Why marine species play a central role in biological oceanography data management

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'Species', and their levels of classification (genera, families), represent biological resources of both economic and ecological importance. It is arguable that the primary reason we need to understand physical and chemical oceanography is to manage these biological resources. The presence and absence of species in samples are tools for biodiversity assessment, nature conservation management, pollution monitoring and assessment, and provide measures of ecosystem change (colonization theory, stability etc.). They are the most practical and widely applicable measure of biodiversity, and the only one with a well-established standardised code of nomenclature. The correct names are a prerequisite for more complex information systems (e.g. atlases), and are the basis for quality control in biodiversity research and management. A globally accessible database of all species names would minimize nomenclatural confusion, and save significant amounts of taxonomists time in searching literature and re-describing already known species. The experience of compiling the European Register of Marine Species will be summarized, and role of federated databases (e.g. Species 2000) described. Species lists are most effectively edited by taxonomic experts, and their compilation has added benefits in networking. The lodging of biological data into on-line databases should become 'good practice' in the same way that taxonomic specimens are lodged in museums. The internet will result in greater demand for taxonomists to quality-control the data, and will free up taxonomists time to describe new species instead of correcting the errors of the past.

Species lists are most informative when associated with biogeography. The Ocean Biogeographic Information System is providing an on-line portal to marine species distribution data (http://www.iobis.org). Some data are on the OBIS server ('centralised') and some accessed through other on-line databases ('federated'). OBIS is the data server for the global Census of Marine Life, and an Associate Member of the Global Biodiversity Information Facility. The added value of the OBIS web site is that it will provide synoptic ocean climate and environment data for comparison with species distributions. In addition, it will provide a range of mapping and geo-statistical tools. All the data and tools will be freely available on-line. OBIS aims to be a global marine component of GBIF, and a major force in unifying biological oceanography at a global level.