Marine Policy 74 (2016) 43–57

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol

Exploring marine spatial planning education: Challenges in structuring transdisciplinarity

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ARTICLE INFO

Article history:
Received 9 March 2016
Received in revised form
5 September 2016
Accepted 5 September 2016

Keywords:
Marine Spatial Planning
Education
Training
Transdisciplinary
Theory

ABSTRACT

Marine Spatial Planning (MSP) has experienced vigorous growth on the international scale in recent years, and several practices has emerged from different countries. The demand for specific training in the preparation and implementation of marine planning has therefore already shown itself to be quite relevant on a global scale. Educational initiatives related to MSP have to respond to the increased complexity of MSP, which integrates environmental and economic perspectives on marine resources and maritime sectors, considering governance framework as well as maritime affairs and legislation.

This paper aims at addressing the educational and training needs for the development of both academic education and professional training in MSP. Learning skills, contents and methods of an 'ideal' MSP course are depicted from widely accepted operative guides on MSP and from the EU Framework Directive on MSP (2014/89/EU). They are considered for the analysis of the current educational offer around MSP, performed in a sample of countries that have already undergone a process of implementation of MSP by Law. As result, beside the great variety of courses, it emerges that MSP education seems to be often regarded from an environmental perspective – in continuity with Integrated Coastal Management education – while planning theory and experiences in MSP are the least represented contents. Results are discussed in relation to three major challenges: i) how educational offer reflects on transdisciplinarity, ii) the role of theory in MSP courses, and iii) the enforceability of Plans as major concern in MSP.

1. Introduction

Marine Spatial Planning[1] has experienced vigorous growth on the international scale in recent years. Prior cases can be observed in initiatives at the end of the last century, with reference to the cases of Canada and Australia [1]. One of the best known plans, the Rhode Island Ocean Special Area Management Plan (SAMP), was passed in 2011 [3], and the general regulations that compel all European Union (EU) Member States (MS) to prepare maritime spatial plans (Directive 2014/89/EU, [4]) has just begun its process of legal implementation (transposition into respective national law). This must be concluded before 18 September 2016, and plans passed by 31 March 2021. What began as a concern of developed countries is now on the agenda of developing countries and included in the activity programmes of different international organizations. The so-called "BRIC" countries (Brazil, Russia, India, China) were among the earliest States to formulate new marine policies, although they did not develop planning instruments at the same time [5,6]. Also, the lists of countries with marine spatial planning initiatives [2,7,8] is expanding with the inclusion of developing countries, and institutions such as IOC-UNESCO itself, FAO and UNEP have already included marine spatial planning in their training programmes [9]. The demand for specific training in the preparation and implementation of marine planning has therefore already shown itself to be quite significant on a global scale.

While it is true that, as a tool for integrated action, the planning of marine space is only now acquiring the same legal rank as spatial planning on land – except for the differences in areas – the management of activities and uses in the marine environment already has a long track record on both the national and international scales, particularly in sectors such as shipping and fishing. Studies and training related to the maritime economy sector set and under the general name of 'maritime affairs' have been

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[1] Marine Spatial Planning is the term used internationally in both academic literature and technical documents. Inside the European Union, however, the expression "maritime spatial planning" is used in official documents, more for the distribution of competences within the institution than for technical or academic reasons. Other expressions variously used are "offshore spatial planning" and "coastal and marine spatial development plan" [1].

http://dx.doi.org/10.1016/j.marpol.2016.09.016
0308-597X/

incorporated into academia during recent decades, albeit with a range of orientations giving priority either to specific sectors, such as logistics and maritime transport, or to legal questions linked to the new codification of the law of the sea, whose period of institutional development (Third United Nations Conference on the Law of the Sea, 1973–1982) coincided with the increase in the most notable initiatives in the academic world. A 1982 United States educational administration working document [10] states the need to design integrated education in relation to the marine and aquatic environment (sic) that incorporates the social sciences and the humanities. The University of Rhode Island's Department of Marine Affairs has offered Master's programmes since 1969 [11]. The present-day Gerard J. Mangones Centre for Marine Policy (University of Delaware) was created in 1973 and its current first-degree programme includes marine spatial planning [12]. Cardiff University is transport linked and currently offers two MSc degrees related to this sector and an MSc in Marine Policy. In Canada, the University of Dalhousie is home to the International Ocean Institute, founded in 1972 by Elisabeth Mann Borgese, who became professor in maritime affairs in 1979 [13].

The current development of marine spatial planning is not only the result of marine policy studies that, as stated above, became the focus of growing interest from the late 1960s, but also takes these as its general framework. It is clearly linked to the management of coastal zones (ICM) which, under various names (to stress the need for its integrated implementation) has become markedly instrumental in nature, the responsibility for which has been taken, at least nominally, by the vast majority of the national and regional administrations around the world.[2] It is rare for any international organization not to have taken any initiative with regard to the management of coastal zones [15–21], including the European Union [22], which, after a long process,[3] begun in 1973 (Council of Europe) and with heterogeneous results, has culminated in the recent adoption of Directive 2014/89/EU Maritime Spatial Planning.

This is, therefore, a longstanding process constructed through a series of phases which, over time (at least four decades), has gradually acquired not only conceptual complexity – from sustainable development [23] to Ecosystem Based Management [24] – but, at the same time, a greater territorial dimension, with current marine spatial planning also including areas under national jurisdiction (including the exclusive economic zone and the continental shelf beyond 200 nautical miles), although there has also been growing international interest in marine Areas situated Beyond National Jurisdiction (ABNJ). Based on Resolution 68/70 of the United Nations General Assembly three meetings were called of the Ad Hoc Open-ended informal Working Group "to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction" [25].

New educational initiatives worldwide have to respond to this increased complexity of coastal-marine planning – under its current name of marine spatial planning – by i) delving further into the transdisciplinary approach that began to be adopted at the beginning of this process, and ii) including the successive environmental-(ecosystem based management) and economics-based (blue growth) focuses that dominate the present approach to marine planning (especially in EU with the MSP Directive [4]). At the same time, territorial planning techniques (from zoning to the vast body of planning, management and implementation tools) need to be developed in maritime space, a veritable *leitmotif* of the emerging generation of plans.

This paper aims to address the educational and training needs for the development of both expertise and professional practice in MSP. The analysis is based on two main aspects: i) the identification of key characteristics of MSP according to the review of widely accepted operative guides on MSP implementation and the Directive 2014/89/EU [4], as criteria upon which training and educational targets should reflect; ii) analysis of the educational offer in relation to MSP in the countries which have undergone a process on MSP for their maritime domains, with a specific focus on EU.

Results are discussed in relation to the challenges arising from the transdisciplinary nature of MSP, a key emerging aspect, as well as in relation to the elaboration of an MSP 'theory' that reflects on the enforceability of MSplan. Gaps and requirements are identified to pave the way for the implementation of education in MSP, with regard to the possible identification of MSP as a discipline.

2. Materials and method

2.1. Key characteristics of MSP

In order to understand the educational and training needs for the development of expertise and professional practice in MSP, but also to lay the foundations for MSP as a discipline in academia, the research identifies the key characteristics of the MSP process in order to identify i) the contents of an 'ideal' MSP educational course, in terms of knowledge, theory, and applied knowledge that the educational programme should consider, and ii) the methods and tools behind an MSP process, as suggested by Davoudi & Strange [26] when analyzing terrestrial spatial planning.

This research considers key aspects of MSP that emerge from the existing leading documents elaborated respectively by UNEP [27] and by UNESCO [28]. Both sources base their elaborations on the analysis of existing case studies of MSP around the world, in order to underline the importance of learning from the experiences and to acknowledge challenges arising from experiences recollected and discussed with planners, practitioners, and with decision makers involved in the process. Moreover, they represent the perspective of the two international Oorganizations (UNESCO, UNEP) which have supported and informed MSP in its scientific and theoretical background as well as in its actual implementation around the world. The analysis also includes indications deriving from the Directive 2014/89/EU establishing a framework for maritime spatial planning in the European Union [4], as the guiding legislative source for the harmonized implementation of MSP in EU marine waters. The key aspects emerging from the analysis are reported in Table 1.

Considering the proposed framework, different types of skills and expertise are necessary to establish and to carry out an MSP process. One key challenge is related to the knowledge skills required in consideration of the variety of planning process content material (analytical and applied knowledge). On the one hand, knowledge skills on marine environmental dynamics, changes and impacts are required in order to gather "sufficient high-quality data and data collection capacity" [27, p9] for e purposes of MSP. On the other hand, knowledge skills on maritime affairs and international legislation are also required in order to consider the enforceability of measures and actions resulting from an MSP process, as well as to support the establishment of an MSP process based on feasible context-based "governance arrangements" [27, p18]. Other skills are related to the capacity to adopt a strategic thinking, to articulate MSP process clearly, from the "agenda setting" to "problem solving". MSP entails the "executive decision

[2] The pioneering work by Biliana Cicin Sain [14] sponsored by the Centre for the Study of Marine Policy (University of Delaware) and UNESCO-IOC is a broad dissemination of the coastal zone planning initiatives of the time.

[3] The http://ec.europa.eu/environment/iczm/background.htm [accessed 18.08.2015] website offers a complete synthesis of the history of [ICM] from 1973 to the present day.