

EDITORIAL

Blue skies for blue seas: the value of fundamental research

The UNESCO Science Report ‘Towards 2030’ (Unesco, 2015) raised concerns over governments around the world increasingly seeing funding for ‘applied’ science (particularly that supporting commercial growth and exploitation) as being of more value than supporting ‘basic’ research (often referred to as ‘fundamental’ or ‘blue-skies’ research). Arguments over the balance between these approaches are common across disciplines (Linden, 2008) as well as having a long history in the fields of biological and ecological science. Franklin (2005), for example, suggested that ‘fundamental research purely for the sake of scientific curiosity’ should ‘remain the privilege of only a fraction of the scientific community’ due to the urgent environmental issues that required addressing for the sake of wider society.

I would however take issue with this view and side with those who see arguments between basic and applied research as a false dichotomy (Powell, 2017). There are a number of reasons for this. For a start, there are now very clear mechanisms for ensuring that findings from basic research can be made available for and incorporated into management, policy, conservation and economic decision making (Cvitanovic *et al.*, 2015; Frost *et al.*, 2017), it is not just ‘applied’ science being utilized in this way. Secondly, many of the policy ‘issues’ today such as climate change, ocean acidification (see discussion in Frost *et al.*, 2016) or plastics in the marine environment (Thompson *et al.*, 2004) came initially from curiosity driven research, which has then transitioned to a more applied approach as the problems have become clearer and management options are required. Finally, there is an increased focus on multidisciplinary where those from industrial and applied fields work closely with those carrying out basic research (e.g. Winding Hansen *et al.*, 2017) thus further blurring the apparent ‘boundary’ between approaches.

The JMBA publishes all types of research and I would caution against any conclusion that implies some research is more ‘useful’ than others. For example, this issue contains basic research including descriptions of new species (Fernández-Rodríguez *et al.*, 2018; Souto *et al.*, 2018) and of deep-sea assemblages with the intention of providing baselines for future studies (Sileesh *et al.*, 2018). This information is of fundamental importance for management and conservation – managing activities in the marine environment can only be done properly if we know what is present in our seas and how it is distributed.

A number of authors focus on diet and feeding. Allen *et al.* (2018) look at the diet of the Antillean manatee and point out that this is directly linked to conservation and management concerns, as it is the habitat forming the basis of the diet that needs considering as much as the endangered species itself. Valenzuela-Quiñonez *et al.* (2018) also look at feeding habits, this time of the shovelnose guitarfish, highlighting the importance of this information for what is an economically important species in a managed fishery where information on trophic relationships is scant. Fisheries management is also supported by the work of Araújo *et al.* (2018) who examine by-catch of rays in artisanal fisheries in southern Brazil and Barhoumi *et al.* (2018) in their use of Fourier analysis to investigate stock delineation.

Some papers highlight the importance of their research for informing detection and monitoring programmes such as the work of Farrugia Drakard *et al.* (2018) on macroalgal fouling and Marco-Herrero *et al.* (2018) on larval morphology. In fact, it is difficult to find any research paper in this issue where some sort of application does not immediately spring to mind. This is not because the JMBA does not accept ‘basic research’ – quite the opposite in fact as the journal has always been proud of its reputation for publishing fundamental marine biological research. It is because all good scientific research is potentially applicable now or in the future. So let’s continue supporting basic marine research in every way possible – the next generation will thank us for it.

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