

INTRODUCTION TO UK LEGISLATION AND GUIDELINES

Offshore Environmental Surveys

This is a brief introduction to UK offshore marine environmental survey legislation and guidelines, written from a fairly narrow perspective: that of a contractor providing such survey services to the oil & gas industry. Legislation requires environmental surveys of the North Sea but the extent and definition of these is open to interpretation, with quite a variety of standards and guidelines to choose from or ignore.

Legal Framework

UK environmental legislation transposes European Community (EC) directives on the environment. The prime EC directives are Council Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora[™] (the Habitats Directive[™]), and the Assessment of the Effects of Certain Public and Private Activities on the Environment[™] (85/337/EEC) and amendments: the Environmental Impact Assessment (EIA) Directive[™]. For the offshore oil & gas industry, the Habitats Directive was enacted through UK Statutory Instrument (SI) 2001/1754, the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001. This covered the UK continental shelf and was amended by a subsequent regulation in 2007 (SI 2007/77) to extend the regulations to the rest of UK waters, from low-water mark seaward. The regulations cover activities in the exploration for or production of oil or gas that may impact sensitive habitats as defined in the Habitats Directive. Also covered are areas that are or may be classified as Special Areas of Conservation (SAC), and Special Protection Areas as defined in the Wild Birds Directive 79/409/EC, but I shall ignore this in terms of the offshore environment. Any project that may have an effect on a sensitive habitat or SAC must be subject to appropriate assessment.

Sensitive Habitat

The key sensitive habitats were listed in Annex 1 of the Habitats Directive. The UK Joint Nature Conservancy Council (JNCC), the Department for Environment, Food and Rural Affairs (Defra) and the Department of Trade and Industry (DTI) undertook a joint project to identify UK offshore SACs. Of the eight marine habitats in the Habitats Directive, four are found in the UK offshore marine environment. These are the reefs[™] (biogenic as well as the obvious rocky variety), the submarine structures made by leaking gases[™] (found in some pockmarks), the submerged or partially submerged sea caves[™], and the sandbanks which are slightly covered by seawater at all times[™], taken within a UK context to mean up to 20m deep, deeper in certain cases.

The Habitats Directive and the Regulations cover the relevant sites[™] listed because they either are or might become SACs. This is a process led for the UK by the JNCC. Current designated and candidate SACs include sandbanks (Dogger Bank), pockmarks with submarine structures (the Scanner Pockmarks) and biogenic reefs (Saturn). The ongoing process of designating SACs means that any site with priority habitats, as defined by the Habitats Directive, is also potentially protected as if it were designated. Conversely, it appears that once sites have been designated and the List of Sites of Community Importance is finalised, the rest of the offshore marine environment will have little protection under this Directive. Perhaps future protection of the marine environment will then rest with the Oslo and Paris Commission (OSPAR, web reference 1) and its biological diversity and ecosystems strategy, which includes habitats such as the seapen and megafauna communities[™] not currently covered by the Habitats Directive, as well as other habitats that are covered.

As a result of Habitats legislation, much current environmental survey work offshore is concerned with identifying the presence or preferably establishing the absence of these sensitive habitats. Only if the sensitive habitat is identified need further work be done to assess the environmental impact.

Marine Mammals

The Habitats Directive (and SI 1754) also aims to protect all species of cetaceans. The JNCC has thus introduced guidelines for the Minimising Acoustic Disturbance to Marine Mammals from Seismic Surveys[™], and marine-mammal observers may now be required on seismic vessels.

More involved environmental survey work, such as baseline surveys, are covered by the EIA Directive as enacted through SI 1999/360, The Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999. This covers projects for drilling, and the construction and installation of facilities and pipelines in UK territorial seas and on its continental shelf. Where the regulations require an Environmental Statement to be submitted for a project the licensee must

make an assessment of the impact of the project, and it is at this stage that the requirements for an EIA, if any, will be agreed with the regulators. In practice, the requirements for a survey to determine baseline conditions vary from site to site depending on the perceived sensitivity of the habitats and any lack or abundance of previous survey data for the area. The licensee's environmental commitment often also becomes apparent at this stage, with a noticeable difference in approach between different operators.

Habitat Assessment

So the first step is assessing the presence of sensitive habitats. There are two aspects to this: looking at the physical environment (geophysical environment, bathymetry etc) to see if it could possibly support one of the four sensitive habitats, and then establishing whether or not the habitat is actually present. A standard approach would be to map the physical environment using acoustic techniques such as single-beam or multi-beam echo sounder, acoustic ground discrimination system (AGDS) and side-scan sonar. This instrumentation constitutes a standard geophysical spread on most survey vessels. There are no guidelines for this and the jury is still out on the best combination of instrumentation and settings, for example digital sonar at 100KHz or 500KHz. Work continues on research projects such as Mapping Seabed Habitats (MESH, web reference 2). Some sensitive habitats, such as reefs, show up well using this approach. Others such as Sabellaria beds, also classified as "biogenic reefs" are less distinct and may be confused with other, non-biological seabed types.

Base-map

Based on this data, a base-map outlining the acoustically distinct areas of the seabed will be drawn up. Assumed classification of distinct areas is then proved using some form of ground-truthing, such as underwater camera, grabs or beam trawls, to provide the biological information with which to establish the different communities present on the seabed. Where acoustic data leads to the suspected presence of a sensitive habitat, grabs or other destructive sampling techniques are obviously not used. Precisely for this reason the camera is usually first down, and for some habitats, such as Sabellaria reefs, this may be all that is required to delineate the area of concern.

Baseline Assessment

Environmental baseline surveys (EBSs) may be required as part of the EIA process. What are the existing levels of chemical pollutants? What is the current makeup of the seabed animal community, the benthic macrofaunal assemblage against which future or past surveys are to be compared? Environmental Baseline Surveys set out to answer these questions. They provide the baseline assessment against which future surveys are judged. In the 1990s, Department of Trade and Industry (DTI) requirements for site surveys were very clear. Their Annex 3 "Conditions for the Discharge of Oil Contaminated Cutting Resulting from Offshore Drilling Operations" required a "standard" survey of fifteen or more seabed stations, sampled for chemical and biological analysis. Thankfully, the use of oil-based muds (OBM) has been replaced by use of more environmentally benign ones and the Annex 3 guidelines are no longer relevant; but nothing seems to have taken their place. There are quite a few standards and guidelines that could be used for this fieldwork: BS EN ISO 5667:2004 and 16665:2005 provide guidelines for quantitative sampling and sample processing of marine soft-bottom macrofauna. OSPAR (the Oslo and Paris Commission) offers extensive guidelines for regional and field-specific EBSs, largely based on Norwegian government guidelines. However, these are currently not rigorously applied. Without hard and fast guidelines, EBSs in the UK continental shelf may range from token sampling at less than five stations to major sampling surveys of more than twenty stations around a drill or platform location.

Decommissioning

Oil & gas platform decommissioning is better covered by guidelines. Field decommissioning and disposal in all North Sea countries are regulated in accordance with the OSPAR 98/3 Decision on the "Disposal of Disused Offshore Installations". In turn, the Norwegian Oil Industry Association in conjunction with the UK Offshore Operators Association (UKOOA) has produced guidelines for Cuttings Pile Surveys. These collect more information designed to assess the size, physical, biological and chemical characteristics of the residual drillings cuttings pile remaining under most platforms, enabling the evaluation of various disposal options.

Future Regulation

Hopefully there will be a period of stability in the regulations as these apply to the oil & gas industry, while the draft Offshore Marine Conservation (Natural Habitats, & c.) Regulations will extend the protection of the Habitats Directive for other activities across the rest of the UK continental shelf. However, the implications of the planned Marine Bill and how this will affect marine environmental issues, in particular the impact of the proposed Marine Management Organisation on the current advisory and regulatory bodies, remains to be seen.

OSPAR

The 1992 OSPAR Convention combines and updates the 1972 Oslo Convention on Dumping Waste at Sea and the 1974 Paris Convention on Land-Based Sources of Marine Pollution. Its aim is to guide international co-operation protecting the marine environment of the North-East Atlantic and it is managed by a commission representing the countries from around the North-East Atlantic Ocean (and the European Commission). The Convention places obligations on member countries to monitor and assess the marine environment, and the commission has developed strategies and programmes to meet these obligations, although how these are implemented is still governed by national laws. In 2003 it strengthened its commitment to an "ecosystem approach": the protection and conservation of the ecosystems and biological diversity of the maritime area. In 2004 it published a new list of "Threatened and/or Declining Species and Habitats" which included, amongst others, Sabellaria spinulosa reefs and Seapens and Burrowing Megafauna communities.