Exploring the Science-Policy Gap with Australian Marine Scientists, Policymakers, and Interest Groups

By

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Submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

University of Tasmania

July 2012
‘Fishery management is an endless argument about how many fish there are in the sea until all doubt has been removed – but so have all the fish.’
- Sissenwine and Rosenberg, 1993.
DECLARATIONS

Declaration of Originality
This thesis contains no material which has been accepted for a degree or diploma by the University or any other institution, except by way of background information and duly acknowledged in the thesis, and to my knowledge and belief no material previously published or written by another person except where due acknowledgement is made in the text of the thesis, nor does the thesis contain any material that infringes copyright.

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The research associated with this thesis abides by the international and Australian codes on human research and the rulings of the UTas Social Sciences Human Research Ethics Committee. Ethics reference number: H0008199

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ABSTRACT

The ‘science-policy gap’ is a term that emerged during the 1990s and can be broadly defined as: ‘The distance, or gap, between what the best available science advises and what policymakers actually decide’.

This thesis examines the development and current status of the science-policy gap, identifies the structure and primary causes of the gap, and suggests what can be done to close the gap.

Between 1663 and 2011, the causal elements of the science-policy gap are identified in the primary literature. This was done using a literature review that focuses on papers and articles that specifically mention the science-policy gap, forming a living discourse within the scientific and policymaking communities. The primary literature approach highlights the differing experience and perspectives of the science and policy communities and the efforts to ‘close the gap’.

Global overfishing of marine life is a clearly recognized and critically important issue, for both marine ecosystems and for the millions of people who depend on marine protein as a primary food source. In response, there have been many policy instruments designed to control the extraction of marine living resources. However, the continuing experience of fisheries management policies worldwide is one of failure and the consequent collapse of marine fisheries and ecosystems.

This research refers to the issues around the management of marine living resources as examples of the science-policy gap, mainly relating to the management of ocean fisheries. The bulk of all fisheries are wild capture, exploiting marine populations that exist without human intervention as wild organisms within marine ecosystems. The tension between commercial exploitation of marine living resources and maintaining healthy marine ecosystems, now and into the future, is one that allows for the greatest expression of the science-policy gap. However, the discourse within the literature does not exclusively address marine systems, so examples of the science-policy gap occur in other disciplines (e.g. Health, early childhood development, geology, water resources).

A survey and interview series was done with Australian stakeholder groups engaged in the use of the marine environment. This was done to determine if there is any difference between what the primary literature considers being the primary causes of the science-policy gap and what day-to-day actors in the field believe.

The stakeholders were: Marine scientists; marine policymakers; the fishing industry; and marine environment groups. These people were drawn from throughout Australia and the results compared against the global discussion within the literature.

Analysis of the results found that there are two levels to the gap; a structural level experienced in the day-to-day relationship between science and policy, and a deeper, architectural, level that is the main cause of the gap.

Compared to the discourse in the literature, the Australian survey respondents and interviewees were far more aware of the deeper architectural level; putting it first and foremost and ranking other factors, such as uncertainty, as less important.
FOREWORD AND ACKNOWLEDGEMENTS

This thesis is dedicated to three special people:
- Ray Sumby; 1st June, 1945 – 8th November, 2011. He looked forward to seeing the finished thesis. He is sorely missed by me and those close to him.
- Linda McCrae, who was my best friend and sounding board. She died suddenly at the age of 26, just a week after my beloved companion of 16 years, Hobbe, died on the 18th January, 2012. May you all rest in peace.

There are many routes one can take in choosing a research question for a PhD. Some are pre-packaged as part of the research direction of the supervisor, some extensions of a past honours thesis; others are the result of collaborative discussions between candidate and supervisor. My research question came about from my own experiences. It has, of course, been trimmed and moulded as part of the collaborative process between myself and my supervisor. The genesis of this research question came during my undergraduate degree in ecology with a major in marine ecology.

I noticed that the science being done, often with a clear message, was not appearing in the policy decisions, particularly concerning the open ocean. This was further reinforced during my time as the editor’s assistant at the CSIRO journal Marine and Freshwater Research. There I read a great deal of science, particularly in the area of fisheries management from an ecological perspective, but again the research did not seem to be strongly reflected in policy decisions.

Two papers also sharpened my thinking; Frazer’s 1991 paper, Sea Turtle Conservation and Halfway Technology; and Redford and Richter’s 1999 paper, Conservation of Biodiversity in a World of Use. Both moved me to consider what I was seeing as a gap between science and policy. Alas, I soon found out that the ‘science-policy gap’ is a term becoming increasingly common.

I give my thanks and deepest appreciation to my supervisor, Assoc. Prof. Marcus Haward, for taking me on for this research and for his unstinting support, advice, encouragement and enthusiasm for this project. As well, I thank Linda McCrae and Alan Burbidge for their support and encouragement and to the survey focus group for their reviews and suggestions, particularly Sylvie Shaw. I would be remiss if I did not also acknowledge the generous effort made by the 235 people who took the time to complete and return my survey and also the eight key people who accepted my request for an interview.

My love and gratitude goes to my family for their support and encouragement and to my friends for much needed escapes. Finally, I could not have done this without my ever present and faithful Jack Russell, Hobbe-Horse, whose need for walks and play kept my feet on the ground.

A Note on Grammar
Within the primary literature, the noun compound words ‘policymaker’ and ‘decision-maker’ appear in a variety of forms; ‘policy maker’, ‘policy-maker’, ‘policymaker’ and ditto for the word ‘decision-maker’. I use the latter for these reasons: The Australian Government Publishing Service’s Style Guide advises that hyphenation should be only used to clarify meaning or where similar letters could cause difficulty in reading. Fowler’s Modern English Usage concurs, ‘...the hyphen is not an ornament but an aid to being understood and should be employed only when it is needed for that purpose’. Fowler’s quotes Sir Winston Churchill; ‘One must regard the hyphen as a blemish to be avoided wherever possible’. Finally, the Oxford English Dictionary defines the words solely as ‘policymaker’ and ‘decision-maker’.
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