Uisce Éireann

# Marine environmental surveys for Dundalk WWTP capacity upgrade

Attachment 3.1 Description of Proposed Maritime Usage

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AQUAFACT Ref: (P19597)

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COMMERCIAL IN CONFIDENCE

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## Report Approval Sheet

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## List of Acronyms/Glossary

| Abbreviation | Definition |
|---|---|
| AA | Appropriate Assessment |
| EIAR | Environmental Impact Assessment Report |
| MNCR | Marine Nature Conservation Review |
| MLWS | Mean Low Water Springs |
| dGPS | Differential Global Positioning System |
| ING | Irish National Grid |
| GIS | Geographic Information System |
| SPA | Special Protection Area |
| SAC | Special Area of Conservation |
| TOC | Total Organic Carbon |
| PSA | Particle Size Analysis |
| RFQ | Request for Quotation |
| NPWS | National Parks and Wildlife Service |
| NBDC | National Biodiversity Data Centre |
| H&S | Health and Safety |
| HIRA | Hazard Identification and Risk Assessment |
| RIB | Rigid Inflatable Boat |
| pNHA | proposed Natural Heritage Area |
| LOI | Loss on Ignition |
| TOC | Total Organic Carbon |
| TOC/PSA | Total Organic Carbon and Particle Size Analysis |

# 1. Project Background

AQUAFACT has been appointed by EPS Group (on behalf of Uisce Éireann) to deliver subtidal and intertidal marine ecology surveys for the Dundalk WWTP Capacity Upgrade Project, located at Soldiers Point on the southern side of the Castletown Estuary in County Louth. The surveys will inform the marine biodiversity chapter of a future Environmental Impact Assessment Report associated with a planning application to upgrade wastewater infrastructure under the Planning and Development Act 2000. The surveys are required to characterise existing ecological conditions, establish a robust environmental baseline, and support Appropriate Assessment screening and impact evaluation for Dundalk Bay Special Area of Conservation, Special Protection Area, Ramsar site, and proposed Natural Heritage Area. The proposed maritime usage is strictly limited to marine survey work, including vessel-based sampling and foreshore assessment of the Castletown Estuary and Inner Dundalk Bay. Dundalk Bay SAC is designated for its extensive intertidal and subtidal mudflat and sandflat habitats, which are a Qualifying Interest under Annex I of the EU Habitats Directive. These habitats support rich benthic faunal communities that are integral to the ecological function of the bay and serve as critical foraging grounds for protected bird species.

# 2. Description of the Proposed Maritime Usage

## 2.1 Intertidal Survey – Phase I Walkover Survey

An intertidal walkover survey will be carried out along an approximately 500-metre stretch of coastline at four separate locations (Figure 1). The survey will follow the Marine Nature Conservation Review (MNCR) Phase I methodology and will be undertaken during mean low water spring (MLWS) tidal conditions to ensure optimal exposure of the lower shore and full coverage of intertidal habitats. The survey will be guided by established best practice, including the Common Standards Monitoring Guidance for Intertidal Habitats (JNCC, 2004), Littoral Sediments Habitats Procedural Guidance (Version 4, August 2004), the CCW Handbook for Marine Intertidal Phase I Survey and Mapping (Wyn *et al*., 2000), and the Guidelines for the Conduct of Benthic Studies at Marine Aggregate Extraction Sites (Ware and Kenny, 2011). Field teams will identify and classify intertidal biotopes in accordance with the EUNIS and JNCC Marine Habitat Classification systems, recording key attributes such as dominant species, substrate type, exposure, sediment characteristics, and anthropogenic influences.

Observations will be georeferenced using handheld GPS and supported by high-resolution photographs and field notes. Biotopes and habitat boundaries will be mapped in the field and subsequently digitised using GIS to produce detailed habitat maps. Particular attention will be paid to identifying any features of conservation interest (e.g., eelgrass beds, blue mussel beds, *Sabellaria* spp. reefs), with any such features mapped and documented in detail. The output will include a comprehensive report describing the survey methods, biotope

classifications, ecological observations, and mapped outputs, along with GIS files and metadata. All work will be undertaken by experienced marine ecologists, with internal quality assurance to ensure data integrity and alignment with relevant statutory guidance.

## 2.2 Phase II Quantitative Intertidal Survey

A Phase II quantitative intertidal survey will be conducted within the survey area along four transects (Figure 1). The methodology will follow that set out within the Marine Monitoring Handbook Procedural Guidance No's 3-1 (Intertidal Biotope Recording) (Wyn & Brazier, 2001) and 3-6 (Intertidal Core Sampling) (Dalkin and Barnett, 2001). Photographic records during surveying will be taken as appropriate for recording and reporting purposes.

A grab sampler will be necessary to carry out the phase II intertidal survey as the substrate in places is fine soft mudflat and is not safe to stand on at low water. Instead, at high water, a 0.025 $m^2$ Van Veen grab will be deployed from a RIB in the Upper Shore, Middle Shore and Lower Shore of each transect. Triplicate grabs will be collected at each station for macrofaunal analysis and an additional sample will be taken for Particle Size Analysis / Total Organic carbon. This approach ensures that the required sediment and faunal samples can still be obtained safely and in accordance with health and safety protocols. The vessel will be operated by qualified personnel and will follow all relevant marine safety regulations. Sample locations will be targeted using GPS to maintain alignment with the planned survey design.

Where any features of conservation interest are identified (for example seagrass, mussel beds or geogenic reef), the boundaries of these will be mapped using GPS in order to provide information on their spatial extent.

In summary, a total of 4 shorelines will be surveyed, 4 transects perpendicular to each shoreline and 12 grab samples taken along each transect for the intertidal survey.

## 2.3 Subtidal survey

A subtidal benthic survey, including faunal grab sampling, PSA, and organic carbon content analysis, is needed to characterise the sedimentary habitats and associated infauna within the subtidal zone. This survey will establish a robust ecological baseline, against which direct, indirect, and cumulative impacts can be assessed.

The subtidal benthic survey will be undertaken using a 0.025 $m^2$ Van Veen grab sampler deployed over the vessel side at designated benthic survey stations. Grab samples will be collected in duplicate at each of five stations (Figure 1). Each grab sample will be divided over a 1 mm sieve, preserved in 4% buffered formalin, and sealed in labelled containers for laboratory processing and benthic faunal identification. One additional sample will be taken at each of the five benthic survey stations for sediment characterisation including Particle Size Analysis and Total Organic Carbon.

NMBAQC 'Guidelines for processing marine microbenthic invertebrate samples' (Worsfold, T. and Hall, D., 2010) will be adhered to. In addition, all staff will be certified in personal sea survival techniques issued by BIM and First Aid Responder issued by PHECC. All survey staff will also have ENG11 seafarer's medicals prior to surveys.

The proposed intertidal and subtidal survey stations / transect locations are provided in Figure 1. The proposed survey footprint extends from the foreshore adjacent to Soldiers Point into the nearshore marine environment of Inner Dundalk Bay and the Castletown Estuary, covering both transitional and coastal water habitats within Inner Dundalk Bay. Further drawings are provided in this application as Attachment 3.4 and Attachment 3.5.

Table 2.1 Summarises the total sample requirements for the Proposed Maritime Usage.

**Table 2.1: Total sample requirements for the marine surveys in Inner Dundalk Bay.**

| Survey Element | No. Shorelines / Transects / Stations | Sample Replicates | Total Samples | Faunal Analysis Samples | PSA/TOC Samples |
|---|---|---|---|---|---|
| Intertidal Phase I (Qualitative) | 4 shorelines (~500 m each) | N/A | 4 shorelines surveyed | 0 | 0 |
| Intertidal Phase II (Boat, Van Veen) | 4 transects | 4 grabs per shore level × 3 shore levels | 48 | 36 | 12 |
| Subtidal Benthic (Boat, Van Veen) | 5 stations | 3 grabs per station | 15 | 10 | 5 |

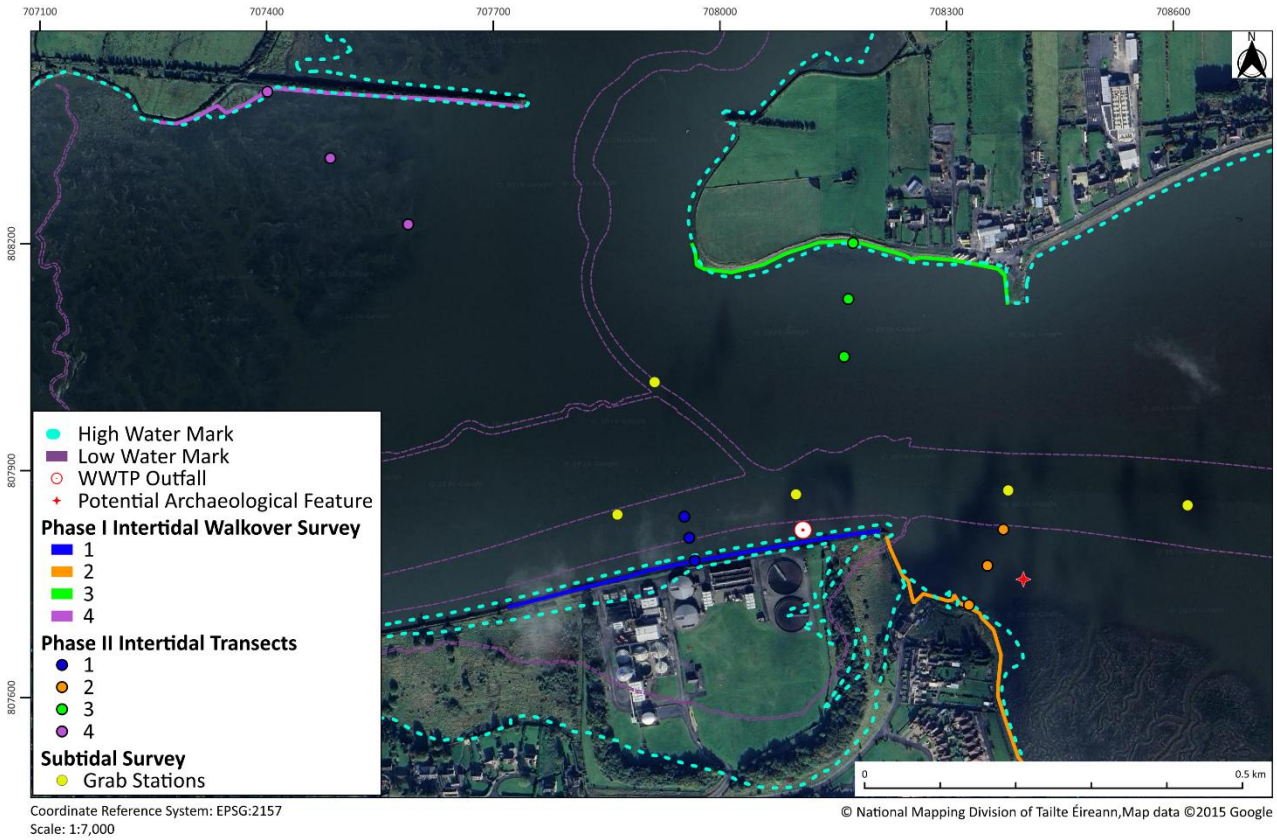


**Figure 1 – Proposed marine survey sampling locations and intertidal survey transect locations.**