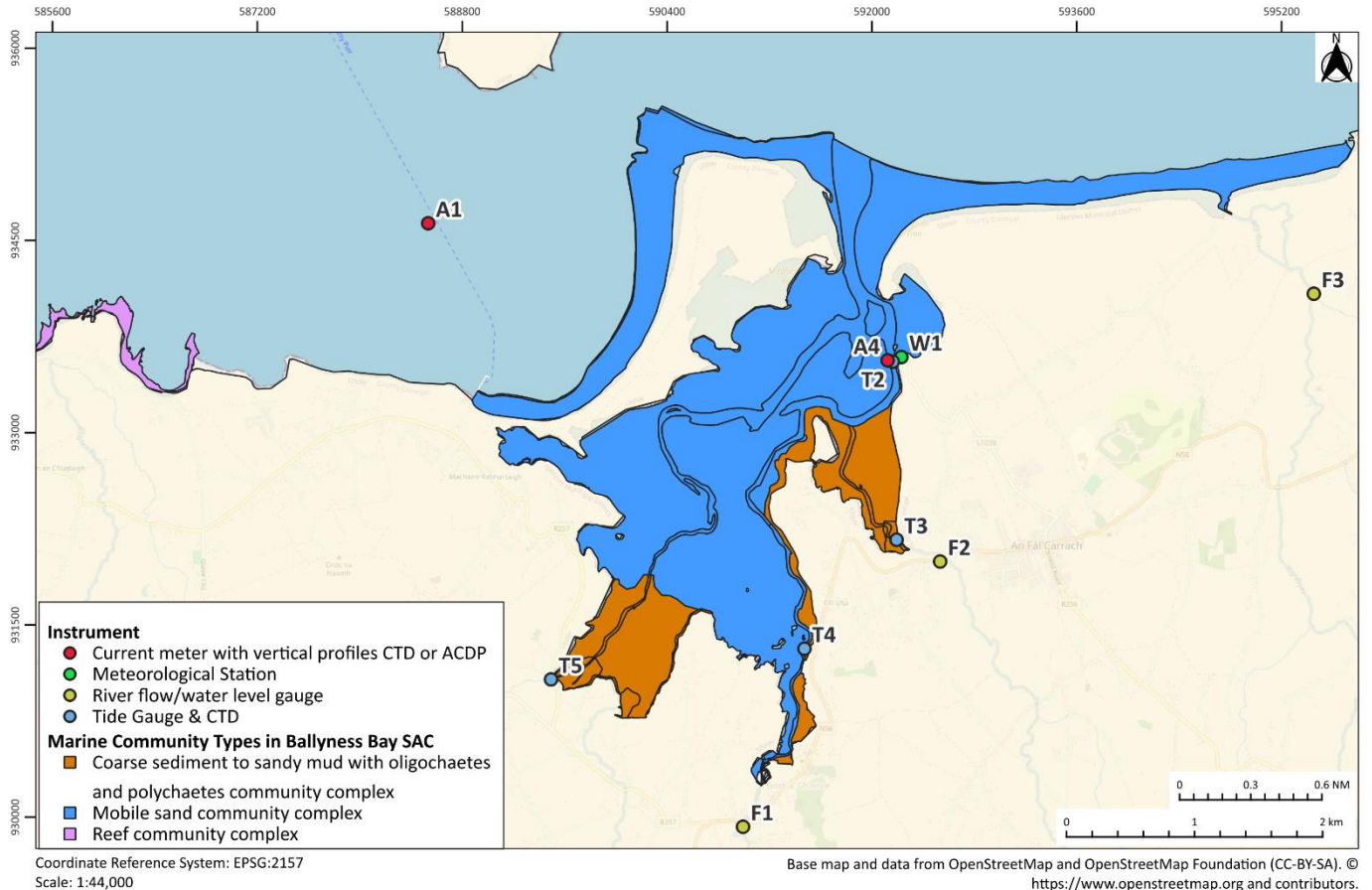


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Map of instruments and locations regarding SSCOs for Ballyness Bay SAC..



Map of instruments and locations regarding marine benthic community types in Ballyness Bay SAC.

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5. Provide the dimensions of the proposed water sampling pontoons to give an indication of scale.

Assessment of Impacts of the Maritime Usage page 4 states: "There is limited water quality sampling data available adjacent to the outfall of the existing WWTP at Falcarragh. To establish the baseline conditions, additional sampling will be necessary. Water quality sampling is recommended within Ballyness Bay, as well as at the tidal limits of contributing rivers. Sampling will be undertaken using pontoons preferably (e.g., sampling equipment mounted on buoys) or via a remotely controlled boat access (ARCBoat). An automatic sampler may be deployed to collect water samples or samples may be taken manually depending on available access."

The proposed sample locations were provided in Supporting Information for Screening for Appropriate Assessment page 3 figure 1-3 (reproduced in response to RFI number 4 above).

The static pontoons/buoys were proposed to provide flexibility for a contractor to obtain the samples with minimal boat movements. Their locations cannot be prescribed at this time as a contractor has not been appointed and engagement with local maritime users has not been undertaken. In the interests of transparency, if pontoon/buoy's locations need to be prescribed as part of this application, we propose to withdraw them as a method for obtaining samples.

6. Clarify if it is intended that the water sampling pontoons will remain in place for the duration of the proposed maritime usage, or will they be moved around to locations within the study area? If so, provide further information in this regard.

The static pontoons/buoys were proposed to provide flexibility for a contractor to obtain the samples with minimal boat movements. Their locations cannot be prescribed at this time as a contractor has not been appointed and engagement with local maritime users has not been undertaken. In the interests of transparency, if pontoon/buoy's locations need to be prescribed as part of this application, we propose to withdraw them as a method for obtaining samples.

7. Detail anchoring methods for all equipment.

Pontoons as a method are to be withdrawn as noted above.

For ADCPs (otherwise known as bed mounted current meters) and tide gauges, application form Section 2.3 Describe the nature and scale of any structure to be erected in the maritime area advises: "Bed mounted current meters will be deployed including near-bed Temperature and Salinity sensors. This may be supplemented by boat access to maintain the sensors during the survey period. Each General Purpose Trawl Resistant Bottom Mount (GP-TRBM) unit will be equipped with the following instrumentation: current meter, acoustic release beacon (for recovery), iridium surface locator beacon. There will be a 100m grapple line and 100kg clump weight attached to the TRBM unit to assist in its recovery if the acoustic release malfunctions.

Tide gauges will be installed, attached to an existing fixed structure where possible. If a tide gauge does need to be placed on the bed it will be placed in a housing that is weighted or anchored."

The equipment will be lowered slowly from a boat.

8. Define frequency and duration of proposed activities.

The Assessment of Impacts of the Maritime Usage Report page 3 states: "The marine surveys are not seasonally constrained, as spring and neap tides occur bi-monthly. The current gauge, tide meter and CTDs (conductivity, temperature, depth profiler) will be deployed for a minimum period of 35 days (up to 12 weeks dependent upon weather conditions) to cover spring and neap tides. The marine survey equipment is either drone operated, or comprises floating instrumentation deployed from a boat.

The only land-based survey equipment will be the meteorological stations; these stations do not require any works to facilitate their placement on land as they are self-contained and preassembled units and will be temporarily fixed/staked to the ground. The river gauges will be staked to the riverbed for a 12-month period and will record river flow levels continuously for a period of 12 months. The programme for collecting data on meteorological conditions, river and tidal levels and water quality will take place for a period of 12 months.

The licence is sought for a period of five years to enables works to be scheduled and completed in favourable weather conditions. The commencement of the surveying will be dependent upon the issuing of the maritime usage licence."

DRONES

9. Please confirm that ArcBoat and hydrodrone as referred to in SISAA refer to the same piece of equipment. Detail model specifics, including noise output of hydrodrone/ArcBoat. Please also provide information on proposed access routes, deployment points, proposed drone route, and proposed frequency and duration of usage.

An ArcBoat is a type of hydrodrone. [ARCboat | HR Wallingford Equip-IT](https://equipit.hrwallingford.com/arcboat/arcboat)

<https://equipit.hrwallingford.com/arcboat/arcboat>

Product features are provided on the HR Wallingford website linked above, reproduced below for clarity.



Product features

- Watertight moon-tube to carry a variety of SBES, ADCP and other instruments.
- High quality data collection with minimal underhull air entrainment.
- High manoeuvrability with twin rudders and twin shrouded propellers providing the ability to turn in the vessel's own length.
- Vessel endurance up to 4 hours at typical survey speeds of 1 m/s.
- Rigid and robust GRP hull able to accept minor knocks and damage.
- Chemically and UV light resistant hull.
- Electrically powered producing zero emissions and extremely quiet.
- Grab rails for easy recover from survey sites.
- Detachable bow for easy transportation.
- Robust remote control handset with long range and telemetry options, such as battery voltage.
- Bluetooth link for data transmission to an onshore laptop.

The frequency and duration of sampling is provided in response to RFI number 8. A total of 12 months of data is required. The water quality river sampling locations are proposed for weekly or monthly samples (see Figure 1-3 for these locations noted in the symbology). The water quality sampling locations for the bay and upstream baseline levels are to be sampled more frequently in sprints (up to 48 hours per event) for calibration events (up to 3 number) as per the dye release frequency proposed. Supporting Information for Screening for Appropriate Assessment page 23 states: "Dye will be released from the baseline discharge locations and will be undertaken during the ebb of spring tides and neap tides on at least three occasions". It is envisaged that a dye tracing study will be successfully completed once in an ebb tide and once in neap tide. The duration of the study is the tidal cycle when dye is released (one release to be observed for 24 to 48 hours per study). Contingency is being made by stating "on at least three occasions" to allow for a single survey run being unsuccessful. The intention would be to minimise the number of surveys completed to minimise time, cost, and presence on site.

Contractors will be made of sensitive habitat locations and will ensure no deployment location overlaps with sensitive dune habitats.

10. Detail aerial drone model specifics, including noise output of aerial drone. Please also provide information on proposed access routes, deployment points, proposed drone route, and proposed frequency and duration of usage.

Re: frequency and duration of usage: Supporting Information for Screening for Appropriate Assessment page 27 states: "A drone will be in operation on three separate occasions to conduct dye tracing surveys, and only during low water on a spring tide to perform LiDAR surveys, during the survey period and will subsequently be retrieved after each sample collection is completed." The duration of the dye study is the tidal cycle when dye is released (one

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release to be observed for 24 to 48 hours per study). The expected dye release drone coverage area would likely be limited to Ballyness Bay and where the Bay meets the sea i.e. the high resolution bathymetric survey area proposed in figure below.

Uisce Éireann also note that in line with the definition of the “Maritime Area” as set out in the Maritime Area Planning Act 2021 and the “Foreshore” as set out in the Planning and Development and Foreshore (Amendment) Act 2022, LiDAR survey activities are taking place outside the Maritime Area. These activities have been included in documentation for Appropriate Assessment Screening as they form part of the overall study monitoring campaign, however Uisce Éireann is not seeking consent for these LiDAR activities from MARA.

Uisce Éireann also consider LiDAR surveys to be passive and observational in nature in line with MARA Circular MP01/2025.

The LiDAR survey is a ‘one-off survey’ to establish the bathymetry of the area of interest. It is envisaged that in favourable weather conditions the LiDAR survey would be completed in the region of 5 to 7 days. The area where LiDAR is to be gathered has been provided in Supporting Information for Screening for Appropriate Assessment page 3 Figure 1-2, inserted below for reference.

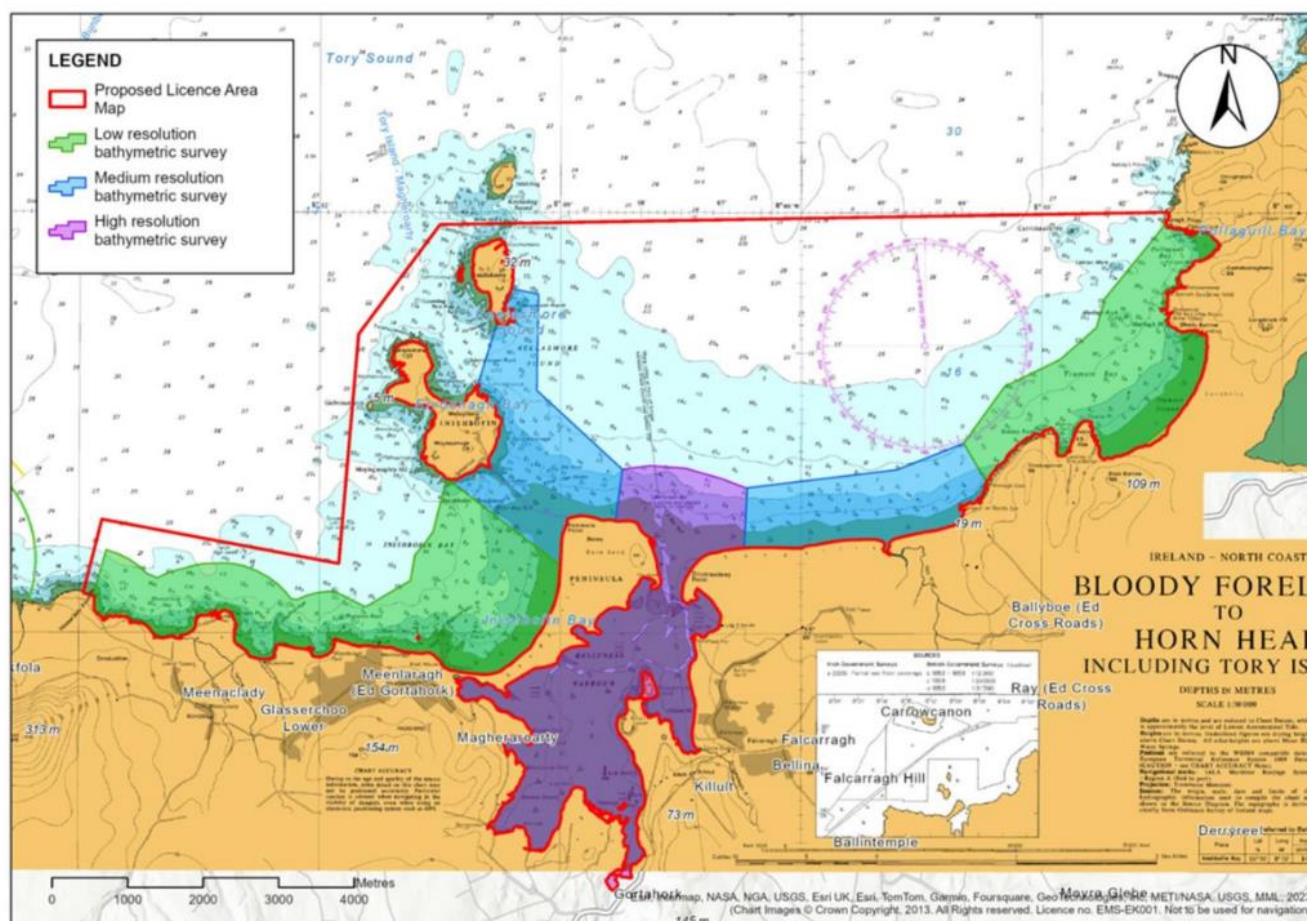


Figure 1-2: Proposed locations for bathymetric surveys in Ballyness Bay and surrounding areas.

A contractor has not been appointed thus aerial drone model specifics, including noise output of aerial drone, proposed access routes, deployment points, and proposed drone route cannot be prescribed at this time.

Contractors will be made of sensitive habitat locations and will ensure no deployment location overlaps with sensitive dune habitats.

It is envisaged that a standard LiDAR drone capable of high resolution output would be a DJI Matrice 3000 or similar as shown on this website: [DJI Matrice 300 + TOPODRONE LiDAR HI-RES](https://topodrone.com/product/lidar/182/1087/)

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Product features are provided on the website linked above, reproduced below for clarity. “

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- Survey flight can be prepared in any mission planning software (GS Pro, MapPilot, UgCS etc) and performed in automatic mode. You don't need to have professional pilot skills.
- High precision orthomosaics or 3D model can be created without using GCPs. You no longer have to lay down GCPs or just minimize their number, saving countless hours and labour costs.
- Survey grade L1/L2 GPS/GLONASS/BeiDou/Galileo GNSS receiver is integrated with professional calibrated camera without any changes inside of the drone saving the manufacturer warranty.
- Professional Helix type antenna provides high quality signal with low level of noise.
- Position of the antenna under the centre of camera and correction of the antenna tilt with using of IMU data ensure better accuracy during photogrammetry processing.
- The lightweight upgrade kit and removable antenna mount allows carrying your drone in a standard DJI case. It has a small weight and dimensions, is produced in large amounts on the factory in accordance with high quality Swiss standards.
- You can use Metashape or Pix4Dmapper, etc. software turns your images into highly precise, georeferenced 2D maps and 3D models without ground control points (GCP)."

DISTURBANCE TO ANNEX I SPECIES AND ANNEX II SPECIES

11. River gauge – provide information on installation method and proposed substrate.

The Assessment of Impacts of the Maritime Usage Report page 3 states: “The river gauges will be staked to the riverbed for a 12-month period and will record river flow levels continuously for a period of 12 months. The programme for collecting data on meteorological conditions, river and tidal levels and water quality will take place for a period of 12 months.” River gauges are a gauge (a marked board or pipe) or a portable electronic gauge that is in a fixed location to the side of the river, often attached to a fence post or pipe driven into the riverbed to keep it stable.

Supporting Information for Screening for Appropriate Assessment page 26 states: “The meters and flow gauges are to be deployed at fixed stations for the duration of the survey (minimum 35 days). The effect to the seabed will be temporary occupation of the seabed, and as the area occupied by the flow gauge does not represent a sensitive intertidal macro-invertebrate faunal community no effect is likely to occur as a result of the equipment being deployed. Therefore, the physical impact mechanism is screened out of further assessment.”

12. Provide make and model of MBES to validate claims on noise frequency emission. Detail model specifics, including noise output. Please also provide information on proposed access routes, deployment points, drone route, and proposed frequency and duration of usage.

A contractor has not been appointed thus make and model of MBES, including noise output cannot be prescribed at this time. It is envisaged that a standard MBES would be similar to this website: [Multibeam Echosounder | Infomar](https://www.infomar.ie/surveys/equipment/multibeam-echosounder)
<https://www.infomar.ie/surveys/equipment/multibeam-echosounder>
<https://www.youtube.com/watch?v=OCJKWU99UVg>

The Risk Assessment for Annex IV Species page 21 states: “The MBES manufacturer states that a MBES used for a depth range of 0.2-50m would typically emit sound at a frequency of 500 kHz. Frequencies emitted within this range are outside the hearing threshold ranges of those described in Table 4.1 where the highest functional frequency is 180 kHz in high frequency cetaceans. Therefore, the sound emitted by the MBES will not be heard, if the frequency emitted by the MBES falls into the 500 kHz selection, which is highly likely. Thus, the effects of underwater noise emitted by the MBES are considered not to have any significant impact on marine mammal species, as well as other Annex IV species (and non-Annex IV species) included in this report.”

Contractors will be made of sensitive habitat locations and will ensure no deployment location overlaps with sensitive habitats.

13. Provide details on vessel (boat and motor) to be used. Please provide details on proposed access points, along with proposed frequency and duration of use (to include a map showing all access points, slipways and piers to be used).

The bathymetry survey (LIDAR and MBES) is a ‘one-off survey’ to establish the bathymetry of the area of interest. It is envisaged that in favourable weather conditions the LiDAR survey would be completed in the region of 5 to 7 days.

A contractor has not been appointed thus make and model of the vessel (boat and motor), including proposed access points, along with proposed frequency and duration of use cannot be prescribed at this time. It is envisaged that a standard vessel would be similar to this website: [Multibeam Echosounder | Infomar](https://www.infomar.ie/surveys/equipment/multibeam-echosounder)
<https://www.infomar.ie/surveys/equipment/multibeam-echosounder>
<https://www.youtube.com/watch?v=OCJKWU99UVg>

Contractors will be made of sensitive habitat locations and will ensure no deployment location overlaps with sensitive habitats.

14. Provide details of maximum water depth in which MBES will be deployed, Provide further information on the expected frequency and duration of the MBES surveys.

The bathymetry survey (LIDAR and MBES) is a ‘one-off survey’ to establish the bathymetry of the area of interest. It is envisaged that in favourable weather conditions the LiDAR survey would be completed in the region of 5 to 7 days.

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The area where bathymetry data is required to be gathered has been provided in Supporting Information for Screening for Appropriate Assessment page 3 Figure 1-2, inserted below for reference. The maximum depth in this area is estimated from chart datum maritime maps to be less than 20m.

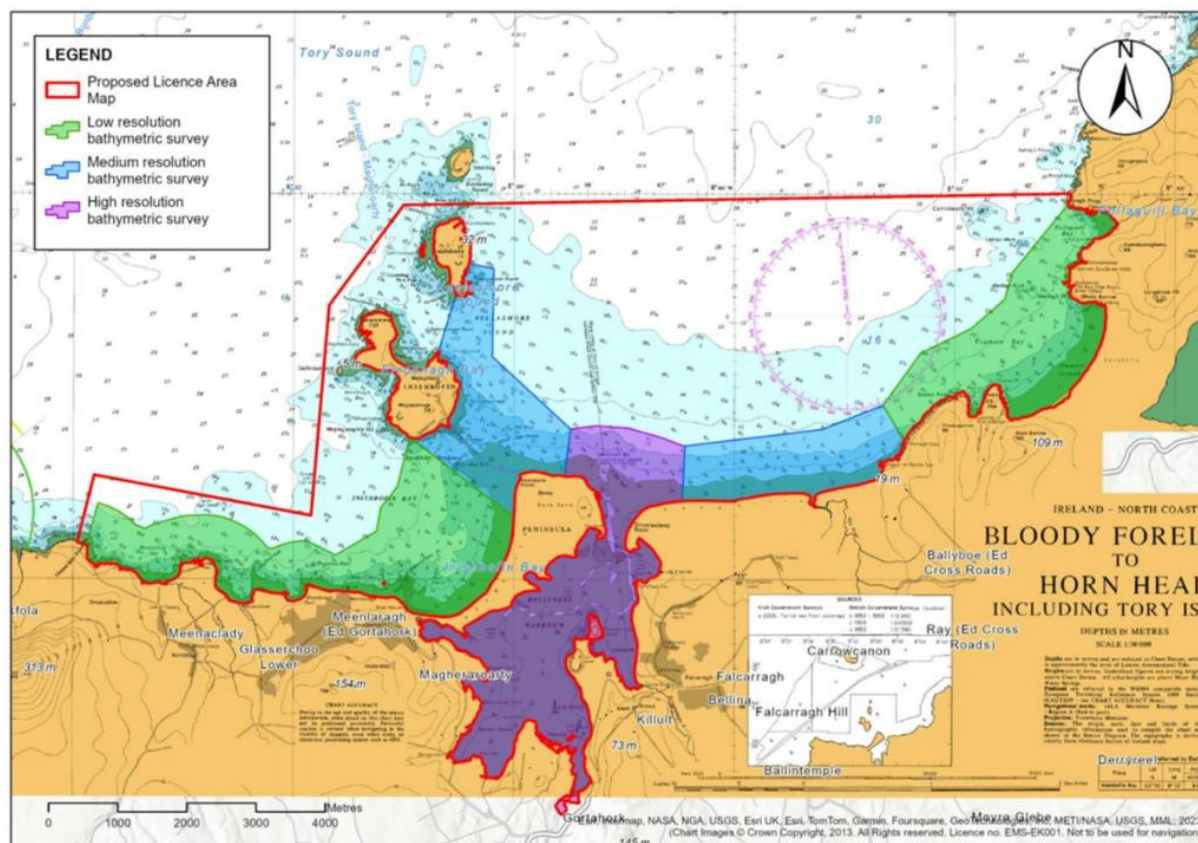


Figure 1-2: Proposed locations for bathymetric surveys in Ballyness Bay and surrounding areas.

15. With reference to the strict protection of species listed under Annex IV of the Habitats Directive (92/43/EEC), confirm if you are required to apply for a derogation under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. If yes, provide details of the application submitted, including the NPWS Derogation Number.

A derogation under Article 16 of the Habitats Directive is not required for the proposed Project, as the works will not result in injury, killing, or deliberate disturbance of Annex IV species. The principal species of concern in Ballyness Bay and adjacent SACs are harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*) and otter (*Lutra lutra*) with consideration for grey seal (*Halichoerus grypus*), harbour seal (*Phoca vitulina*) also. The temporary nature and small footprint of the tidal gauges, current meters and weather station will not obstruct movements or habitats used by these species. Vessel activity will be infrequent and at low speeds, minimising collision risk. Acoustic outputs from the MBES and ADCPs occur at high frequencies outside the hearing range of cetaceans and seals and therefore will not cause disturbance. Rhodamine WT dye, which will be used for dispersion tracing, degrades rapidly, does not bioaccumulate, and has no known toxicological effects at the concentrations proposed. No haul-out sites, resting areas or critical habitats will be lost or functionally affected. Accordingly, the proposed works do not pose a risk of significant effects on Annex IV species and there is no legal or ecological basis for seeking a derogation licence.

REFERENCES

- Environment and Climate Change Canada (2010). *Screening Assessment for the Challenge: Rhodamines Group*. Government of Canada.
- Smart, P.L., & Laidlaw, I.M.S. (1977). An evaluation of some fluorescent dyes for water tracing. *Water Resources Research*, 13(1), 15–33.
- Tai, D. Y., & Rathbun, R. E. (1988). Photolysis of rhodamine-WT dye. *Chemosphere*, 17(3), 559–573.
- Wilson, J. F., Cobb, E. D., & Kilpatrick, F. A. (1986). *Fluorometric procedures for dye tracing*. Department of the Interior, US Geological Survey.