
Royal HaskoningDHV Environmental Statement Longue Hogue South

Review: *Zostera marina* bed habitats

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1. ZOSTERA MARINA BACKGROUND

Zostera marina (common eelgrass) is regarded as a priority habitat forming marine species throughout the EU, UK and Channel Islands. It is a grass-like species, with leaf shoots and a creeping rhizome which binds to marine sand/sediment substrates. It is found in the subtidal region (approximately 0-5 metres deep) and can form patches, bed or dense meadow habitats, given suitable environmental conditions. *Z. marina* bed habitats are listed as an ANNEX I habitat of importance within the EU Habitat Directive, included in the Berne Convention (within the Mediterranean) and considered a Habitat Action Plan by the UK. The IUCN considers this species of 'Least Concern'.

This species provides a rich habitat for a variety of species, including fish, invertebrates, infauna, diatoms and seaweeds. In particular it provides shelter and can act as a nursery for commercial fish and cephalopods. Eelgrass habitats are known to provide extremely high biodiversity and productivity values. This habitat also stabilises the sediment and is known as a site for 'blue carbon', where it can accumulate and store organic carbon within the sediment. It is a major food source for several wildfowl species, such as Brent Goose and Widgeon. As such, it is universally recognised as an ecological significant habitat.

2. Z.MARINA WITHIN GUERNSEY TERRITORIAL WATERS

Currently, there is little ecological knowledge of *Z. marina* in terms of its' overall location, extent, density, physical parameters and ecology within Guernsey. A large proportion of the *Z. marina* records are held by the Guernsey Biological Records Centre (GBRC), which are qualitative, past sighting records (from 1887 – 2019). This includes sightings from the public and also anecdotal secondary sources, such as information derived from historical Channel Islands ecology books. In general, these records only provide basic species information, including presence, date recorded and location. A small number of quantitative records exist, such as records from Seasearch (undertaken by local and visiting recorders) and the Porcupine Marine Natural History Society (information available via the UK National Biodiversity Network (NBN)). These records range from 2008 onwards and provided more in-depth information, such as presence, location and ecological records (such as associated

substrate types and species), with little information regarding *Z. marina* species' extent/distribution.

3. RHDHV ENVIRONMENTAL STATEMENT: Z.MARINA REVIEW

ES summary:

The Longue Hougue South Environmental Statement (known from here on as ES) identifies the presence of *Z. marina* bed habitat within the proposed inert waste development project site. A snorkel survey (following Seasearch survey guidelines with Go-Pro video) was completed in 2019, which provided key ecological information, such as its presence, location, habitat type and extent (see page 667, paragraph: 17.3.44, figures 17-8 and 17-9). From the Go-Pro video footage, the *Z. marina* bed habitat appears to be a large, healthy, dense established bed habitat, supporting a diversity of marine species, including commercial fish species (such as Pollack and Bass). In addition, complementary benthic surveys identified potential suitable *Z. marina* bed habitat substrates adjacent to this eelgrass bed, within the development project site. The ES also describes other *Z. marina* bed habitats within the adjacent areas and round Guernsey.

The ES states that eelgrass habitat is of high value, due to the diversity of species it supports and its listing within the EU Habitat Directive.

The ES also describes environmental impacts upon *Z. marina* bed habitats, associated with the different phases of the build of the proposed development project. This includes:

- Construction phase – habitat alteration/physical disturbance:
 - Impact nature: negative
 - Impact type: direct
 - Impact duration: temporary
 - Impact extent: local, regional and national
 - Magnitude: low
 - Receptor/value: high
 - Impact significance: moderate
 - Residual impact: minor

- Operational phase – loss of habitat:
 - Impact nature: negative
 - Impact type: direct and irreversible
 - Impact duration: permanent
 - Impact extent: local, regional and national
 - Magnitude: low
 - Receptor/value: high
 - Impact significance: moderate

- Residual impact: minor

The mitigation measures for eelgrass habitat proposed in the ES solely centres on eelgrass transplantation methods.

ES Z. marina bed habitat review:

The recoverability aspect of *Z. marina* bed habitat from the different phases of the proposed development project has not been included in the ES (see methodology for EIA, eelgrass impact assessment section, tables 17-12, 17-13). Following the MARLIN sensitivity assessment approach, *Z. marina* is highly vulnerable to a variety of physical, chemical and biological pressures. Physical pressures (such as substratum loss and smothering) result in **very low to none recoverability** of *Z. marina* bed habitats. It is therefore highly unlikely that the healthy *Z. marina* bed habitat identified within the proposed development project site will recover from the impacts of the construction and operational phases (i.e. construction of the breakwater and subsequent infill), related to physical disturbance. In essence, the recorded *Z. marina* bed habitat may be lost.

Z. marina is known to be highly intolerable to increases in turbidity levels. Light attenuation limits the depth that *Z. marina* can grow. Prolonged increases in turbidity will result in the loss and/or damage of *Z. marina* and in turn, the bed habitat. The ES does not appear to have included the impact of this upon the recorded *Z. marina* bed habitat (i.e. construction impact – changes to water quality). The recorded *Z. marina* bed within the project development site, may therefore not recover from turbidity/changes in water quality associated with the development project's construction and operational phases.

The ES only provides one mitigation measure for the recorded *Z. marina* habitat bed; to recommend the transplantation of *Z. marina* individuals, through an Eelgrass Translocation Plan. Regarding the success of other eelgrass transplantation projects, the ES, then states 'the success rate of these projects are still very low, with 60% of transplantation projects failing'. In addition, the ES recommends a transplantation site adjacent to the proposed development project site, within Belle Grève Bay. As this bay is adjacent to the proposed development project site, it may itself become vulnerable to the impacts associated with the construction and operational phases (i.e. localised smothering and/or changes to water quality), thus affecting newly transplanted *Z. marina* individuals. The addition of new *Z. marina* individuals may also impact upon the natural physical and ecological properties of Belle Grève Bay (i.e. changing tidal flow/substrate type and the alteration of species composition). As such this review does not currently agree that the transplantation of *Z. marina* is an efficient mitigation measure tool to reduce the impact of this proposed development project upon *Z. marina* bed habitats within the proposed site. More research

and baseline surveys, with recommendations from key *Z. marina* experts (including those with transplantation knowledge) are required.

The ES often refers to other known *Z. marina* bed habitats adjacent to the proposed development site and throughout Guernsey's territorial waters (such as Bordeaux). As described earlier (see section 1 of this review), records that accurately define the location, extent, density and ecological biological diversity of *Z. marina* bed habitats within Guernsey's territorial waters are few and far between. Therefore, known, recorded *Z. marina* bed habitats within Guernsey's territorial waters should be considered extremely important. Other potential 'known' sites of *Z. marina* (as described in the ES), may well not be 'true' bed habitats (i.e. only patches/single individuals of *Z. marina*), may not be deemed 'healthy', may not sustain high biological diversity of marine species or provide other key ecosystem services (such as organic carbon storage or sedimentation). Therefore, the *Z. marina* bed habitat identified within the project development site may well be one of a few *Z. marina* bed habitats that have been accurately recorded within Guernsey territorial waters.

To conclude, this review highly recommends a precautionary approach to protect and conserve the *Z. marina* bed habitat within the proposed development project site. This is due to the conservation importance of this habitat forming species within Guernsey's territorial waters, the low recoverability of *Z. marina* bed habitats to the development project construction and operational works, limited success in the recommended mitigation measure of *Z. marina* transplantation and the general lack of knowledge of *Z. marina* bed habitats across Guernsey.

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