Chapter 8

Marine Scientific Research

8.1 Introduction

As noted in Chapter 1, MSR poses the most immediate threat to the hydrothermal vent ecosystem. Chapter 2 of this book outlined gaps in the existing law with respect to the regulation of the environmental impact of MSR on the continental shelf and in the Area. This chapter considers how MSR could be regulated in all areas of the oceans including ocean space beyond national jurisdiction. The chapter begins by outlining the nature of MSR conducted at hydrothermal vents in general terms. In part this discussion is based on a number of interviews conducted with several leading scientists active in hydrothermal vent research. It is not suggested that the material in this part of the chapter is the definitive dissertation on the nature and extent of hydrothermal vent related MSR. More detailed research may be warranted at a later date. This material nonetheless provides a useful insight into the nature of the activity for which regulation is proposed.

The second part of the chapter then goes on to explore what form regulation of MSR might take. This section considers the debates surrounding the MSR issue during the negotiation of LOSC in some detail. It is suggested that the arguments raised in relation to MSR over 40 years ago are equally valid today. Consideration of these arguments in the context of MSR at hydrothermal vents suggests how the issue of regulation of MSR should be approached. The chapter then concludes by outlining a proposal for a regulatory regime for MSR modelled on the regime of the Madrid Protocol to the Antarctic Treaty.
8.2 The nature of marine scientific research involving hydrothermal vents

8.2.1 Methodology employed

Several scientists engaged in research in relation to hydrothermal vents were interviewed during the course of research for this Book. The purpose of these interviews was to obtain general background information on the nature of MSR conducted at hydrothermal vents. Interviews covered a range of issues including the type of research carried out in relation to hydrothermal vents by individual scientists and research organisations with which they were affiliated, research techniques, environmental impact, internal ethical and environmental impact assessment approval processes, potential for and extent of commercialisation of their research, approval processes of foreign governments for their research, and their views on regulation of activities associated with hydrothermal vents generally.

No particular methodology was employed in selecting these scientists for interview. Scientists were approached based upon their reputation in published scientific literature and or contacts or referrals provided by third parties, including the scientists initially interviewed. In total 9 scientists directly involved in hydrothermal vent research were interviewed. Details of each of the relevant scientists, including their research institution and area of research, are provided in Table 4 Annex 3. Subsequent to these interviews two researchers could not be contacted to obtain their consent to disclose their identity. Accordingly in accordance with the terms of ethics approval for this research the identity of both these scientists is withheld from Table 4. I was also fortunate to have informal discussions with a number of other scientists working in related fields, who provided further leads for research. These scientists’ contributions are acknowledged at the beginning of this book.

It became clear during the early stages of these interviews that much of the information sought covered topics that individual researchers either were only able to comment on in general terms, or were unable to comment on at all. For example, most researchers were generally not involved in the process of obtaining foreign government approval to carry out MSR within coastal State waters and therefore could not comment on difficulties encountered in the process. This was the responsibility of other administrative staff within their respective research organisations. Likewise, for reasons of commercial confidentiality, scientists whose research had commercial applications were not able to comment on the status of such research. Accordingly, while a more comprehensive survey of the nature and extent of MSR in relation to hydrothermal vents was proposed at the outset of this research, instead more general conclusions on the nature of MSR are presented below based on these interviews and a range of published scientific literature and material.

8.2.2 Areas of scientific research

Research covers a wide area of scientific interest. Research in relation to the geology and geophysics of hydrothermal vents, includes the resource potential of associated minerals. Other forms of research includes research in relation to biology and micro-