Informatics and Decisions support in Galway Bay (SmartBay) using ERDDAP, OGC Technologies and Third Party Data Sources to Provide Services to the Marine Community.

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The global marine sector generates and consumes vast quantities of operational and forecast data on a daily basis. One of the key challenges facing the sector relates to the management and transformation of that data into knowledge.

The Irish Marine Institute (MI) generates oceanographic and environmental data on a regular and frequent basis. This data comes from operational ocean models run on the MI's high performance computer (HPC) and various environmental observation sensors systems. Some of the data published by the Marine Institute is brokered by the Environmental Research Division's Data Access Program (ERDDAP) data broker, which is a broker technology that uses technology based on OPeNDAP and Open Geospatial Consortium (OGC) standards. The broker provides a consistent web service interface to the data services of the Marine Institute; these services include wave, tide and weather sensors and numerical model output. An ERDDAP server publishes data in a number of standard and developer friendly ways, including some OGC formats. The data on the MI ERDDAP (http://erddap.marine.ie) server is published as OpenData.

The marine work package of the FP7 funded ENVIROFI project (http://www.envirofi.eu/) has used the ERDDAP data broker as a core resource in the development of its Marine Asset management decision Support Tool (MAST) portal and phone App. Communication between MAST and ERDDAP is via a Uniform Resource Identifier (Linked Data).

A key objective of the MAST prototype is to demonstrate the potential of next-generation dynamic web-based products and services and how they can be harnessed to facilitate growth of both the marine and IT sectors.

The use case driving the project is the management of ocean energy assets in the marine environment. In particular the provision of information that aid in the decision making process surrounding maintenance at sea. This question is common to any offshore industry and solution proposed here is applicable to other users of Galway Bay, Ireland. The architecture of the MAST is based on the concepts of Representational State Transfer (REST), Resource Orientated Architecture (ROA), Service Orientated Architecture (SOA), OpenData and MASHUPS.

In this paper we demonstrate the architecture of the MAST system and discuss the potential of ERDDAP technology to serve complex data in formats that are accessible to the general developer community. We also discuss of the potential of next generation web technologies and OpenData to encourage the use of valuable marine data resources.