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PRELIMINARY RESULTS FROM MSFD-PRESCRIBED NATIONAL MONITORING WITHIN MALTESE WATERS FOR DESCRIPTOR 2 (NIS)

Abstract

The Marine Strategy Framework Directive (MSFD) applies an ecosystem-based model in aspiring to lead EU Member States to the achievement of a Good Environment Status (GES) for eleven different Descriptors of the marine environment. Descriptor 2 of the MSFD focuses on Non-Indigenous Species (NIS), and this study reports the data collected from the Maltese Islands over the 2017-2018 period for this Descriptor.

Key-words: MSFD, NIS, monitoring, Maltese Islands

Introduction

The European Union's Marine Strategy Framework Directive (MSFD) is a wide-ranging framework directive (2008/56/EC) with the overall objective of achieving or maintaining Good Environmental Status (GES) in Europe's seas by 2020 (MSFD, 2008). Eleven high level qualitative Descriptors of GES have been defined in Annex I of the MSFD, including Descriptor 2, for which GES has been defined as 'Non-Indigenous Species introduced by human activities are at levels that do not adversely alter the ecosystem.' In order to achieve the GES within each of the eleven MSFD Descriptors, EU Member States are obliged to implement a monitoring strategy within their waters pursuant to collecting data addressing a number of indicators identified for each Descriptor.

Materials and Methods

The monitoring programme for MSFD Descriptor 2 (Non-indigenous species or NIS) has been implemented in 2017-2018 as part of the EMFF 8.3.1 project, funded under Union Priority 6 of Malta's Operational Programme for the European Maritime and Fisheries Fund 2014-2020. A two-tiered approach was adopted for the monitoring of NIS within Maltese waters – one within Marine Protected Areas (MPAs) and within hotspots or likely entry points for NIS. Within the seven sites located within the confines of designated MPAs, two scientific divers swam along two linear, shore-normal and geo-referenced transects as per the protocol delineated within Otero *et al.*, (2013), with the aim of recording all observed vagile and sessile NIS, with the former being counted as individuals whilst the latter being quantified in terms of coverage through the Braun-Blanquet cover index. Within hotspots, represented by ports and harbours (Grand Harbour and Marsaxlokk Bay), two scientific divers swam for a fixed, pre-established length of time (30 minutes at each site) along jetties, wharves, pontoons to mooring

dolphins, as per protocols specified in Minchin (2007) and UNEP (2014). The selected sites were sampled twice – in summer 2017 and in late spring/early summer 2018.

Results

A total of eleven and of seven NIS were recorded from Marsaxlokk Bay and from the Grand Harbour respectively, for a total of thirteen species from both sites, with *Amathia verticillata* and *Pinctada radiata imbricata* being the most abundant at the first site, whilst *Branchiomma bairdii* being the most abundant at the second site, with all three NIS reaching Braun-Blanquet cover index values of 4. With five species, crustaceans were the most represented in terms of NIS within the sampled hotspots, followed by polychaetes, bivalves, bryozoans and ascidians, with two species each. A total of eleven NIS were recorded within the monitored MPA sites, with seven of these representing algal species, and phanerogams, bivalves, decapod crustaceans and ascidians being represented by a single species each. The sessile NIS most commonly encountered within the sampled MPAs was *Lophocladia lallemandii*, with *Percnon gibbesi* being the most common vagile species. During the monitoring surveys in question, two new records of sublittoral species for the Maltese Islands were made – *Symplegma* cfr. *brakenhielmi*, a Lessepsian ascidian, and *Oculina patagonica*, a cryptogenic coral, both recorded from the Marsaxlokk Bay hotspot.

Discussion and Conclusions

Although the number of NIS recorded within the monitoring sites located within Maltese waters was relatively low, algal NIS generally exhibited high coverage values and their impacts on the status of benthic habitats needs to be evaluated. The fact that no fish NIS were recorded during the survey under review is probably due to the snapshot nature of the same survey. The high coverage and diversity exhibited by Maltese NIS within the surveyed hotspots is consistent with the status of these locations as maritime traffic and transport hubs, even for vessels hailing from tropical and sub-tropical seas. Monitoring carried out in hotspots as part of the EMFF 8.3.1 project is considered to have contributed significantly to the emergence of new knowledge on this pressure within Malta's marine waters.

Data property

The data used for the purpose of this publication emanates from the EU funded project EMFF 8.3.1 under the European Maritime and Fisheries Fund 2014-2020. The copyright of such data is the property of the project in line with the provisions of CT 3031/2016 and will remain vested in the project in question.

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