



ecoserv Ltd
12, Sir Arthur Borton Str Mosta,
MALTA
Tel: 21431900, Fax: 21424137
Mob: 99495343
e-mail: info@ecoserv.com.mt

VAT Reg No: 1623-1407

Method statement

Ref: MS-Westin-270223-Emissions monitoring

Date: 19th June 2023

Client: Dragonara Resort Ltd.

Re: Monitoring programme in relation to the environmental permit (EP 30/14/C), held by Dragonara Resort Ltd. for discharges to sea

Assignment details

The present submission has been prepared in response to a request by Dragonara Resort Ltd., whereby Ecoserv Ltd have been requested to submit a monitoring proposal to satisfy the requirements set out in EP 30/14/C (hereafter 'permit') held by the Dragonara Resort Ltd., for its brine, cooling water and pool backwash discharges to sea. The proposed monitoring programme is to satisfy the requirements of Schedule 3 for the emission points to sea as indicated in Condition 2.1.42. Schedule 3 states the following:

The monitoring programme should enable:

- i. Assessment of any changes in condition or health status of *Posidonia oceanica* meadows and other habitats of conservation interest and their associated species, located in close proximity to the discharge point, preferably on the basis of indicators applied for the purpose of assessing status in terms of both Habitats Directive and Water Framework Directive;*
- ii. Assessment of water quality parameters to support the assessment of ecological condition;*
- iii. Observation of the establishment/extent of non-indigenous species in the vicinity of the discharge point that might be affecting the status of the above-mentioned habitat types.*

The following details need to be provided for the assessments undertaken: (i) The area to be monitored including any monitoring stations; (ii) The monitoring methodologies; (iii) The frequency of monitoring; (iv) The water quality parameters to be monitored.

To assess changes in the condition or health status of *Posidonia oceanica* meadows and other habitats of conservation interest and their associated species located in close proximity to the discharge point, and to assess the establishment/extent of non-indigenous species in the vicinity of the discharge point that might be affecting the status of the above-mentioned habitat types, scientific SCUBA divers will undertake a benthic survey of habitats present within the proposed area of study (AoS) indicated in Figure 1. The AoS is split into two sections: emission points E1 to E4 are grouped together in the western section, while emission point E5

is separate and located in the eastern section of the AoS (see Figure 1). As the divers navigate underwater along shore-normal transects within each section of the AoS, information on the occurrence, spatial distribution and **state / condition** of the main marine benthic assemblages present will be collected. This will be supplemented by aerial imagery data. Characterisation of the benthic assemblages will be according to the 2019 Barcelona Convention classification of marine benthic habitat types¹. The spatial distribution of marine benthic habitats recorded from the study areas will be shown on a map. Particular attention will be given to the occurrence and spatial distribution of *P. oceanica* meadows, such that the map for this habitat type that will be produced from the survey may be used for comparison against data collected in future to assess any changes in the occurrence and distribution of the seagrass habitat. Photographs of representative species and habitats will be taken where relevant and used to illustrate the report, as appropriate. Data on the occurrence of scientifically important and/or protected species, and on key species relevant to characterisation of the habitat and for monitoring purposes will be collected and presented. Particular reference will be made to any species recorded from the AoS that are listed in the Red Data Book for the Maltese Islands, and species and/or biotope/habitat types that are listed in the relevant Maltese nature protection legislation, relevant nature protection treaties and the EU Nature Protection Acquis. The reported findings will include statements on whether the study areas support any biological characteristics of particular conservation and/or scientific importance, as well as protected, endangered, rare, unique, endemic, high-quality, keystone, **invasive/deleterious**, or otherwise important species, habitats, ecological assemblages, and ecological conditions. **Particular attention will also be paid to the presence of establishment / extent of non-indigenous species within the study area, including in the vicinity of the discharge point, that might be affecting the status of the habitat types present.**



Figure 1. Map showing the proposed areas of study. Effluent points E1 – E4 discharge into the western section of the AoS, whilst E5 discharges into the eastern section of the AoS. If present, a suitable patch of *P. oceanica* will be located within each section of the AoS for sampling and measurements. Seawater samples will be collected at the surface, from the same stations as those used for *P. oceanica*.

¹ SPA/RAC–UN Environment/MAP, 2019. Updated classification of benthic marine habitat types for the Mediterranean region. United Nations Environment Programme, Mediterranean Action Plan, Specially Protected Areas Regional Activity Centre (SPA/RAC), Tunis, Tunisia; 23 pp.

To assess changes in condition or health status of the *P. oceanica* meadows in close proximity to the discharge points, non-destructive in situ measurement of the following standard seagrass parameters will be made. Every effort will be made to locate the sampling stations for *P. oceanica* within 40m of the effluent discharge within each AoS, however, this is dependent on the distribution of *P. oceanica* meadows at the site. There will be **one sampling station within each AoS**, and the coordinates of each sampling station will be recorded using a handheld or boat mounted GPS unit. The sampling and parameters for *P. oceanica* will involve:

- Three outer leaves (which will ensure inclusion of all adult leaves) will be collected from each of ten shoots from a point of adequate *P. oceanica* cover, as determined by the benthic survey.
- Three replicate measurements of seagrass shoot density will be made at each station;
- In the laboratory, the following estimates will be made:
 - o Length of each adult leaf from each shoot;
 - o Percentage necrosis of the adult leaves in each shoot;
 - o Dry weight of the adult leaves in each shoot;
 - o Dry weight of epiphytes from the adult leaves in each shoot.

To assess water quality parameters to support ecological condition, two replicate samples of seawater will be collected from the surface, at the same point from where *P. oceanica* leaves were collected. Seawater samples will be analysed for the parameters in Table 1 at an accredited laboratory (**Annex 1**). The parameters in Table 2 will be assessed *in situ* using a handheld YSI metre.

Table 1 – Parameters that will be analysed by I2A Laboratory, with the specified limits of detection for each parameter.

Parameter	Limit of Detection
Nitrates	0.05 mg/l
Phosphates	62 µg/l

Table 2 – Parameters that will be determined *in situ* using a YSI ProDSS handheld multiparameter metre, fitted with the necessary sensors.

Parameter	Limit of Detection
pH	0.01 unit
Total dissolved solids	0.01 g/l
Chlorophyll a	0.01 µg/l
Salinity	0.01 ppt
Dissolved Oxygen	0.1 %
Temperature	0.1 °C

Frequency of monitoring

- Benthic survey, assessment of *P. oceanica* parameters and assessment of water quality to support ecological condition: one session within the first year of the validity of the environmental permit, and a follow-up session prior to expiry of the permit. The second session will include a comparison with the findings from the first session.

Personnel

Supervision and coordination of all work and analyses of data, and writing of the report will be carried out by Dr Julian Evans BSc (Hons) MSc PhD (Plymouth) CBiol MRSB MMBA and Professor

Joseph A Borg BSc MSc PhD (Plymouth) CBIol MRSB MMBA FIBMS, assisted by a team of environmental biologists from Ecoserv.

Delivery

6 - 8 weeks from date of commissioning, weather permitting.

Requirements

- Free and unhindered access to the site from the shore
- No navigating marine pleasure craft within the entire AoS during the survey involving diving.

Annex 1

Accreditation certificate of I2A Laboratories

Certificate of Accreditation



I2 Analytical Ltd

Testing Laboratory No. 4041

**Is accredited in accordance with International Standard ISO/IEC 17025:2017
– General Requirements for the competence of testing and calibration
laboratories.**

This accreditation demonstrates technical competence for a defined scope specified in the schedule to this certificate, and the operation of a management system (refer joint ISO-ILAC-IAF Communiqué dated April 2017). The schedule to this certificate is an essential accreditation document and from time to time may be revised and reissued.

The most recent issue of the schedule of accreditation, which bears the same accreditation number as this certificate, is available from www.ukas.com.

This accreditation is subject to continuing conformity with United Kingdom Accreditation Service requirements.

Matt Gantley, Chief Executive Officer
United Kingdom Accreditation Service

Initial Accreditation: 6 July 2006
Certificate Issued: 25 January 2021



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UKAS is appointed as the sole national accreditation body for the UK by The Accreditation Regulations 2009 (SI No 3155/2009) and operates under a Memorandum of Understanding (MoU) with the Department for Business, Energy and Industrial Strategy (BEIS).