

SUMMARY OF FINDINGS - STRIVE Report No. 105

Ecosystem indicators for the Marine Strategy Framework Directive (MSFD)

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The Marine Strategy Framework Directive (MSFD) has potential to become a powerful forum for sustainable management of the oceans. The OSPAR EcoQO (Ecological Quality Objectives) system can contribute to the implementation of the MSFD in Irish waters. This research provides reference tables which link OSPAR to the MSFD and other EU legislative drivers. A generic protocol is described for Ireland which can be used to **rapidly evaluate any set of candidate ecosystem indicators**. However, the research team found that there are some important gaps; for example, lack of indicators of benthic or pelagic community/habitat state.

Key Words Marine Strategy Framework Directive (MSFD); OSPAR Convention; Ecosystem Indicators, Good Environmental Status, Irish Marine Waters.

Background The Marine Strategy Framework Directive (MSFD, 2008/56/EC) aims to ensure that Europe's seas achieve Good Environmental Status (GES) by 2020, and "has established itself as the cornerstone of all future EU regulatory measures that are applicable to the marine environment". The MSFD was transposed into Irish law by the European Community's (Marine Strategy Framework) Regulations (SI No. 249 of 2011). The first legislative deadline was 2012, when Member States must have defined GES and indicators for sea areas under their sovereignty and jurisdiction, followed by the establishment of monitoring programmes by 2014.

Such strategies must contain a detailed assessment of the state of the environment, a definition of GES at regional level, as well as the establishment of clear environmental targets and monitoring programmes. Each Member State must then draw up a programme of cost-effective measures by 2015 in co-ordination with other Member States in their marine region.

There is general guidance for EU Member States implementing the MSFD, and candidate ecosystem indicators are available. Monitoring programmes and data must now be identified and critiqued for the Irish context. The final step will be to 'tune' indicators for Irish marine waters and define appropriate reference points.

Key Points & Findings

- It was found that many of OSPAR EcoQOs were well supported by current monitoring programmes in Irish waters and could relatively easily be implemented within corresponding MSFD structures.

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- For a key fish community indicator (LFI), a ‘Celtic Seas’ subregional indicator was developed and presented with a GES threshold and management recommendations.
- The spatial scale of several current monitoring programmes is inappropriate for the MSFD ‘sub-region’ scale and this needs to be addressed during definition and tuning of indicators for Irish waters.
- The project provides a combination of data synthesis and novel analysis that will prove valuable as national bodies in Ireland move towards full implementation of the diverse components of the MSFD.

Recommendations

- **Integration of monitoring programmes serving EU environmental legislation.** There is considerable overlap between EU programmes, e.g. the MSFD and the WFD. This has been recognised in Irish water quality sampling but should be considered further for other marine ecosystem components.
- **Tuning of ecosystem indicators to serve regional marine systems.** Selecting an appropriate indicator suite for a given marine region requires an objective evaluation methodology. The protocol of Rice and Rochet (2005) can be modified to serve this component of the MSFD implementation process.
- **Implementing OSPAR EcoQOs in Irish waters.** Several of the OSPAR EcoQOs are directly relevant to the MSFD. In some cases, e.g. regarding eutrophication, the process is well established. In other examples, e.g. seal and seabird population trends, there is a sound framework that can be modified and extended.
- Extending indicator series from national monitoring programmes to MSFD regional scale.
- Servicing the MSFD is likely to require a higher degree of integration and coordination among environmental bodies and agencies in Ireland, in order to ensure compliance and implementation.

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Some publications connected to this work – more available in STRIVE 105

1. *Modelling recovery of Celtic Sea demersal fish community size-structure* Shephard, S., Fung, T., Rossberg, A. G., Reid, D. G., Greenstreet, S. P. R., and Warnes, S. **2013** *Fisheries Research* Vol. 140, 01.02.2013, p. 91-95
2. *Combining multiple surveys to derive regional scale assessments of the status of fish communities from sub-regional scale data sets.* Greenstreet, S. P. R., Shephard, S., Dransfeld, L., Guijarro-Garcia, E., Oesterwind, D., Officer, R., and Reid, D. G. **2013** (In Review) *ICES Journal of Marine Science*.