Environmental assessment of the deep-water ecosystem to the West of the British Isles

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In recent decades, human activities have spread into deep-water ecosystems. Primarily fishing has developed in deep-waters but oil extraction is now also a component of human activities while other activities, such as mining for ore display significant perspectives for development into the deep waters. At the same time, land-based activities may impact deep-water ecosystems through e.g. acidification and spread of contaminants. Deep-water ecosystems are therefore impacted by a range of pressures induced by human activities. At the same time, deep-water ecosystems have generally a lower productivity than shallow water ecosystems, they include high biodiversity, vulnerable species and communities, while data and knowledge are more limited than for shelf and coastal ecosystems.
The development of an ecosystem-based approach to the management of human activities is therefore particularly challenging in deep-water ecosystems. Here, ecosystem components and human pressures impacting them are analysed for the deep-water ecosystem (500-2000 m) to the West of the British Isles, a rather well studied deep-water area. The approach uses ecosystem characteristics and associated pressures and impacts as defined in the EU Marine Strategy Framework Directive (MSFD). An indicator-based piecewise assessment is then carried out for each ecosystem component. The results bring out the spatial scale and organization level for which the environmental status of the deep-water ecosystem can be determined using currently available information.