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# Marine governance in the English Channel (La Manche): Linking science and management

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## ABSTRACT

The English Channel is one of the world's busiest sea areas with intense shipping and port activity juxtaposed with recreation, communications and important conservation areas. Opportunities for marine renewable energy vie with existing activities for space. The current governance of the English Channel is reviewed and found to lack integration between countries, sectors, legislation and scientific research. Recent developments within the EU's marine management frameworks are significantly altering our approach to marine governance and this paper explores the implications of these new approaches to management of the English Channel. Existing mechanisms for cross-Channel science and potential benefits of an English Channel scale perspective are considered. In conclusion, current management practices are considered against the 12 Malawi Principles of the ecosystem approach resulting in proposals for enhancing governance of the region through science at the scale of the English Channel.

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## 1. Introduction

### 1.1. The English Channel as a socio-economic system

The English Channel is one of the busiest marine areas in the world with 300–400 ships of over 300 tonnes passing through East to West each day, whilst around 100 ferries run North to South transporting goods and people between the UK and France (CAMIS, 2013a). In addition to the large ports with intercontinental links (Southampton, Le Havre, Rouen and Dunkirk) there are numerous small regional ports and marinas dotted along the coasts providing economic and social interest. Industries, such as submarine cables and marine aggregate extraction, and their associated infrastructure, provide economic benefits and employment to the region. Fisheries and aquaculture for shellfish and algal products are significant to the local economy and an important element of the cultural heritage of communities along the English Channel coasts. All these activities are overlaid on a singular natural environment, valued for its environmentally and culturally significant features which make the area popular with residents and tourists (CAMIS, 2013a). Effective governance of this region and its associated activities can readily be seen to be a very tricky undertaking.

In recent years the density and diversity of these activities have increased. New industries such as marine renewable energy are welcomed by the EU, national governments and the local coastal authorities as opportunities for economic growth and (sustainable) development, but these place additional pressures on an already stressed system. The marine environment has been considered to be the 'next industrial estate' and there is the perception by some that every square inch of sea can or should be used to maximum benefit (Smith, 2000). In areas such as the English Channel this has serious implications for resource management, safety of those at sea, management of human activities and protection of vulnerable habitats and species. Integrated management which recognises the interests and values of all those involved and seeks to balance development within ecological boundaries is essential to ensure we can sustain existing activities and changes as they occur.

### 1.2. English Channel ecology

The English Channel is a single system containing diverse ecosystems with ecological functions and processes occurring across a Median line which separates the French and UK marine areas (see Fig. 1) (Tappin and Millward, this issue). Physically the English Channel can be split into Western and Eastern basins, with the dividing line running between Portland in the North and Alderney in the South, but within these regions many of the characteristics are analogous (Dauvin, 2012). Some key differences include the presence of a major freshwater input on the French

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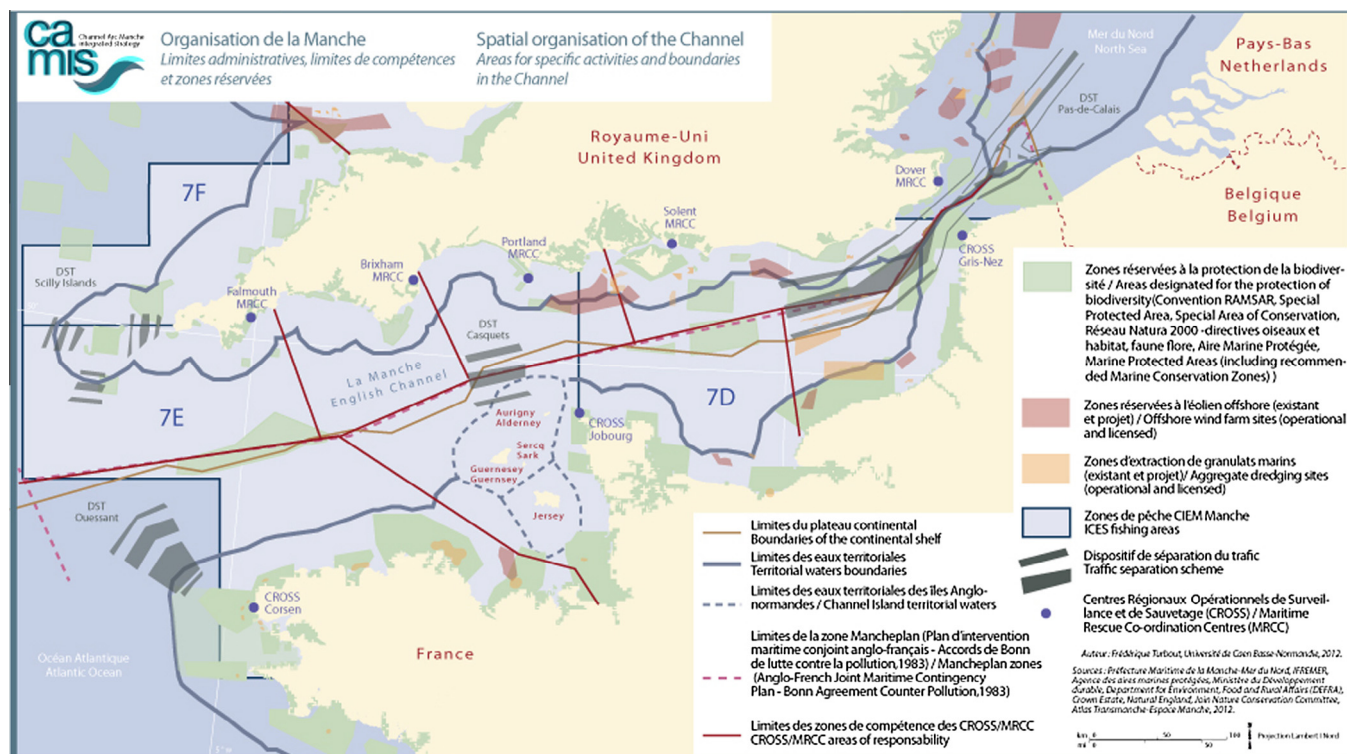


Fig. 1. A chart illustrating some of the key management boundaries in the English Channel. Source: F. Turbout, University of Caen, 2013 – Cross Channel Atlas – Channel Spaces.

side (the Seine) in the Eastern basin, the presence of a strong summer thermocline in the Western basin, different temperature and tidal ranges, and the geology of the coastal zones. There are also differences in the biogeographic features of the two areas but the similarities and close connectivity suggest that an ecological approach to the management of the system as a whole is by far the most appropriate (Dauvin, 2012). Adopting a holistic, ecosystem scale approach allows natural processes in the English Channel to be taken into account fully and assimilated into the development of management concepts and practice.

### 1.3. The ecosystem approach – science and governance

In 1995 the Convention on Biological Diversity (CBD) adopted the Ecosystem Approach (EA) as its primary framework for holistic management of natural resources and subsequently in 1998 the 12 Malawi Principles were defined (CBD, 1998). These principles, which address the why, how and what of ecosystem management, are listed in Table 3 which will be discussed later. This approach is specified in most, recent environmental legislation from the EU (e.g. the Recommendation on Integrated Coastal Zone Management (ICZM, 2002) and the Marine Strategy Framework Directive (MSFD; EU, 2008)) and in national legislation (e.g. the UK's Marine and Coastal Access Act (MCAA, 2009)).

The CBD specifies that adaptive management is an essential requirement for EA implementation and refers to the need for the application of relevant data, the involvement of stakeholders in management processes and the conservation of ecosystem structure and functioning (CBD, 1998). All of these features require a fundamental understanding of the science underpinning the operation of the system. In an adaptive process there is opportunity to learn from experience and to alter the management processes used in light of observation (Curtin and Prellezo, 2010). This means that the integration of science and

management is a fundamental condition for successful implementation of an EA.

The Convention specifies, unsurprisingly, that the EA should operate at the scale of the ecosystem but it does not define that scale and notes that the 'scale of analysis and action' should be determined on the basis of the issue being addressed with decentralisation to the lowest appropriate level (CBD, 1998). It also calls for inter-sectoral cooperation. Thus the style and form of implementation can vary greatly from system to system depending, for example, on the scale of the area, the components and condition of the natural ecosystem, the existing policy and legislative frameworks and the nature of the human activities. It will also be dependent on the specific issues of concern; for example, addressing the problems associated with the trans-boundary transport of atmospheric pollutants and the local impact of shellfish aquaculture would require quite different tactics but they could both use the EA to provide the framework for action.

Although it was argued above (Section 1.2) that there were differences in the East and West English Channel, for the purposes of the EA the management unit is very likely to be the whole English Channel. Here, although there is an international boundary, as delineated by the Median line, it is likely the sea water involved comprises a single diverse ecosystem and that the pressures exerted by human activities have impacts across the whole area. However, the presence of an international boundary makes coherent governance problematic unless there is positive management to ensure cooperation.

### 1.4. Aim of the paper

In recent years there have been a variety of natural science studies on the English Channel, some of which are discussed in this journal issue. Concurrently, projects such as EMDI, CAMIS and PEGASEAS, have explored the socio-economic characteristics of

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