

Regulating the Provisions of European Marine Data and Observation

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Abstract: At present the majority of marine data collected by institutions are largely collected with specific purpose in mind – for instance to exploit marine resources, to ensure safe navigation, to monitor compliance with regulations or to test scientific theories. However, those processing or applying these data face a number of obstacles such as restriction to access, use and re-use of fragmented standards, formats and nomenclature. The paper is focused on the analysis of the European legal sources to establish and implement coordinated monitoring programmes for on-going assessments of the environmental status of marine waters. The authors are urging for sharing of marine data uniformly, efficiently and rapidly in a regulated procedure with the aim of reducing operational costs for marine data users.

Keywords: regulation, marine data, observation, environment, European Union

1. Foreword

Marine data are held by hundreds of different institutions in the EU – hydrographical offices, geological surveys, local authorities, environmental agencies, research institutes, faculties, universities etc. In authors' opinion application of marine data cannot rely on data from one source collected for a single purpose and the lack of an effective marine data infrastructure and space observation network compound uncertainty in the ocean's future behaviour.

Private companies need marine data in order to exploit resources more efficiently, while national and local authorities need to protect their coastlines or assess compliance with environmental standards.

2. Scheme to improve marine knowledge

From marine data and observation user's point of view there are major barriers with respect to disclosure, access, use, coherence, cost and quality of information. Namely, end-users are not being able to find those, or are not having permission to access those, or there are restrictions imposed to users. It is often difficult to combine data at the cost that is beyond the budget of the user. In addition, precision and accuracy is unknown, with spatial and temporal resolution not being sufficient for the purpose.

Current situation is that organisations can be reluctant to make their data accessible, because they can derive a competitive advantage through preferential access to the data when delivering products derived from these data.

Therefore, action is needed for assembling the data to provide access to coherent, quality-checked, securely maintained data. An advanced level is to support observation systems and collection of data, including applying data to provide indicators.

The objective is in reducing the application of operational costs and delays for those who use marine data by helping private industry compete in the global economy and meeting the challenge of sustainability; improving the quality of public decision-making at all levels and strengthening marine scientific research. The goal is in increasing competition and innovation amongst users and re-users of marine data by providing wider access to quality-checked, rapidly available coherent marine data, with the aim of reducing uncertainty in knowledge of the oceans and the seas and so providing a sounder basis for managing future changes. An integrated network to replace the present fragmented marine observation system will not only improve the efficiency of existing users of marine data but will also open up new opportunities for innovation and growth.

3. Institutional framework

3.1 Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)

Marine Strategy Framework Directive obliges Member States to establish and implement coordinated monitoring programmes for the ongoing assessment of the environmental status of their marine waters. Assembling seabasin and pan-European-sea images requires collaboration across borders and across disciplines. Experience so far demonstrates that the sharing of data across sectors and across Member States does not take place uniformly, adequately, efficiently or rapidly. Unless the European Union takes or facilitates actions in this field this is unlikely to happen [1].

3.2 Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

INSPIRE Directive obliges Member States to adopt measures for the sharing of data sets and services between public authorities for the purposes of public tasks and the Environmental Information Directive requires them to release the data when asked. The Directive on the re-use of public sector information facilitates the re-use of public data by establishing a common legislative framework regulating the method in which public sector bodies should make their information available for re-use in order to remove barriers such as discriminatory practices, monopoly markets and a lack of transparency [2].

3.3 Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the reuse of public sector information (PSI)

PSI Directive harmonises basic conditions for making public sector information available to re-users, in a bid to foster Community-wide products and services based on PSI and to avoid distortions of competition. It regulates non-discrimination, charging, exclusive arrangements, transparency, licensing and practical tools to make it easy to find and re-use public documents [3].

PSI Directive has introduced basic conditions to facilitate the re-use of PSI throughout the EU. Progress has been made since its adoption. Commercial re-use of PSI has been allowed, monopolies have been broken, fair trading conditions have been introduced, prices have decreased and there is more transparency.

3.4 Council Regulation (EC) No 199/2008 of 25 February 2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy

This Regulation establishes rules on the collection and management, in the framework of multiannual programmes, of biological, technical, environmental and socio-economic data concerning the fisheries sector, as well as the use of data concerning the fisheries sector within the framework of the Common Fisheries Policy (CFP), for the purpose

of scientific analysis. Data collected for the purpose of scientific evaluation should include information on fleets and their activities, biological data covering catches, including discards, survey information on fish stocks and the environmental impact that may be caused by fisheries on marine ecosystem. It should also include the data explaining price formation and other data which may facilitate an assessment of the economic situation of fishing enterprises, aquaculture and the processing industry, and of employment trends in these sectors [4].

In order to protect and conserve living aquatic resources and their sustainable exploitation, the ecosystem based approach to fisheries management should be progressively implemented. In view of this, it is necessary to collect data in order to assess the effects of fisheries on the marine ecosystem.

3.5 Green Paper Marine Knowledge 2020 from seabed mapping to ocean forecasting

The Commission's Marine Knowledge 2020 Communication of September 2010 explains why we need to unlock the economic potential of Europe's wealth of marine observations. It showed this would contribute towards meeting Europe 2020 targets on employment, innovation, education, social inclusion and combatting climate change. It would provide the knowledge base to facilitate the growth of a strategy for smart, sustainable and inclusive growth [5].

The Marine Knowledge 2020 initiative provides unifying framework for all ongoing activities on marine observation within the EU. It embraces full cycle, from initial observation all the way to interpretation, processing and dissemination. It enshrines basic principles such as collecting data once and using those for many purposes while the data should be interoperable, accessible and free of restrictions on use.

3.6 Data Collection Framework for Fisheries

The Data Collection Framework for Fisheries adopted in 2008 obliges Member States to collect, manage and provide high quality fisheries data for the purpose of scientific advice, mainly for the sake of taking appropriate fisheries management decisions. These activities are executed in the framework of multi-annual national programmes which are co-financed by the Union. Parameters such as fleet capacity, employment and profitability also enable analysis of the socioeconomic health of fishing communities. The framework obliges Member States to provide access to these data for fisheries management advice, scientific publication, public debate and stakeholder participation in policy development [6].

3.7 Global Monitoring for Environment and Security Initiative (GMES)

The European Earth monitoring programme (GMES) is a broad programme, covering land and the atmosphere as well as marine environment. The main objective of its marine service is to deliver products and services that added-value service providers can build on in providing services to public and private users. The aim is to ensure that products are developed using most advanced technology, satellite observations, computational power and forecasting capability available in Europe [7].

3.8 Shared Environmental Information System SEIS and WISE-marine

The Shared Environmental Information System SEIS, an approach being encouraged by the European Commission and the European Environment Agency (EEA), aims to modernise and simplify the availability, exchange and use of the data and information required for the design and implementation of environmental policy, based on which the current, mostly centralised systems for reporting are progressively replaced by systems based on access, sharing and interoperability [8].

WISE-marine is the marine environmental component of SEIS intended to fulfil the requirements of implementation of the reporting obligations of the Marine Strategy Framework Directive and to inform the European public on implementation of marine strategies. It will be the extension of the current Water Information system for Europe (WISE) system, which covers near coastal waters, to marine environment.

3.9 European Marine Observation and Data Network (EMODnet)

EMODnet is a network of organisations supported by the EU's integrated maritime policy. These organisations work together to observe the sea, to render the marine data collected freely available and interoperable, to create seamless data layers across sea-basins, and to distribute the data and data products through the internet [9].

4. The need of knowledge architecture

Europe's marine data are presently collected for a specific purpose, but the aim is to move towards a paradigm where, from the outset, a multi-purpose use is envisaged. The knowledge architecture requires a decision making process that decides what data is going to be collected and how it should be assembled. A coherent set of data, crossing Member States' borders needs a targeted operational architecture.

The data on marine environment constitute a valuable national asset. Civil protection authorities need to be able to calculate where an oil spill will hit the shore. Environmental authorities need to assess the environmental status of their seas and oceans and to ensure that they remain safe and clean. Coastguards need to know how long survivors of an accident can survive in the water. Data should be maintained as close to the sources as possible. These data should be under proper guardianship in accredited data centres.

Citizens in democratic societies need information for holding their elected representatives accountable for the issues that affect their neighbourhood, their livelihoods, their health or the planet Earth that they wish to bequeath to their children. Experience has shown it is wrong to assume that technical background to these issues is best left entirely to the appropriate responsible authorities.

Scientific understanding underpins industrial innovation and environmental protection. A shortage of available land and freshwater is encouraging industry to look again at the part of the planet covered by saltwater. Fast advances in underwater observation, remote handling, and construction technology developed primarily in the petroleum industry now allow for safe operations in deeperwaters under a wider range of oceanographic and meteorological conditions.

5. Governance Challenges

Member States already collect much data and in some cases are legally obliged to do so. Furthermore various EU instruments and actions endeavour to further the availability of a coherent set of data and observations within the EU.

These actions involve both the obligations and enabling measures. The distinction between the two is not always clear-cut but in general obligations are those where EU legislation obliges Member States to collect, assemble or grant access to data and enabling measures are those where the EU provides some support.

By their nature marine data already meet one necessary criterion for being public good – consumption by one individual does not reduce availability of the good for consumption by others. It is therefore in the public interest that the marine data produced with the public money be broadly as used as possible. Unused data are a lost opportunity and still require expensive maintenance.

Current rules regarding the access and use of marine data do not automatically apply to public bodies not enjoying authority such as university. Neither do they override intellectual property rights or the obligation of some national agencies to charge cost-recovery fees.

Member States hold legal responsibility to monitor their own waters and their own fishing fleets. Nevertheless, in some cases, there are clear advantages in pooling the efforts. The obvious example is observation from Earth-orbiting satellites. It would clearly be inefficient for each Member State to launch a constellation of satellites to measure ocean colour, sea-surface temperature, sea-level and ice extent.

If a private company collects data for its own purposes then, in principle, there is no reason for public authorities to intervene or interfere. European legislation on access and re-use of these data does not apply. However, private companies are already obliged to collect data as part of the impact assessment they have to carry out to obtain a licence for certain offshore activity. They may also be obliged to continue monitoring once operations start. In many cases, they are obliged to hand the data collected over to the licensing authority. Nevertheless, once the licence has been granted, there is no apparent competitive

disadvantage in releasing these data into the public domain. There may also be a case for extending reporting obligations once the licence has been granted. The cost of instrumenting offshore platforms to provide continuous information on the state of the sea would be an almost negligible increase in the overall costs of the installation. The idea would be to collect data from all European Union platforms as well as other observing platforms and make them publicly available.

Europe's seas do not only wash the shores of EU Member States. Understanding the ecological health of the Black Sea or planning a cross-Mediterranean cable requires cooperation with the neighbouring countries that share these sea-basins.

6. Conclusion

Marine data is held by hundreds of different institutions in the EU — finding out who is holding which data is a major challenge. Much of the data are usually neither accessible nor interoperable. There is a clear cost to the fragmentation and inaccessibility of marine data.

The same marine observations on physical, chemical and biological parameters can meet the needs of a multitude of end-users. It is this multiple functioning of underlying marine data across disciplines and sectors that makes an open access policy the most efficient option. For such a policy to be efficient and effective, the data need to be publicly available and interoperable. In authors' opinion marine data should be relevant, accessible, free of charge and free of restrictions on use.

One half of the cost born by the European Union Member States for marine research accounts for which infrastructure facilitates observation. Those include research institutes, meteorology or hydrography agencies, as well as faculties and universities. Those also include ships, underwater observatories, floating buoys, drifting devices, remotely operated or autonomous underwater vehicles, all equipped with a range of sensors and analytical capabilities.

Knowledge is not only the responsibility of Government. Citizens need information for holding their elected representatives accountable for issues that affect their neighbourhood, their livelihoods and their health and the industry should allocate adequate resources to ensure proper safeguarding of knowledge and its wider dissemination.

The authors urge for the legal foundations ensuring better use of marine data and common standards in sharing of marine data uniformly, efficiently and rapidly in a regulated procedure at the level of the European Union with the aim of reducing operational costs for marine data users not overriding intellectual property rights. Namely, sustainable marine data infrastructure commands for a process which observations to make, choosing which data products to create always providing financial support for the process of collection, assembling, processing and dissemination.

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