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Addressing environmental considerations for Marine Stewardship Council certification: A case study using lobsters



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ABSTRACT

This paper uses the Western Australian rock lobster, the first fishery certified by MSC, as a case study to discuss some of the environmental issues encountered in MSC's Principle 2 and the strategies implemented to address them. Experience with the certification of Western Australian rock lobster has highlighted the importance of; comprehensive documentation of current and historical information, monitoring and research, a transparent process of risk identification and the value of an independent advisory group to review risks and guide research directions. A comparison of other certified lobster fisheries worldwide revealed that third party certification consistently identified specific environmental issues, indicating that the strategies implemented to support the ongoing certification of the Western Australian rock lobster fishery may be relevant to other fisheries.

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1. Introduction

In recent years there has been concern over the sustainability of global fish stocks [1–3] and the impact of fishing on the marine environment [4,5]. While many fisheries around the world are being fished and managed sustainably the increased profile of stock sustainability and the potential impacts of fishing practices on the environment has led to an increased awareness of environmental issues by the general public and conservation groups [6–10].

Coupled with the rise in public awareness is the progression towards a more holistic approach to fisheries management in the form of Ecosystem Based Fisheries Management (EBFM). EBFM considers the cumulative impacts on the environment of all fisheries-related activities operating in an area while also taking into account social, economic and external factors (i.e. climate change and other non-fishing related activities) [11–13]. In Australia, the Environment Protection Biodiversity and Conservation (EPBC) Act and

Ecologically Sustainable Development (ESD) Commonwealth requirements for export fisheries have meant that many fisheries have incorporated ecological risk assessments into their management strategies for some time. However, in some cases the implementation of EBFM has meant a significant increase in the information required [14]. In other countries, such as Mexico sustainability principals have been incorporated into legislation through a decree in “Ley de Pesca y Acuacultura Sustentable” or through the consideration of different sustainability initiatives such as the FAO International guidelines for securing sustainable small scale fisheries [15]. However, the practical implementation of these principles in many cases lags behind the original intention of the guidelines or legislation. Regardless, these processes have undoubtedly led to an unprecedented need and pressure to examine the sustainability of fishing practices, particularly in relation to habitats and ecosystems. Growing awareness of sustainable fishing practices has led to an increase in consumer demand for sustainably-sourced seafood products [16–18] with a number of international retailers, such as Aldi, Carrefour, Tesco, Sainsbury's and Wal-Mart, and more recently Australian retailers (Woolworths and Coles) selling and promoting eco-labelled seafood products.

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This increased demand has led to the prevalence of third party certification programs worldwide [6,7,9,19]. While there are a number of third party certification programs (e.g. Global Environmental Facility – GEF, Friends of the Sea) one popular certification programme worldwide is the Marine Stewardship Council (MSC) [18]. Established by World Wildlife Fund (WWF) and Unilever in 1999, the MSC is now an independent international non-profit organisation that certifies ecologically sustainable fisheries to give them an economic incentive to implement and maintain sustainable fishing practices [6] and [7]. Currently, the MSC has certified 221 fisheries and a further 98 are in the assessment process [20].

The MSC certification process involves independent third-party assessments of a fishery based on evaluations made against three broad principles; P1 – assessment of target species, P2 – ecological and environmental impact of the fishery and P3 – governance and management of the fishery. For a fishery to successfully obtain MSC certification it must pass each of three principles individually, i.e. scores cannot be averaged across the principles. Therefore, while fisheries targeting species with sustainability issues (P1) will clearly not obtain MSC certification, equally fisheries with substantial ecological or environmental impacts (P2) or inadequate governance and management will also not be certified, regardless of the status of the target species stocks. For many fisheries MSC certification has meant additional scrutiny and review of existing processes. However, assessment and management of targeted species (P1 and P3) has been the core role of management agencies, and in most cases, fisheries applying for MSC certification have the knowledge or capacity to deal with any P1 and P3 issues that may arise during the process. The principle many fisheries struggle to address is Principle 2, which states *fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends*. Assessment under Principle 2 encompasses five different components; retained species (including non-targeted retained and bait), bycatch species, endangered threatened and protected species (ETPs), habitats and ecosystems [23]. These areas have not, in many cases, been the traditional focus of management agencies [17] and [22]; therefore, addressing the criteria and associated conditions has required considerable ongoing research and assessment for a number of fisheries [21–23].

This paper compares Principle 2 issues in the Western Australian (WA) rock lobster (*Panulirus cygnus*) fishery, with Principle 2 issues in other MSC certified lobster fisheries. While no two fisheries are identical, there are a number of key areas for consideration when preparing for Principle 2 assessment of a fishery. This paper suggests that by rigorously addressing these areas, fisheries should be well prepared when entering the certification process, which may reduce the likelihood of onerous conditions on the fishery, minimise the time taken to complete the certification process and thus reduce the expense associated with the certification process.

2. WA rock lobster: case study

In 2000, the WA rock lobster fishery (*P. cygnus*) became the world's first fishery to receive MSC certification. However, the assessment team identified a number of deficiencies in the fishery under Principle 2, which formed the basis of the five conditions placed on the fishery (Table 1). While the conditions on the fishery have changed since the initial certification, due to a combination of addressing original issues, newly identified risks and changes in the assessment process, such as the introduction of the Fisheries Assessment Methodology (FAM), a review of the conditions illustrates that there are some core issues that have occurred at

subsequent certifications (Table 1). Some of the key Principle 2 issues in the certification of the Western Australian (WA) rock lobster fishery and examples to illustrate the range of initiatives implemented to address these conditions are discussed below.

2.1. Risk assessment

One condition of the initial 2000 certification was to conduct a comprehensive and scientifically defensible risk assessment to better quantify the risks of fishing on all species (including endangered, threatened and protected species), habitats and biotic communities (Table 1). This stemmed from the fact that at the initial assessment there were few strategies in place in the fishery to identify or assess the effects of fishing on the broader ecosystem [27]. Therefore, during the first certification period, ecological risk assessments (ERA) were conducted by International Risk Consultant Environment (IRC) in 2001 [28] and Dr. Mark Burgman from the University of Melbourne in 2005 [29]. The ERA process adopted in the western rock lobster fishery is chaired by an independent third party and includes all interested stakeholders in the workshop discussion of issues although the allocation of risk ratings is generally conducted by an expert technical panel (Fig. 1). The ERA adopted in Western Australia involves the examination of the sources of potential risk (issue identification), the potential consequences (impacts) associated with each issue and the likelihood (probability) of a particular level of consequence actually occurring [30]. This results in each identified issue being allocated a risk level that is used to determine the level of management response required. Issues with moderate or above risks require additional management responses, which may include additional research [30].

Both the 2001 and 2005 ERAs identified a number of moderate risks in the fishery associated with: endangered, threatened and protected species, habitats and ecosystem function. The majority of the risks identified were not new issues that industry and managers were unaware of but were indicative of the level of uncertainty due to paucity of data or an increased awareness of previously detected issues. For example, the incidental mortality of a small, but poorly quantified, number of Australian sea lion pups (*Neophoca cinerea*) in lobster pots, as the pups attempted to retrieve bait or rock lobsters from the pots, was a pre-existing issue [31]. At the initial MSC assessment of the fishery, the annual mortality of *N. cinerea* due to interactions with the fishery was reported as being negligible [31,32] and very low relative to the high mortality of pups during parental mating related interactions [32]. However, Australian sea lion colonies, within the extent of the lobster fishery, are at the edge of their distribution, which combined with the lack of data to accurately quantify the level of interaction with the fishery meant the issue was assigned a moderate risk in the 2001 ERA [27] and [28]. Following the 2001 ERA a sea lion scientific reference group (SL SRG) was formed to provide advice on the research and management required to assess the impacts of fishing and eliminate the capture of juvenile sea lions in pots. A sea lion exclusion device (SLED) was developed, consisting of a metal bar placed through the neck of the pot and secured in position [33]. Video trials indicated that the device stops sea lion pups from entering lobster pots and drowning [34]. Therefore, SLEDs were made mandatory in 2006 for both commercial and recreational rock lobster pots in waters less than 20 m around the mid-west coast sea lion breeding colonies. After the mandatory introduction of SLEDs into the central west coast area during the 2006/07 seasons, the risk of sea lion interactions with pots was reduced from moderate to low in the 2007 ERA [35].

While the western rock lobster fishery was successfully re-certified in 2006, the outputs of the 2005 ERA were considered in the re-assessment process and resulted in additional Principle

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