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Thesis Title : AN ASSESSMENT OF MARINE STEWARDSHIP COUNCIL CERTIFICATION IN THE PACIFIC: CASE STUDIES OF THE PARTIES TO THE NAURU AGREEMENT AND THE FIJI TUNA BOAT OWNERS ASSOCIATION

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AN ASSESSMENT OF MARINE STEWARDSHIP COUNCIL CERTIFICATION IN THE PACIFIC: CASE STUDIES OF THE PARTIES TO THE NAURU AGREEMENT AND THE FIJI TUNA BOAT OWNERS ASSOCIATION

by

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A thesis submitted in fulfilment of the requirements for the Degree of Master of Arts in Development Studies.

School of Government, Development and International Affairs
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2015

DECLARATION

Statement by Author

I, Maria Rizwana Sahib, declare that this thesis is my work, except for those sections explicitly acknowledged, and that the main content of the thesis has not been previously submitted for a degree at any other university.

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Acknowledgements

I acknowledge the support and assistance to those who contributed to the success of my work.

Firstly, I thank the Almighty Allah for His blessings. Alhumdulillah!

My deepest gratitude goes to the Tokyo Foundation and the University of the South Pacific's Sasakawa Young Leaders Fellowship Fund (SYLFF), which provided the scholarship and funds for research.

My very special thanks go to the Parties to the Nauru Agreement secretariat for making my field research possible in the Republic of Marshall Islands and Fiji Tuna Boat Owners Association for making it possible in Fiji, the two most significant components of my study. Sincere thanks also go to Pacific Marine Stewardship Council certification Fisheries, Forum Fisheries Agency, and the World Wide Fund for Nature.

I am most grateful to my principal supervisor, Associate Professor Sandra Tarte, for taking the initiative to supervise my research, for providing guidance and supporting me through difficult times. I am forever indebted!

I am particularly thankful to my co-supervisor, Dr Vina Ram-Bidesi, for implanting the idea of looking at MSC certification and guiding me throughout my research. Without your unconditional support, this would not have been successful.

Big Vinaka Vakalevu goes to the staff of the School of Government, Development and International Affairs of USP for your assistance. I really appreciate it!

I also acknowledge my SYLFF friends and fellow postgraduate colleagues, Ana, Josaia and Jope for putting up with me and providing me with research tips.

To my parents, Hussein Sahib and Kalisi Sigatabu, I cannot thank you enough for your endless love, patience and moral support. To my loving sisters, Alicia, for being my rock through those turbulent times, Louzanne, for being the pillar of my strength, Zoya, for being my constant companion and Nancy, for remembering me in your prayers. To my loving brothers, Mira, Joe and Al-taaf thank you for your unconditional love and support. To my nephews, Rohan and Zane, for keeping me entertained. I love you all to the moon and back!

To Benedict, the reason for my smile every day!

Finally, I dedicate this thesis to my light, my beautiful daughter Nabeeha; you keep me going on!

Abstract

This study is focused on the assessment of the MSC certification in the Pacific from the experience of the two case studies from the region, namely the PNA and the FTBOA. The key findings from both the case studies suggest that the certification is a viable option for tuna fishery of the PICs. The study shows that MSC certification improves tuna resource management because PICs are required to adhere to higher environmental standards under the MSC programme. For example, environmental reforms, reference points and harvest control rules and proper documentation under the MSC are necessary in order to fulfil the requirements of the MSC. There are two types of immediate benefits – environmental and market. Environmental benefits can be recognized immediately during the assessment but also contribute towards long term sustainability as the fishery strives to improve both operations and management while economic benefit could be received through price premium.

Since eco-labelling certification schemes are voluntary, mutual benefits realised through MSC are variable. Some fisheries obtain market benefits as soon as they enter full assessment (as in the case of PNA) and others do not make use of the eco-label for marketing but instead seek certification primarily for the environmental recognition (as in the case of FTBOA). Due to the complexity of the management of tuna as a highly migratory resource, certification of tuna should be seen as one of the options to achieve sustainability of tuna stocks and not the only option. This study argues that certification as a market based management tool has the potential to positively contribute towards sustainable utilisation of the tuna resource.

Contents

Abbreviation

AFDD	Alaska Fisheries Development Foundation
ADFG	Alaska Department of Fish and Game
ASMI	Alaska Seafood Marketing Institute
CCMs	Commission Members, Cooperating non-Members, and participating Territories
CMM	Conservation and Management Measure
CMS	Convention on Migratory Species
CNM	Cooperating Non Member
COC	Chain of Custody
CPUE	Catch per Unit Effort
CTE	Committee on Trade and Environment
DEVFISH	Development of Tuna Fisheries in Pacific ACP Countries
DPCIA	Dolphin Protection Consumer Information Act
DWFN	Distant Water Fishing Nation
DWFP	Developing World Fisheries Programme
EAFM	Ecosystem Approach to Fisheries Management
EEC	European Economic Community
EEZ	Exclusive Economic Zone
EII	Earth Island Institute
ENGO	Environmental Non-Government Organization
EPO	Eastern Pacific Ocean
ETP	Endangered, threatened or protected species
EU	European Union
FAD	Fishing Aggregating Device

FAM	Fisheries Assessment Methodology
FAO	Food and Agricultural Organization
FFA	Pacific Islands Forum Fisheries Agency
FFC	Forum Fisheries Committee
FOS	Friends of the Sea
FSC	Forest Stewardship Council
FSM	Federated States of Micronesia
FTBOA	Fiji Tuna Boat Owners Association
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GEF	Global Environment Facility
IATTC	Inter American Tropical Tuna Commission
IMM	Intertek Moody Marine
IPOA	International Plan of Acton
ISSA	International Seafood Sustainability Association
ISSF	International Seafood Sustainability Foundation
IUCN	International Union for the Conservation of Nature
IUU	Illegal Unregulated Unreported
LCA	Life Cycle Assessment
MCS	Monitoring, Control and Surveillance
MFN	Most Favoured Nation
MPs	Management Periods
MRAG	Marine Resources Assessment Group
MSC	Marine Stewardship Council
NGOs	Non-Governmental Organisations

NMFS	National Marine Fisheries Services
PAE	Parties Allowable Effort
PICs	Pacific Island Countries
PNA	Parties to the Nauru Agreement
PNAO	Parties to the Nauru Agreement Office
PNG	Papua New Guinea
PPB	Pacific Patrol Boats
RFMO	Regional Fisheries Management Organization
RMI	Republic of the Marshall Islands
RPOA	Regional Plan of Action
SI	Solomon Islands
SPC	Secretariat of the Pacific Community (formerly South Pacific Commission)
SPS	Agreement on Sanitary or Phyto-sanitary Measures
TAC	Total Allowable Catch
TAE	Total Allowable Effort
TBT	Agreement on Technical Barriers to Trade
TTVP	Tuna Tracking and Verification Programme
UK	United Kingdom
UN	United Nations
UNCED	United Nations Convention on Environment and Development
UNCLOS	United Nation Convention on Law of the Sea
UNEP	United Nations Environment Programme
USMLT	Multilateral Treaty on Fisheries between the Governments of Certain Pacific Islands States and the Government of the United States of America

VDS	Vessel Day Scheme
VMS	Vessel Monitoring System
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and Central Pacific Ocean
WTO	World Trade Organization
WWF	World Wide Fund for Nature

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Chapter 1.0: Introduction

Chapter 1.1 Introducing the Thesis

"Eco-labels are seals of approval given to products that are deemed to have fewer impacts on the environment than functionally or competitively similar products. The rationale for basic labelling information at the point of sale is that it correlates products to their production process. The main aim of eco-labelling initiatives is to promote sustainably managed resources and highlight their products to consumers. Product claims associated with eco-labelling target the growing public demand for environmentally preferable products. Generally claims appearing on a product must be led by a chain of custody exercise that documents that the product was derived from, for example, a fishery certified as being 'sustainably managed'. Preceding certification, a set of 'sustainability' standards or criteria against which a resource is to be evaluated must be developed. There is no doubt that achieving and identifying 'sustainability' in any resource, whether it be forest or fishery, is a complex process. The acceptance and credibility of standards is closely associated with how the standards were developed, the standards themselves, and the accrediting or certifying process by which organisations are evaluated against the standard".
– WTO, 1997.

This study examines the implementation of eco-labelling of seafood products through a focus on Marine Stewardship Council (MSC) certification of tuna in the Pacific region. Eco-labelling schemes are seen as a way to maintain the productivity and economic value of fisheries while providing incentives for improved fisheries management and the conservation of marine biodiversity. A number of recent eco-labelling initiatives have aimed to complement and support efforts to implement sustainable fisheries management systems in the fisheries sector. The various schemes have evolved due to its market focused approach. The main objective of an eco-labelling program in fisheries, such as the MSC label, is to provide market-based incentives to improve sustainable fishing practices. The premise is that environmentally concerned consumers will shift their demand towards eco-labelled fish which, in turn, generates a premium price for eco-labelled fish over non-labelled fish (Gudmundsson & Wessells, 2000; Sedjo & Swallow, 2002).

According to the FAO (2014) report on the state of world fisheries and aquaculture, global capture productions have been increasing with highest catches in the Northwest and Western and Central Pacific. Increasing debate on the sustainability of the world's marine fisheries over the past 20 years and evidence of declining catches worldwide, point to a global crisis in marine capture fisheries (FAO, 2012). Generally fishers, conservation groups, and government agencies are increasingly concerned about levels of fishing effort, methods of operation and management practices, and this concern is evident in the Pacific region. The conservation and management measures adopted at the regional level, the changes to fishery access and the control over the

management of the fishery by coastal states are all a result of the growing concern over the state of the fishery resource. Nonetheless, more and more fisheries are joining the ranks of those that are being overfished, suggesting that the current strategies of lobbying and litigation are just not enough to bring about necessary changes at a fast enough paces that could counteract the decline (Weber, 2002).

Conventional fisheries management has generally put the onus on the regulators and producers to implement effective management practices. However, there is an increasing realisation that sustainable management of fisheries can also be achieved through the influence of consumers where demand is influenced by product attribute such as sustainable harvest and production process. This growing interest has now attracted the attention of the Pacific region through the Marine Stewardship Council certification scheme.

With the status of the global fishery resources and the trend towards the sustainable management of the resources through eco-labelling, this thesis looks at the current process of certification and the possible outcomes it is likely to have on wild capture fisheries as well as on the post-harvest sector. The region's focus on fisheries management has generally been towards the production side by fishers, in other words harvesting. Due to the continuous decline in fishery resources, the focus has shifted to market based incentives by using consumers to demand fishery products that are harvested from sustainably managed fishery (FAO, 2014). Sustainability has now become a commodity attribute similar to price, preference and taste.

Therefore, this study examines the environmental and socio-economic aspects of certification and their implications for the Pacific Islands region by considering the benefits and challenges of implementation. The research uses two case studies from the tuna industry to examine the certification programme: the Parties to the Nauru Agreement (PNA) and the Fiji Tuna Boat Owners Association (FTBOA). It considers the viability of the certification scheme in the Pacific and what the Pacific Island countries should expect when undergoing assessment under the MSC programme.

1.2 Background

Eco-labelling has become an important natural resource management policy issue for the global community (Golden, 2010). Eco-labelled products aim to assist consumers make informed choices, on the idea that if products are certified as sourced from a sustainably managed resource

then consumers will prefer to buy them rather than products that are not certified. According to Weber (2002), when consumers are allowed to select more environmentally friendly products, producers in turn change their behaviour so that they develop and market products that meet consumer requirements. This has changed the dynamics of the market and the factors that are at play influence the prices of such products.

An eco-label is only awarded if a product meets the environmental criteria with a defined minimum standard of fitness of its purpose which is based on an agreed Life-Cycle Assessment (LCA) procedure for each product. This means that an overall environmental effect of the product from 'cradle to grave' is required to be assessed and the assessment covers a wide range of factors involved in the stages of production of goods (Weber, 2002).

Certification is an assessment and verification of information pertaining to any goods and services including food products (Grankivist et al., 2007). Generally certification relates to providing assurances for nearly everything we use, from the services of professionals to the food we eat. For instance, in almost all the countries there are programmes that certify human capabilities, including doctors in hospitals, taxi and bus drivers, firemen, dentists, engineers and so on. Moreover, certification is also provided from plant designs to building plans to financial statements of publicly trading companies (Phillips et al., 2003).

Certification for product labelling began in 1894 when underwriter laboratories began certifying and labelling the safety of products in the United States (Setbbonsarng, 2008). With the 1978 inception of Blue Angel (the first fully developed nationwide eco-labelling scheme in Germany for products and services), consumer awareness of environmental certification and labelling programmes became global.

The key function of product certification is to disseminate environmental information to consumers and provide assurance that the information is verified, accurate and non-deceptive (ISEAL, 2001). As pointed out by Deere (1999) the credibility of an eco-labelling programme depends on its technical integrity. This demands the development of standards to meet the requirements of certification.

Natural resource certification and labelling urged by the organic movement established a systematic standard to ensure conventional application across regions and also providing

flexibility in being applied to a wide range of different products. Through this experience, a group of concerned consumers decided on purchasing goods produced in a specific way when offered the choice. The question, though, for those interested in the sustainable management of forests and fisheries, was whether the success of the organic movement could be replicated for them as well. This was explored firstly through the certification of forests which then extended to certification and eco-labelling of seafood products (Deere, 1999).

The forest certification is an intriguing example of eco-labelling. The Forest Stewardship Council (FSC) received scholarly attention for its novel way of organising green governance in 1993 (Domask, 2003; McNichol, 2003; Gulbrabdsen, 2008). The FSC was established to promote sustainable forestry around the world. The FSC defined ten principles and 56 Criteria that guided responsible and sustainable forestry in any local context (see www.fsc.org)[1]. Under the FSC scheme, three interest groups representing indigenous people, environmental interests and business interests, have equal power sharing over decision making. Additionally the voting power is divided equally between developed (Northern) and developing (Southern) country members in each of the three chambers. By March 2013, the FSC scheme had forest management and chain-of-custody certificates in 112 countries (FSC, 2013). Two of the countries are in the Pacific, Solomon Islands (SI) and Papua New Guinea (PNG). Each has forest areas certified with Forest Management and Forest Chain-of-Custody.

Similarly to the FSC, the MSC was established to promote the sustainable management of wild capture fisheries. In addition to MSC, there has been a proliferation of voluntary eco-labelling programmes for various products and sectors over the last decade, many of which were initiated by NGOs, the private sector and governments. There is a common assumption that all eco-labelling schemes influence the purchasing behaviour of consumers and that such behaviour is not motivated only by price but also by mandatory quality, health standards and sustainability.

This thesis thus focuses on the MSC certification programme, which has become a preferred choice in the Pacific region. The Pacific is one of the world's richest fishing grounds. Fishing in these waters is valued at about $7 billion (Islands Business, November, 2013, pg. 13) with most of that revenue going to distant water fishing nation fleets. MSC certification of Pacific fishing operations, demonstrates their commitment to sustainability, transparency and traceability. The

[1] More information can be found on the assessment of FSC in this website.

Pacific island countries may be small in land mass but through their territorial waters and extensive EEZs they control a vast section of the Pacific. As resources owners, the Pacific Islands Countries (PICs) wish to ensure sustainability of tuna resources while taking advantage of the marketing incentives created by eco-labelling.

In 2010, eight of the PICs united under the Parties to the Nauru Agreement (PNA), a sub-regional organisation, decided to take control of the fisheries in their waters (WWF, 2012). By decreasing their dependency on fishing access fees and investing in the promotion of their own industry, this group of nations aimed to increase their income from tuna through adopting MSC certification. The PNA countries have started to market their own tuna caught and canned in the Pacific through their own brand name Pacifical. PNA adopted this strategy to assist in maximizing the value of their catch. However, the success of this marketing strategy can only be determined through gaining returns measuring additional gains to PNA from selling MSC – certified tuna products in niche markets.

PNA countries are bearing enormous costs in managing their resources; they employ a number of scientists, on-board observers, and officials through the Forum Fisheries Agency (FFA) and the South Pacific Community (SPC). They operate advanced vessel satellite-monitoring systems and run database systems to register, monitor and manage the exact tuna catches within their waters to ensure that no illegal fishing takes place and all regulations are met. MSC requires this kind of investment to maintain the certification of a sustainably managed tuna fishery.

PNA developed a collaborative approach to fisheries management that has boosted their capacity to meet MSC certification requirements and their individual national development aspirations (PNAO, 2013). For most of the PNA countries tuna is the most important and often the only major economic resource; however only a very small part of the economic benefits of tuna flows back to the member countries. The initiative of the PNA is intended to manage the tuna fishery in their waters sustainably, generate employment and participation opportunities for their people, facilitate a fair share of the economic return on their main natural resources, promote closer cooperation with business and the private sector and build closer relations with the retailers and consumers in the end market (Solomon Times Online, 2012).

In Fiji, the albacore tuna longline fishery of the Fiji Tuna Boat Owners Association (FTBOA, comprising 28 fishing vessels) became the first Fijian fishery to be awarded the Marine

Stewardship Council (MSC) certification, in November 2012. The FTBOA's albacore tuna fishery is currently managed under the Western and Central Pacific Fisheries Commission (WCPFC). Under this international convention, Fiji is responsible for managing the fishery within its waters but must ensure that the management is compatible with agreements under the Commission.

The fishery operates within the Fijian EEZ. The vessels use pelagic longline methods to catch 3,000 to 4,000 metric tonnes of albacore each year[2]. This tuna is sold predominantly in fresh form to markets in Japan, the US, Thailand and American Samoa.

1.3 Objectives of the present study

The overarching objective of the study is to examine the implementation and impact of eco-labelling and certification of tuna fisheries in the PICs. The specific objectives are to investigate:

1. to review the reasons for the MSC certification and processes involved
2. to identify challenges and the constraints in the MSC certification process
3. whether the chain of custody and traceability exercise under MSC certification would reduce illegal, unreported and unregulated (IUU) fishing
4. how the MSC certification will influence environmental reforms within capture fisheries
5. the advantages and disadvantages of product labelling and certification, especially for tuna industry development.

In addressing the above objectives the study uses the case of the PNA and the FTBOA, with the aim that it would further generate interest among other PICs that have yet to embark on MSC assessment. Although both initiatives, PNA and FTBOA, were in the early stages of implementation during the research, lessons learnt and insights gained maybe of interest and relevance to other developing states in the Pacific and elsewhere.

[2] See MSC website – www.msc.org

1.4 Methodology

This research has used an inter-disciplinary approach drawn from trade, law, and natural resource policy, because of the complex and overlapping nature of issues. Lessons have been drawn from certification in agriculture and forestry, where eco-labelling has well established. A review and evaluation of MSC efforts in various types of fisheries was also conducted as a backdrop for MSC in the Pacific islands.

This study includes a literature review on management and sustainability of fishery resources. Primary research included interviews with various stakeholders. Generic questions have been appended as appendix 1 and the names of the interviewees appended as appendix 7. Field research was conducted in Majuro; the Republic of Marshall Islands (RMI) in February, 2013, where the PNA headquarter is based. The central contributors were the officials of PNA, industry personnel working for tuna processing plants (that are a target group under the certification programme) and the Marshall Islands Marine Resource Authority (MIMRA).

Face-to-face interviews by appointment were conducted rather informally for easy flow of information. Discussions led to a more nuanced way of gathering information and it allowed flexibility. As a result of the interviews, a chance to board one of the purse seiners to observe off-loading of tuna was possible. This was also a chance to observe the process of the chain-of-custody exercise in practice. The field research was conducted over a two week period in RMI.

In Fiji, interviews with key stakeholders in the FTBOA were conducted in March, 2013. Interviews also took place with stakeholders in the fishing industry such as the Department of Fisheries, Fiji and the WWF, and the Pacific Islands Forum Fisheries Agency (FFA). Questions were also posed to the Pacific MSC Fisheries arm of the MSC operations. The Pacific MSC Fisheries arm is responsible for MSC certification processes in the Pacific region and is heavily involved in the certification of the two initiatives.

The interviews in Fiji, mainly in Suva, were held by appointment in the working places of the interviewees. Informal discussions were held during the interview, very similar to the ones that took place in RMI. Field research in Fiji also took over two weeks to conduct since it depended on the availability of the interviewees.

A total number of 15 key stakeholders, for both case studies, involved in the MSC certification were interviewed and each interview took from a minimum of 1 hour to a maximum of 3 hours. The collection of information was through desk review, audio recording, and observation.

1.5 Thesis Outline

Chapter 1 provides the introduction to the thesis with research objectives and methodology. It also provides an overview of the study. Chapter 2 is literature review identifying gaps in the existing literature. Literature exists on eco-labelling in the Pacific but there has not been a research study per se on the topic. Chapter 3 outlines the analysis of the MSC programme, essential background knowledge and the current status of the particular eco-label. Chapter 4 presents the key findings of the Parties to the Nauru Agreement (PNA) as an MSC certified sub-regional organisation through key stakeholder interviews. Chapter 5 analyses the case of the Fiji Tuna Boat Owners Association (FTBOA) and the main findings through stakeholder interviews. The last chapter (Chapter 6) addresses the objectives and highlights the overall conclusion. The essence of the thesis is to assess the implications of implementing the MSC certification in the Pacific region. The conclusion reached after assessment is that the MSC certification is one of the valuable management as well as marketing tools for fishery resources in the Pacific. It may be one of the options for PICs to explore in terms of value adding to the product from the Pacific.

Chapter 2.0: Literature Review - History and Developments in Eco-labelling

2.1 Introduction

"Here is your country. Cherish these natural wonders, cherish the natural resources, cherish the history and romance as a sacred heritage, for your children and your children's children. Do not let selfish men or greedy interests skin your country of its beauty, its riches or its romance." — Theodore Roosevelt[3]

This Chapter provides a review of the history of eco-labelling and certification, the difference between eco-label and certification and the origins of Marine Stewardship Council (MSC) certification. It examines eco-labelling and certification in foods and forestry and the subsequent events that occurred which contributed towards the evolution of MSC certification. Before discussing more deeply the development of eco-labelling and certification, the study briefly defines the relationship between eco-labels and certification. The latter part of the chapter will describe eco-labelling and certification under international frameworks including: a) the general framework and guidelines of the Food and Agriculture Organisation (FAO); b) the role of Nature for the World Wide Fund (WWF); and c) the trade aspect in the World Trade Organisation (WTO).

2.2 Eco-labelling and Marine Stewardship Council certification

In the last twenty years there has been a vast increase in the number of voluntary certification and labelling schemes (Ward and Phillips, 2008). This had begun with individuals certifying themselves to their own standard (first-party scheme), then progressing to an industry body certifying members to their standards (second-party scheme) and finally leading to a stage where an independent group certifies individual companies and industry and where the compliance is audited by organisations that have no interest in the end result (Gale and Haward, 2004).

There has been much analytical research done on the significance and descriptive nature of labelling schemes for individual products (Elliot, 1999; Bostrom and Klintman, 2008; Deere, 1999; Ward and Phillips, 2008; Gale and Haward, 2004). However, there is a lack of literature on eco-labelling and certification schemes for fishery products in small island developing states. Therefore this research aims to capture the development of certification schemes in the Pacific region.

[3] See http://www.brainyquote.com/quotes/authors/t/theodore_roosevelt.html, retrieved 12 June, 2013.

Marine Stewardship Council certification was influenced by the Forest Stewardship Council (FSC), which was initiated by WWF in 1993 (Weber, 2002). The basis for FSC was environmental and social principles which set standards for forests and forest products. The FSC certification is evaluated, accredited and monitored by independent certification organisations, which, after worldwide inspection of forests, certify these forests that are able to meet the requirements of the Principles of Forest Management (Fowler and Heap, 1998).

Along similar lines, the evolution of the MSC certification for fisheries commodities began in 1996, led by WWF and Unilever (a private company and the world's largest supplier of fisheries products) and becoming an independent entity in 1998. Individual firms and companies in the fishery industry could apply for certification and fisheries that complied with the MSC criteria and principles were awarded MSC certification. According to Fowler and Heap (1998, pg. 84) "the MSC Principles and Criteria provide globally applicable standards by which sustainable fishing can be measured for any commercial fishery throughout the world".

The next part of this section will look at how the MSC certification programme became a worldwide accepted certification scheme with high credibility through recognised international organisations.

2.3 International Frameworks on Eco-labelling and Certification

Early eco-labelling and certification programmes were discussed by the international community because of a perceived lack of transparency and credibility of the eco-labelled products. Especially in the fisheries sector, eco-labels were becoming a marketing tool as well as a conservation incentive tool for the fishing industry. Although eco-labelling began in Europe in the 1970s, it only gained momentum in the early 1990s, two decades later (Ward & Phillips, 2008). Due to globalisation and a sudden mobilisation of consumer movements and activism, eco-labelling activities came into prominence internationally. This led to an international call for standardisation for eco-labels, which was encompassed in international frameworks in the early 1990s (Ward & Phillips, 2008). Global recognition was given to eco-labelling and twenty years later it has become prominent in the developed countries.

This part of the section introduces the international framework on eco-labelling and certification and explains the evolution of MSC by looking at FAO-guidelines and its adoption and implementation by FAO and other NGO institutions such as WWF.

2.3.1 FAO Guidelines on eco-labelling

An overall improvement in fisheries management and conservation of marine biodiversity followed from the 1982 UN Convention on the Law of the Sea (UNCLOS) and ensuing instruments. In particular, the 1995 UN Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Straddling Stocks Agreement) (UN, 1995), and the 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement) (FAO, 1995) intended to boost the management of the fish resources globally.

In the 1995 FAO Code of Conduct for Responsible Fisheries technical guidelines were developed to support the implementation of improved fisheries management (FAO, 1995). Guidelines such as those on the precautionary approach provide further examples of international fisheries management. Agenda 21 of the UN Conference on Environment and Development (UNCED) held in 1992 in Rio de Janeiro, Brazil and the 1992 Convention on Biological Diversity also gave political support to the conservation and sustainable use of marine biodiversity (Deere, 1999).

In UNCED eco-labelling schemes gained international recognition. Their potential usefulness was to create market-based incentives for environmentally friendly products and production processes. At Rio, governments agreed to "encourage expansion of environmental labelling and other environmentally related product information programmes designed to assist consumers to make informed choices" (Paragraph 4.21 of Agenda 21).

The FAO Code of Conduct for Responsible Fisheries (1995) provides for the fishing efforts to have sustainability objectives (in order to identify the fish origin) which are inclined to be achieved through market-based measures. It is also important to note that other international and national instruments emphasize the fundamentals of sustainable management of fishery resources.

The Guidelines for the Eco-labelling of fish and fishery products (FAO, 2009) has laid down explicit guidelines for eco-labelling schemes. The guidelines insist that the principles applied for the schemes for marine capture fisheries should be consistent with the 1982 UNCLOS and Straddling Stocks Agreement, FAO code of Conduct of Responsible Fisheries and the WTO rules together with various other international instruments. Some of the guidelines states that:

sovereignty of states must be recognised, they are voluntary and market-driven, a fair participation of all interested parties is conducted in a transparent manner, it should be non-discriminatory as not to create technical barriers to trade and it should have access to global market (Ward et al., 2008). This international framework for eco-labelling schemes includes the terms associated with eco-labelling such as certification, accreditation, transparency, accountability, auditing and verification.

The MSC programme is based on FAO guidelines because it supported the rules and regulations related to the labelling scheme. However, MSC used FAO guidelines covering specifically fishing operations and environmental issues in wild-capture fisheries.

A more detailed analysis of the MSC certification is discussed in Chapter 3.

2.3.2 Eco-labelling under WTO

The Committee on Trade and Environment (CTE) of WTO is responsible for eco-labelling issues. The Committee's responsibilities lie in working coherently on the WTO's agreements and States requirements for products that have minimum impact on the environment. Apart from labelling, standards, technical regulation, packaging and recycling are also included in the agreements (WTO, 2013).

Due to the complexity and diversity of labelling related to the environment, WTO members generally agree that such labels are economically viable for countries but they also tend to restrict trade (WTO, 2013). However, WTO also insists that eco-labelling schemes should not discriminate between countries and should not create unnecessary barriers to international trade. This is where the Agreement on Technical Barriers to Trade (TBT) allows WTO to deal directly with eco-labelling. Other agreements related to eco-labels under the WTO are the General Agreement on Tariffs and Trade (GATT), the General Agreement on Trade in Services (GATS), and the Agreement on Sanitary or Phyto-sanitary (SPS) Measures (Wessells et al., 2001). In addition, the Code of Good Practice for the Preparation, Adoption and Application of Standards as Annex-3 to the section on TBT Agreement issued by WTO sets standards in a manner that does not conflict with the agreed international frameworks. In spite of each agreement having its own set of rules, they have overlapping principles.

Under the TBT of the WTO Agreement the main objective is to ensure that the requirements under labelling do not discriminate between trading partners keeping in mind the most favoured nation principles (MFN) or between locally produced goods and services and imports thus, national treatment (Wessells et al., 2001).

Nevertheless, disputes have arisen under the GATT relating indirectly to eco-labels, cases pertaining to eco-labels including malt beverages, auto taxes and the tuna – dolphin issue (Simi, 2009). In the tuna – dolphin case between the US and Mexico, Mexico claimed there were products discriminated by the US requirement of a dolphin safe label. This 1991 case saw Mexico use the MFN clause of Article I: 1 of GATT against the mandatory dolphin-safe label in the US to express discrimination (Simi, 2009). Though the key WTO Panel noted that labelling provisions of Dolphin Protection Consumer Information Act (DPCIA) do not restrict the sale of tuna products[4], it also identified that it did not necessarily require provisions to be met in order to obtain an advantage from the government. However, any advantage (from access to this label) depended on the free choice by consumers in giving preference to the "Dolphin Safe" tuna label. Here it becomes apparent that labelling provisions do not influence the right or ability of one's country to sell tuna or tuna products. These provisions also do not make access to a government conferred advantage affecting the sale of tuna or tuna products conditional on the tuna harvesting methods used. Hence whether or not an eco-label contradicts the MFN principle depends on whether the country issuing eco-labels either favours or discriminates against another country selling the same labelled products through such issue (Wessells et al., 2001).

Mexico claimed that the labelling provisions for DPCIA were relevant to the requirements under Article IX: 1, which is the "Marks of Origin". The Panel disagreed in commenting that the Article did not contain a national treatment but only an MFN requirement. This indicated that the provision's intention was to regulate the marking of origin of imported products and not marking of products generally. Thus the Panel was of the view that the labelling provisions of the DCPIA did not fall under Article IX: 1.

[4] Tuna products can be sold freely both with and without the "Dolphin Safe" label.

A more recent case of the US-Tuna II (Mexico)[5] clearly identifies eco-labelling as a technical barrier to trade. The Panel findings for the US-Tuna II case are:

- the US dolphin-safe labelling provisions constitute a technical regulation under the TBT Agreement
- the US dolphin-safe labelling provisions do not discriminate against Mexican tuna products and are therefore consistent with Article 2.1 of the TBT Agreement, contrary to Mexico's claim
- Mexican tuna products are not afforded less favourable treatment than tuna products of US and other origins in respect of the US dolphin – safe labelling provisions on the basis of their origin
- the US dolphin-safe labelling provisions are more trade-restrictive than necessary to fulfil the legitimate objectives of (i) ensuring that consumers are not misled or deceived about whether tuna products contain tuna that was caught in a manner that adversely affects dolphins and (ii) contributing to the protection of dolphins, by ensuring that the US market is not used to encourage fishing fleets to catch tuna in a manner that adversely affects dolphins, taking account of the risks non-fulfilment would create
- the Panel's conclusion was based on two findings: (i) the findings that the US dolphin-safe labelling provisions only partly address the legitimate objectives pursued by the United States and (ii) the finding that Mexico had provided the panel with a less trade restrictive alternative capable of achieving the same level of protection of the objective pursued by the US dolphin-safe labelling provisions. (WTO, 2012)

As such it can be noted that eco-labels are a powerful tool for environment policy apart from settling trade and environmental disputes.

2.3.3 WWF and Eco-labelling

The World Wide Fund for Nature (WWF), a non-governmental organization, partnered up with Unilever, with a common objective to ensure the long-term viability of global fish stocks.

WWF is the world's largest conservation group on protection and conservation of biodiversity through scientific based practices and raising funds for wildlife conservation and habitats around

[5] For details of the case please see http://www.wto.org/english/tratop_e/dispu_e/381abr_e.pdf.

the world. WWF views eco-labelling and certification as serving this purpose. Particularly with regard to MSC, WWF motivation to establish MSC rests on its fundamentally new approach to protection of marine biodiversity (WWF, 2012).

Unilever, on the other hand, is the world largest buyer of fish and considers MSC a way of having sustainable financial returns. Even though their main objective was to secure long-term returns financially, they realised that the only way to achieve this would be through sustainably managing global fish stocks, which in return would cement the sustainable yields (Fowler & Heap, 1998).

WWF's and Unilever's objectives overlapped but for different reasons. This then led to the establishment of MSC through their partnership. This partnership highlights the possibility of a contribution from the NGOs and industries in settling standards that have a global impact and scope.

2.4 Conclusion

Without doubt there has been a tremendous increase in the demand for eco-labelled products now that consumers have become better informed on environmental impacts of fishing. The international agencies such as the FAO, WTO, GATT and others include in their instruments eco-labelling, and provide guidelines on the use of eco-labels. Disputes with the use of eco-labels as reflected in the tuna – dolphin case also use instruments of these agencies to find a resolution. To have some control over the use of eco-labels, these international frameworks are necessary instruments.

The MSC certification scheme was created on the same principles of the FSC certification scheme. It was established by an international NGO, WWF, and a business organisation, Unilever, to manage resources sustainably to maximise benefits and have long-term returns while at the same time providing accountability and transparency of MSC products by following the FAO guidelines on certification of wild capture fisheries. However, there are costs involved that make it difficult for the developing countries to participate. The establishment and analysis of the MSC certification scheme is discussed in detail in the next Chapter as an extension of the literature review on eco-labelling.

Chapter 3.0: Analysis of MSC Certification Scheme

3.1 Introduction

"If we don't manage this resource, we will be left with a diet of jellyfish and plankton stew."- Daniel Pauly[6]

Eco-labelling is increasingly becoming an important tool in natural resources management. This Chapter analyses the historical development of MSC certification. It examines the establishment of MSC and discusses the MSC programmes around the world. It points out the contentious nature of divergent labelling standards and analyses how these impact on MSC certification of seafood. The current status of MSC is discussed together with how changes have affected the application of eco-labels as a future management tool.

3.2 How MSC evolved

Eco-labelling systems have been in place since the late 1980s to satisfy consumer demands to be able to purchase greener products. Criteria for standards were established within the relevant systems to manufacture products through processes that would minimise environmental impact. Some of the examples of such labels include "Blue Angel" (Germany), "Green Seal" (US), "Nordic Swan" (Sweden), and "Eco-mark" (Japan), (Hazell, 1998). Blue Angel was the result of the first fully developed nationwide eco-labelling scheme in Germany in 1978 for products and services (not food). It prompted the development of schemes in many other countries; in 1989, the Nordic Council of Ministers established the well-known Nordic Swan and it was modelled on the Blue Angel; in the United States, Green seal was founded in the same year as Nordic Swan and is well established in the US; Eco-mark was developed in 1989 by the Japanese Environment Association (Bostrom & Klintman, 2008). Organic food labelling began in 1980s and came into prominence during early 2000 in the wake of the formulation of the Millennium Development Goals especially MDG 1 – eradicate poverty and hunger and MDG 7 – environmental sustainability. A study by Setboonsarng (2008) reveals that organic certification contributes substantially towards MDG1 and MDG 7 through premium prices and better market access.

Countries then started seeking to increase sales without the hindrance of national labelling system, that is, where certain companies had begun to make false claims in labelling goods as "environmental friendly". For instance, some aerosol propellants were labelled 'environmental friendly' simply because they had been changed from CFCs to propane/butane. Nonetheless the

[6] See http://www.brainyquote.com/quotes/authors/d/daniel_pauly.html, retrieved 12 August, 2013.

latter may still affect the atmosphere by contributing to global warming or photochemical smog, and have the disadvantage of being highly flammable (Hazell, 1998). Another example of spurious claims of environmentally friendly products was when certain bathroom cleaners were presented as "nitrate-free" though such products had never contained nitrates in the first place (Hazell, 1998).

In the marine sector, the MSC certification of seafood products is the leading sustainable certification system in capture fisheries (Thrane, Ziegler, & Sonesson, 2009). Any fishery can undertake assessment on a voluntary basis for environmental sustainability. The assessment of a fishery is based on two aspects. The first one is the "entire fishery (all boats and all gear types) on a particular species, such as the Alaskan salmon or Alaskan pollock fishery, or a defined component of a bigger fishery, such as the Cornish handline mackerel fishery (a defined gear type and client group of vessels and geography)" (Ward and Phillips, 2008, pg. 32). If the fishery under the assessment meets the standard, they will qualify to use MSC's eco-label in the market place as long as the entire supply chain has also been audited and meets MSC's traceability or chain-of-custody (COC) standard (Ward and Phillips, 2008).The chain-of-custody, according to the MSC website (www.msc.org) is an assessment that must take place at each step in the chain that confirms the product originates from a fishery certified to the MSC's Principles and Criteria for Sustainable Fishing. Certified chain of custody systems are an essential component of any product labelling programme, providing credible assurance that traceability of fish products through supply chains is maintained. To achieve this, companies in each relevant supply chain are subject to certification against the MSC COC standard for seafood traceability.

At the end of the assessment process there are two certificates awarded to the fishery if it is found to adhere to the standards set under the criteria. One is the MSC certificate which enables the fishery to use the eco-label and the second one is the COC certificate which certifies the fishery to be traceable. According to May and others (2003, pg. 84) "it should be noted that where a subcomponent of a fishery is assessed, the assessment team still looks at the total fishing effort on the entire target stock to ensure principle one was met—the fishery must be conducted in such a way so as not to lead to overfishing". The assessments are usually to measure conformity to the MSC Principles and Criteria (Appendix 2) for sustainable fishing. The assessment sets out the following:

- ‘the background to the fishery under assessment and the context within which it operates in relation to the other areas where the target species is fished
- the qualifications and experience of the team undertaking the assessment
- the standard used (MSC Principles and Criteria)
- stakeholder consultation including all those parties with an interest in the management of the fishery and include fishers, management bodies, scientists and environmental Non-Governmental Organisations (ENGOs)
- the methodology used to assess (‘score’) the fishery against the MSC standard
- a scoring table with the Scoring Indicators adopted by the assessment team and Scoring Guidelines which aid the assessment team in allocating scores to the fishery. The commentary in this table then sets out the position of the fishery in relation to these Scoring Indicators.’ (Ward & Phillips, 2008, pg. 85).

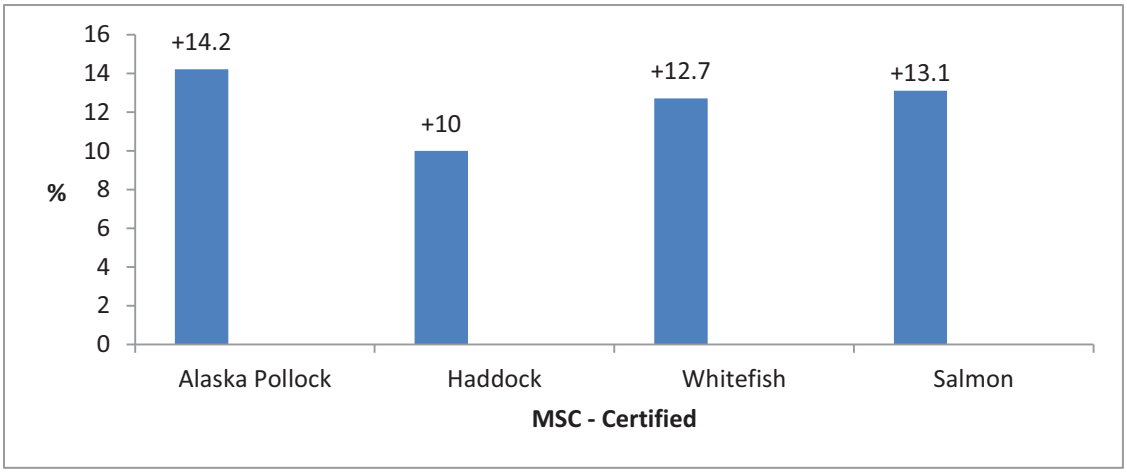
Over the last decade MSC has evolved into a well-known certifying and labelling program. The conformity to the FAO guidelines for wild capture fisheries underscores the credibility of the certification. The guidelines require ‘independent science and evidence-based assessments; full transparency and publication of all reports; high degrees of stakeholder engagement; independent standard setting, accreditation, and certification functions; a separate peer review; and also an independent objections process when stakeholders disagree with the final recommendation of the certification body’(Bostrom & Klintman, 2008, pg. 67). Evolution of the certification has become the driving change in the way oceans are fished, mainly due to the collaboration of industry leaders and the conservation community.

According to Rupert Howes (2013), the CEO of MSC, “the organization is effectively trying to operationalize a model of sustainable production by encouraging fisheries to meet a science-based standard for environmentally responsible and sustainable fishing, and also, through the use of the eco-label (certified sustainable seafood), a model of sustainable consumption by empowering consumers, whether major seafood buyers or individual consumers, to make the best environmental choice”. According to the MSC website, currently 10 per cent of the global wild caught seafood is covered by the MSC programme. Inall, 575 fisheries have completed

improvements towards best practice, and 1,224 improvements are expected by 2020. Globally, 45% of the countries are selling over 22,000 MSC-ecolabelled products (MSC, 2014).

The value of the premiums and access to new markets of MSC-certified products give economical and financial motivation to the producers and retailers to maintain certification. There are studies[7] that have captured some MSC-certified species drawing price premiums at the retail level as shown in graph 1 below. It is evident that products with MSC-certification attract premium prices and is lucrative for fisheries business.

Graph 1: Some species showing premium price



Source: MSC Annual Report 2013-2014

The collective efforts of conservation groups and industry leaders have provided MSC a platform to promote sustainable seafood products. This has subsequently put pressure on the supply chain to provide MSC labelled sustainably managed seafood.

3.3 Global Context of MSC

Since the establishment of MSC, a market has been created for its products and it has mainstreamed fisheries management measures. The MSC was formally established as an NGO in London in 1997 under the chairmanship of John Gummer, a Conservative MP and former UK Fisheries and Environmental Minister (Ponte, 2012). In addition to developing its own

[7] See Asche et al., 2013; Roheim et al., 2011; Sogn-Grundvag et al., 2012; Sogn-Grundvag et al., 2014.

Sustainable Fish Initiative, at the MSC launch, Unilever committed to buying fish only from sustainable sources by the year 2005 (Foley, 2012). The Anglo-Dutch firm Unilever is one of the largest consumer product companies and the world's largest buyer of frozen fish and the manufacturer of the world's best-known frozen-fish products with brands such as Iglo, Birds Eye, and Gorton's. Unilever has a 25 per cent share of the European and US frozen fish market and also has major fishmeal and fish oil enterprises (Constance & Bonanno, 2000). The MSC became independent of WWF and Unilever in 1999. In 2000 two fisheries were certified as 'sustainable' under the new independent MSC programme. Foley (2012) indicated that the certification of sustainable fisheries is granted against the MSC 'Principles and Criteria for Sustainable Fishing' and is independent from 'chain of custody' certification. As already mentioned the MSC assessment is done voluntarily, and the assessment is conducted by an MSC-accredited third-party certification body.

Parallel to the development of the MSC certification procedures, numerous actors were actively mainstreaming and popularising fishery products by promoting certification and creating 'sustainable buying guides' and advisory lists for consumers, especially in the 2000s. In 2000, Ahold USA (part of the large multinational retailer Royal Ahold) partnered with the New England Aquarium to improve the sustainability of the fish products it retails (Ponte, 2012). During this time the Monterey Bay Aquarium's 'Seafood Watch Pocket Guides', originally developed for its on-site café and event-catering department, became popular in the United States (USA) because they provided individuals with species-specific recommendations for how to be conscientious fish consumers (Ponte, 2012). However, the advisory lists do not differentiate between poorly managed stocks in some locations and well managed stocks in other locations.

As a result sustainable seafood purchasing campaigns expanded rapidly targeting restaurateurs, food service and other seafood purchasing units. In 2004 The Forest and Bird organisation, a New Zealand conservation group, established its own 'Best Fish Guide' and in Australia developed a 'Sustainable Seafood Guide'. The WWF have published other advisory lists together with Greenpeace and the Sustainable Fish Partnership (see various contributions in Ward and Phillips, 2008).

According to Leadbitter (2008) and Parkes and co-authors (2009), a majority of the advisory lists use a traffic light system (of variable quality) where species are allocated into 'good', 'not

so good' and 'bad' categories to encourage large and small seafood buyers to migrate towards 'good', 'sustainable' seafood options.

One of the biggest developments has been through Walmart Stores, the world's largest retailer, which committed to source 100 per cent of its wild-capture seafood from MSC certified fisheries by 2011 (MSC, 2010a). Similar interest has been shown by other retailers around the world, as many now include sustainable seafood programmes in their mainstream business activities. The MSC programme is now operating in North America, throughout Europe, and increasingly in Asia Pacific. This programme has been particularly popular in the Netherlands over recent years. First the Dutch retailer association, representing over "90 per cent of all Dutch retailers made a similar commitment to Walmart's, with the goal that all wild-caught fish would come from MSC certified fisheries within five years" (FCIL, 2013). The Dutch fishing industry joined the effort, followed by the North Sea Foundation and WWF. Finally the Dutch Government agreed to contribute €1 million (now €1.5 million) to enable Dutch fisheries to meet an FAO-compliant third-party certification scheme (Leschin-Hoar, 2013). Many Dutch fisheries are now engaged actively in creating a market demand.

These developments indicate the rise of evidence based management systems that require the fishing industry to make improvements by reducing the numbers of by-catch of birds and non-target species, changing to the use of environmentally friendly fishing gear, implementing voluntary closures, and other management initiatives to achieve certification (Havice, 2013). The certifications have been used by fisheries to supply existing buyer preferences, gain new market access, and in some cases, gain price premiums by supplying certified and labelled seafood.

Some cases of assessments have become controversial. Objections indicate polarized views on issues of conservation. Those who support the need for higher standards argue that some unsustainable fisheries are being certified (Wessells, 2000). On the other hand, many within the industry believe the bar is already too high, that certification costs too much, takes too long, and adds no value to their business (Bear et al., 2013). This shifting view point makes fisheries science and certification a complex, dynamic and an evolving process. The MSC programme continues to improve within this creative tension while trying to maintain the rigour and robustness of the independent assessment process (Christian et al., 2013).

In the developing countries particularly, the difficulty with fisheries is twofold, according to one MSC official. First, "Fisheries specific data is often lacking therefore assessments need to use a more precautionary approach when assessing the sustainability of the fishery and secondly "several aspects of management in developing countries are lacking or deficient. In particular compliance and enforcement in small scale fisheries is difficult. However developing countries cannot all be put in the same category when assessing fisheries. Countries with large populations and many landing ports and fishermen provide the largest challenges" (Pers. Com, Pacific MSC Fisheries: Executive Official, 13 February, 2013).

The following section focuses on the presence of the MSC certification in the various continents of the world and how this eco-label has infiltrated the global market.

3.3.1 MSC certification in Australia

The assessment for certification is often based on a case-by-case basis. Depending on the conditions of the fishery, re-assessment may be specified by the certifier (MSC, 2002). In 2000 the West Coast Rock Lobster Fishery in Western Australia (WA) became the first in the world to attain Marine Stewardship Council (MSC) certification and also the first to be re-certified by the MSC for a third time. The Department of Fisheries, in partnership with the Western Australian Fishing Industry Council and with support from the State Government, was spurred to embark on a program that would provide the opportunity for all the State's commercial fisheries to achieve MSC certification (MSC, 2006).

In Australia, six fisheries are MSC-certified: mackerel icefish, HIMI toothfish, Macquarie Island toothfish, Spencer Gulf king prawns, Lakes and Coorong fisheries and the West Coast rock lobster fishery (MSC, 2010a). Worldwide, more than 15,000 seafood products can be traced back to certified sustainable fisheries; 206 of them are available in Australia. They all carry the blue MSC eco-labels (MSC, 2010a).

The WA Government has committed AUD $14.56 million over four years to the certification program (MRAG, 2009). This funding covers application fees for wild-capture fisheries to undergo pre-assessment and the initial full assessment. It also covers the initial audit for each fishery achieving full assessment. A portion of the pre-assessment funds is available to assist with fishery improvement programs to help fisheries to transit through to full certification.

3.3.2 MSC certification in New Zealand

Similarly, in New Zealand, several marine species are MSC certified, including hoki, southern blue whiting, albacore tuna troll and the Ross Sea toothfish fisheries (MRAG, 2009). This section will focus on the Hoki fishery as the Southern blue whiting and the Albacore tuna troll were only recently MSC certified. In 2001, New Zealand hoki was the first large whitefish fishery to achieve MSC certification. The fishery was successively certified a second time in 2007 (New Zealand Government, 2011). It is New Zealand's most abundant commercial species and the majority of product goes to the United States, Europe, Japan and Australia.

As in Australia, New Zealand MSC certified hoki is well established with global supply markets. Both industries under MSC have gained enormous support from their respective governments and this has strengthened their position in the certification scheme (MRAG, 2009).

3.3.3 MSC certification in North America

In North America the Alaskan salmon became the flagship fishery for MSC certification in 2000 and had become an early leader of the programme therefore this section is focused on Alaskan salmon. The certification of salmon fishery at the Alaska coast include species as sockeye salmon, chum salmon, chinook salmon, coho salmon and pink salmon (Kirby, Visser, & Hanich, 2013). Fishing is regulated by the Board of Fisheries (BOF) and by the Alaska Department of Fish and Games (ADFG). Legislation in the state of Alaska clearly provides for conservation of salmon habitats as well as for efficient management of resources; this allowed salmon harvesting to increase from 25 million specimen in 1959 to 214 million specimen in 1999 (Tkacz, 2013). Harvesting is regulated through seasonal openings, by limitations of fishing quotas, through restrictions on size and sex ratio in the harvest sector, by means of limitations on transportation methods (Tkacz, 2013). Also the methods for conservation of fish resources have been improved, as well as management regulations for various types of commercial and sports fishing. Canned salmon is mostly exported to Europe and sold in the US, while the amount of fresh and smoked salmon exported, has grown. Increased effort has been placed on the restoration and protection of spawning areas, and to restoration of fish stock (Ward & Phillips, 2008).

However, the process for recertification was suspended in January 2012 when a group of Alaska salmon processors requested the previous MSC client, Alaska Fisheries Development Foundation (AFDF), to withdraw from the program. With the Alaska salmon without MSC certification, Walmart, the largest retailer in the world, has refused to buy salmon products from

seafood suppliers who did not carry the MSC eco-label (Tkacz, 2013). The industry did support the retention of the second recertification because it wanted to redirect their resources toward a broader marketing message (Aquaculture, 2012). Currently the Alaska seafood producers are looking into other certification options (Leschin-Hoar, 2013). The Alaska fishermen are questioning the rigidity of the certification, claiming that cost is not the only reason Alaska's salmon industry is turning away from the MSC. They claim the certification is not rigorous enough (Leschin-Hoar, 2013). However, small processors and fishermen are pursuing MSC certification for Alaskan salmon. And most of the processors and fishermen are now opting to support the alternative plan of Alaska Seafood Marketing Institute (ASMI) to pursue a new programme.

3.3.4 MSC certification in Europe

There are several European fisheries that have been MSC certified and many are in the process. The pelagic fisheries sector such as herring and mackerel have been successful and benefitted from the certification programme. The European market has developed well for MSC products and this is due to the seafood buyers being keen to buy from independently certified fisheries to reassure them that they are sourcing from a credible, sustainable source. Norwegian fisheries have been particularly successful: North sea and Arctic saithe, Domstein cod and haddock, and Norwegian herring fisheries are MSC certified (Ward & Phillips, 2008).

An example of a European country that has recently joined the MSC programme is Denmark. The Danish Fishermen's Producers' Organisation (DFPO) obtained official recognition as an EU Producers Organisation (PO) in 1974, with the overarching objective of creating a balance between supply and demand in the market place for species to which minimum prices are applied under EU regulations(FCIL, 2013). The members of the organization contribute 60 – 65 per cent of the total Danish catches. All active Danish vessels are eligible for membership of the DFPO. At the time of the original assessment in 2011, 299 vessels were registered with the DFPO (FCIL, 213). The units of certification for this fishery are based on the eastern Baltic cod (*Gadus morhua*) stock, caught by DFPO member vessels operating under Danish and EU management (FCIL, 2013).

Typically the European market is the largest destination for MSC products from around the world, including Australia and New Zealand. However, the market also absorbs MSC certified products from within the European region such as Denmark.

3.3.5 MSC certification in South Africa

In the African continent, South Africa attained MSC certification for the South African hake trawl in 2004 with recertification in 2010. Although trawl fishing has been seen as harmful by many scientists and conservationists, the hake trawl fishery provides over half of the value of all fisheries in South Africa. However, the hake fishery has become inclusive and consultative due to the conditions set out by the MSC and the re-assessment of the state of the stock (with the recent political changes). All fishing rights holders have signed Codes of Conduct, committing them to compliance procedures and accepting the concept of sustainable harvesting – a standard requirement for MSC certification (MSC, 2010a). An Operational Management Plan is in place to allow the recovery of *M.paradoxus* stocks to sustainable levels within 20 years as the stocks were declared to be close to an unhealthy state (MSC, 2010a).

The two species are found around the entire South African coast. Both species grow slowly and reach 115cm. Hake are piscivorous as adults, feeding at night, whereas they aggregate near the bottom during the day, so the two species overlap in depth distribution, which is when they are targeted by trawlers (Ward and Phillip, 2008).

Again in this case the main export markets are Europe, Australia and the US. Deep water trawling targets *M.paradoxus* on the shelf edge from the Namibian border southwards and the coastal trawling targets *M.capensis* which operates mostly on the Agulhas Bank off the south coast (Ward and Phillips, 2008).

From the various examples of the MSC certified fishery products around the world, the fisheries aim to be sustainably managed. They also aim to be sold for a premium price particularly in the European market.

3.4 Why eco-labels are contentious

Despite the increasing acceptance of eco-labelling, a number of contentious issues tend to undermine the initiative. This section discusses the reasons why eco-labels and other certification have become a controversial issue among the fishing industry. Examples are drawn from different brands globally.

While MSC has been praised as an initiative to promote sustainability, it is now being criticised. One of the main criticisms made by Cooper, Ludlow, and Clift (2012) is the length of time required to become certified, ranging from 12 to 24 months. The critics also note that the cost is prohibitive for a commercial fishing company. The estimated cost for getting a fishery assessed is between $15,000 USD to $120, 000 USD (Christian et al., 2013). Although the MSC claims to be equally accessible to all fisheries around the world, there are many who are excluded by these cost and time requirements. To address this concern, MSC created the Developing World Fisheries Programme (DWFP), which targeted the engagement of fisheries around the world so that they could become recognised as sustainable (MSC, 2007; Cooper et al., 2012). The MSC DWFP conduct outreach programmes to stakeholders in developing countries, providing information and advice on the benefits of the program to fisheries, NGOs, governments and other stakeholders. They assist the government and non-governmental organisations, the fishing industry, seafood businesses and other stakeholders to work together in raising awareness of MSC certification and eco-labelling programmes and increasing developing world fishery participation. They also ensure that developing world perspectives and concerns are included throughout all sectors in the MSC, including governance, policy direction and technical advice (MSC, 2007).

Concern has been raised over the MSC's vision of becoming the globally recognised standard certification in sustainable fishing practices (Cooper et al., 2012). This was deemed unachievable given the extreme diversity of commercial fisheries around the globe. The requirements for fishing different types of stock in different geographical locations raise the question of whether one certifying body such as the MSC can adequately monitor and prescribe sustainable practices everywhere.

Christian and co-authors (2013) have questioned the credibility of the certification process on the grounds that with 19 objections so far, only one objection was upheld and the fishery[8] was denied the certification. According to the authors, 17 MSC-certified fisheries were certified although they all received formal objections, which represent 12% of the 141 MSC-certified fisheries available in the MSC database. However, by tonnage, these contentious fisheries

[8] Faroese Northeast Atlantic mackerel (*Scomber scombrus*) fishery.

represent 35% of MSC-certified seafood. Some examples of these contentious fisheries[9] are the US and Canada fishery for Pacific hake (*Merluccius productus*), re-certification of New Zealand hoki (*Macruronus novaezelandiae*), the Gulf of Alaska and Bering Sea pollock (*Theragra chalcogramma*), the longline swordfish (*Xiphias gladius*) fishery in Canada (Christian et al., 2013).

Another reason why seafood eco-labelling schemes and not just MSC have become contentious is that governments may use such schemes as a trade barrier, to discount fisheries that are external and non-compliant with domestic markets. Larger market states may aim to safeguard their own seafood producers, or to provide market access for domestic fisheries. It will be rare for smaller markets to exert any kind of pressure, at least not to the extent that could lead to improved fisheries management in the country of origin. The use of non-tariff barriers[10] in international trade is highly contentious and heavily regulated, such as under the Sanitary and Phytosanitory Agreement or the Technical Barriers to Trade (TBT) Agreement. Larger players could use the MSC certification against smaller players as a guise for protectionism. The prolonged contestation in the case of 'dolphin-safe' eco-labelling is an indicative case in point.

However, the Pacific MSC fisheries executive representative suggests that the objection[11] process is merely a way of verifying whether the data provided are in line with the standards. According to MSC, fishery assessments are conducted by third-party certifiers that are reviewing the existing scientific and management data for the fishery. "The objection process does not debate the validity of the data used (stock assessments, log sheets, observer reports etc.) but would seek to ensure that all relevant data in the public domain were reviewed and therefore only seek to determine if the interpretation of this data was consistent with the MSC Standard" (Pers. Comm. Bill Holden, September, 10, 2013, MSC Pacific Fisheries Manager).

The MSC standard has certification requirements and guidance for these, which the conformity assessment bodies use to interpret the standard. Full assessments are peer reviewed as part of the process and the MSC has a standards team that provides technical oversight to ensure that interpretations of MSC standards remain consistent across varying fisheries.

[9] See Appendix 6 for the whole list of formal objections.
[10] A number of cases have been brought before the WTO regarding the 'tuna-dolphin' issue.
[11] PNA was also challenged. The details of PNA's case are outlined in Chapter 4.

3.4.1 MSC and other eco-labelling certifications in the Pacific

Apart from MSC certification, the only other global eco-label that has been in operation for longer than a decade is 'Dolphin-Safe' labelling. These relate to the sustainability of fish stocks, the direct impacts of fisheries on other species and the indirect effects of fisheries on marine habitats. These eco-labelling schemes enable consumers to make more informed decisions about their purchasing power by aiming to differentiate products on the basis of their environmental impact. The intention of eco-labelling schemes is to incentivize better practices by industry, alongside or without effective regulations.

3.4.1.1 Dolphin-Safe

The Dolphin-Safe and MSC eco-label, however, take contrasting approaches to certification for wild capture fisheries. Some commentators assert that the generic dolphin-safe eco-label has been propagated throughout the global canned tuna market without any specific form of global governance, and can be considered as a 'market-oriented' approach to eco-labelling (Leadbitter & Ward, 2007; see also May et al., 2003). This generic eco-label has been used as a market-based incentive without a coherent and consistent system of standards and criteria. In direct contrast, the MSC global eco-label is based on a single standard and a set of criteria, that can only be used under license, and is a well-managed and controlled system of eco-labelling for fishery products (May, et al., 2003).

Although use is made of a generic concept for 'dolphin-safe' tuna products without any form of global management or control, some specific forms of the 'dolphin-safe' words and label are protected and used under certain conditions in some countries (such as in the USA) (Brown, 2005). As one of the world's largest markets for canned tuna, the USA has had considerable influence on the development of seafood eco-labelling, including by legislating on the use of the dolphin-safe eco-label. The 'Dolphin Protection Consumer Information Act 'was passed in 1990 and sets out the eco-labelling standards for the use of a dolphin-safe eco-label under US federal law. According to Kirby and others (2013) a label can be specifically applied where no dolphins were killed or seriously injured in the sets or other gear deployments in which the tuna were caught. The US Government's National Marine Fisheries Service (NMFS), implements the Tuna Tracking and Verification Programme (TTVP), the only programme recognised by the U.S. Government that legally satisfies all applicable Federal regulations regarding dolphin-safe certification (Kirby et al., 2013).

3.4.1.2 Earth Island Institute

Alongside government initiatives, the non-governmental Earth Island Institute (EII) developed its own dolphin-safe eco- label in 1990 as a third-party certification scheme (Thrane et al., 2009). The EII dolphin-safe eco-label aims to eliminate the targeting of the tuna – dolphin associations and to assure consumers that the certified product was caught without destructive fishing methods. EII requires that all processing, storage, and transshipment facilities and procurement records related to the purchase, processing, storage, transport, and sale of tuna be made available for independent monitoring (Thrane et al., 2009). EII also 'strongly encourages' tuna fishermen and companies to reduce the catch of non-target species and to release them alive. However, they do not prescribe how this should be done nor do they show the monitoring and reporting. EII claims that their standards are adhered to by more than 90% of the world's tuna companies (Kirby, et al., 2013).

As international principles for fisheries management have developed, fisheries managers and stakeholders have expanded their remit beyond target stocks and iconic species such as dolphins, and attempted to operationalise the ecosystem and precautionary approaches. These developments were mirrored in the context of eco-labels, with the establishment of third-party fishery certification schemes based on scientific principles (Tsamenyi & Ram-Bidesi, 2004).

3.4.1.3 Friend of the Sea

Following the success of the MSC and its more modern approach, one of the EII Directors founded Friend of the Sea (FOS) in 2006[12]. FOS is formally independent from the EII; however, FOS does require tuna companies to be approved as dolphin-safe by the EII. Some of the EII directors are also members of the FOS Advisory Board (Kirby et al., 2013). FOS provides sustainability certification for fisheries and aquaculture products, auditing fishing impacts on commercial and non-commercial species, endangered species and habitat, and evaluating governance, waste and social accountability. The FOS audits take from 2 days to 2 weeks onsite, plus up to 2 weeks for an audit report review, and may only be done by specified certification

[12] The Friend of the Sea (FOS) certification system has a broader reach than MSC in terms of the types of products it certifies (marine capture, aquaculture, fish meal, fish oil and Omega-3 fats). It established a presence first in Italy and later in Switzerland and Spain, with some products sold in other countries. Friend of the Sea has certified over 30 fisheries and about 75 aquaculture operations, including a number of fisheries in developing countries. FOS includes provisions for minimum wages, respect of International Labour Organization conventions, access to medical care for employees (when possible) and recommends (rather than requiring) compliance with SA8000, a social and labour certification system (Ponte et al., 2011). Naturland has also developed a certification system for sustainable fisheries and is working on three pilot projects on capture fisheries in Tanzania (see http://www.naturland.de/naturland_fish.html).

bodies accredited with the International Standards Organisation (ISO) (ISO, 2013). Stakeholders may contribute during audits and lodge objections at the end of the audit. Stakeholder contributions may be only considered if they provide 'official scientific evidence' to support their statements and conclusions (ISO, 2013).

3.4.1.4 International Seafood Foundation

More recently, tuna industry has launched its own initiative towards self-certification. The International Seafood Sustainability Foundation (ISSF) is not an eco-labelling organisation per se but a membership-based organisation undertaking 'science-based initiatives for the long-term conservation and sustainable use of tuna stocks, reducing bycatch and promoting ecosystem health' (Ponte, 2012). According to WWF (2012), the 21 tuna companies participating in ISSF represent more than 75% of the global canned tuna industry by volume.

Tuna processors, traders and importers that participate in ISSF are members of the International Seafood Sustainability Association (ISSA). ISSA members agree to follow ISSF conservation measures and standards of practice, and to act in accordance with all ISSF by-laws and procedures and the Memorandum of Understanding between ISSF and the World Wildlife Fund. ISSA may suspend or expel members for failure to adhere to these standards. ISSF has produced a self-compliance checklist to assist tuna purchasers to assure that the tuna they source meets all applicable ISSF conservation measures. Although there is no formal certification or audit scheme, by virtue of membership and a stated commitment to ISSF standards, companies can market seafood products while claiming to be environmentally responsible (ISSF, 2013).

ISFF has been founded by big US brands such as Bolton Alimentari; Bumble Bee Foods, LLC / Clover Leaf Seafoods; MW Brands; Princes Ltd.; Sea Value Co., Ltd.; StarKist Co.; Thai Union Manufacturing Co. Ltd / Chicken of the Sea Intl.; TriMarine International; and WWF, a global NGO (www.iss-foundation.org). In 2010, Negocios Industriales Real NIRSA S.A., FRINSA, Conservas Garavilla, S.A. and Jealsa Rianxeira S. A. joined the ISSF founders as Participating Companies. In 2011, Chotiwat Manufacturing Co., Ltd, Salica Industria Alimentaria, S.A., R.S. Cannery Co., Ltd, South Seas Tuna Corp, Sealord, Pataya Foods and Asian Alliance joined ISSF

(see www.iss-foundation.org). In 2012 Thai canner, MMP International, and Korean processor Dongwon F&B came onboard[13].

ISSF also has strong statements of principle regarding bycatch but the focus on banning shark finning, without any associated positions regarding stock status for shark populations, is weak. However, this criticism is not unique to ISSF and could be levied at several flag/coastal states and RFMOs. While ISSF has provided support for experimental research to investigate the reduction of juvenile tuna catches, there is no ISSF position that actually requires its members to take concrete action to reduce the bycatch of juvenile bigeye and yellow fin tuna on drifting FADs, beyond RFMO requirements (Kirby et al., 2013).

The ISSF applies a precautionary approach, but does not prescribe any concrete positions. Although tuna fisheries research cruises have been undertaken and ISSF has engaged with WCPFC and PNA members, including during the MSC PNA assessment, no stock-specific target or limit reference points are identified, agreed and pursued by ISSF at the WCPFC or IATTC (Kirby, et al., 2013).

3.5 Evolution of the MSC Programme

There is debate in some countries about whether governmental or inter-governmental regulation and/or certification should be adequate for informing consumers about seafood sustainability (Gulbrandsen, 2009). Eco-labels have continued to proliferate but conservation goals have not necessarily been met. The influx of the certification schemes has attracted both praises and criticisms, both in the environmentally concerned communities and in the commercial sector. Whilst a range of options and information of products have become available for consumers to choose from, the credibility of that information is as important.

Despite the development of other seafood eco-labels, the MSC remains by far the dominant player in this field, giving it a quasi-monopoly both in the supply market (in terms of number and coverage of certified fisheries) and in the demand market (market share among fishery eco-labels used by retailers and branded processors). Only one other existing label to include capture fisheries is starting to create competitive pressure on the MSC: FOS (Ponte, 2012).

[13] See ISSF website - http://iss-foundation.org/about-us/participants/, retrieved 14 July, 2013.

During the initial stages of the certification scheme the MSC lacked a substantial reach. Over the period of the last decade only two fisheries of major commercial significance (Alaska salmon in 2000 and New Zealand hoki in 2001) had been re-certified. By 2004, the MSC estimated that certified and under-assessment fisheries represented 4 per cent of the global supply of fish. Fully certified fisheries, however, were less than 1 per cent of global supply (Ponte, 2008). At that time, the London-based MSC secretariat employed fewer than a dozen people (Ponte, 2012). By 2006, it had certified 15 fisheries, including two new important ones (South African hake in 2004 and Bering Sea/Aleutian Islands pollock in 2005) (MSC, 2007).

In addition, 21 fisheries were undergoing first assessment and dozens more were in the confidential pre-assessment stage (MSC, 2006). Being fairly new, MSC certified products lacked competition in the market at that time, but had significant commercial presence at the retail level only in the UK, Switzerland and Germany – with some presence in the USA, France and other European countries (Ponte, 2008). According to MSC, 223 labelled products were marketed in 23 countries worldwide in 2006. Eighty-nine per cent of these products contained Alaskan salmon or New Zealand hoki. The MSC logo was used by 12 European retail chains under their own private label on a total of over 70 products. Two-thirds of these products were found in two Swiss retail chains (MSC, 2006).

In 2011, MSC faced a dramatic change. The MSC head office expanded in London catering, for more than 50 staff members, and was supported regionally by having offices in the USA and Australia. In addition there were local offices in France, Germany, Japan, the Netherlands, Scotland, South Africa, Spain and Sweden. Supply coverage had increased to more than 100 certified fisheries, with as many undergoing assessment (see www.msc.org) and another 40–50 under confidential reassessment (MSC, 2011). The MSC 2009 –10 annual report maintains that certified fisheries and fisheries under assessment supplied over 7 million tonnes of fish, representing 12 per cent of the world's total wild harvest for human consumption (MSC, 2011).

More than 10,000 products now carry the MSC label in more than 70 countries, with an estimated retail value of US$2.2 billion (MSC, 2014), an increase of 70 per cent over the previous year. In addition to early adopters such as Sainsbury's in the UK, Whole Foods in the USA, and Migros and Coop in Switzerland, the most important developments have been commitments by Wal-Mart (now 'Walmart'), Carrefour, Target, the Dutch Retail Association,

Marks & Spencer, Aldi, Lidl and Metro to supply MSC certified seafood. MSC fish products are increasingly used in food service as well, including by Sodexo (the leading food service provider in North America and a major player elsewhere) and a small number of restaurant chains (MSC, 2010a).

A major contributing factor of the recent phenomenal growth in the number of MSC certifications has been a much needed Fishery Assessment Methodology (FAM), under a programme called 'Quality and Consistency'. This development occurred in response to complaints by fishery operators on inconsistency in the application of the MSC standard (Gilmore, 2008). The FAM has not altered the MSC standard *per se*, but has attempted to simplify the assessment structure, minimize variability of application of the standard and streamline the fishery assessment process. Fisheries using FAM have cut down their assessment period and are said to incur lower costs of certification (MSC, 2010b). Out of "97 certifications documented as of July 2011, 58 had taken place in the previous two years" (Ponte, 2012, pg. 308).

Another recent change to the MSC programme is the addition of the risk based framework. This framework was developed for easy access of all types of fisheries to the certification programme. It is a risk-based approach designed for fisheries without adequate data, enabling small-scale fishery and developing countries fishery to have access to the MSC programme. The first years of MSC certification have shown that the strong focus on quantitative data, to prove a fishery is operating sustainably, can make it difficult for smaller and more traditionally operated fisheries to become MSC certified. This is particularly true for, but not limited to, small-scale and Developing World fisheries.

With the changes, the MSC certification process improved its certification requirements to provide more specific criteria for each of the three MSC Principles. The risk-based methods may be used to score any or all of 5 outcome performance indicators contained within this assessment tree, with additional guidance concerning other affected performance indicators where relevant (Appendix 3). The table in Appendix 3 constitutes the changes to various clauses and as these are substantial changes, the full document can be accessed in the MSC website[14].

[14] See http://www.msc.org/documents/scheme-documents/msc-scheme-requirements/msc-certification-requirements/view.

3.6 Conclusion

The history of seafood eco-labelling already spans several decades, in the course of which fisheries management norms and best practices have also evolved. There is an ongoing need for stock status information for key commercial species, not least in informing the management of Pacific tuna fisheries. The MSC has been successful in becoming the main reference in the market for sustainability certification in the capture fisheries. It did so by enrolling large fisheries in its programme and by working aggressively with major retailers and catering business to find a consumption outlet for 'sustainable fish'.

The MSC has evolved into a credible certification programme but needs to remain competitive and innovate to keep its dominant position and influence. Currently MSC has been challenged by various certification schemes and the competition has been contentious in nature. Other certification schemes such as FOS and the self-certifying ISSF continue to pose competition and threaten MSC by directly undermining the international guidelines for eco-labelling and certification, that MSC follows. These schemes are cheaper and follow a non-credible process thus indirectly putting pressure on MSC to be vigilant and remain competitive. The credibility of MSC products lies in the verification and validation of information. The MSC products can only be produced from a sustainably managed fishery that allows conservation of stock and boosts economic viability through the premium prices.

An important aspect of all the eco-labelling schemes is the thoroughness of the product and fishery assessment and the extent to which compliance with assessment criteria is monitored and enforced. When compared to other certification programme, MSC assessment follows an established process, usually taking several months, using contracted certifiers to assess the fishery or product against the MSC principles and criteria. However, with FOS assessment, the process is also done by contracted certifiers and can take as little as 2 days on site and 2 weeks for review of the audit report. The short time frame for assessment and the fee for processing objections suggest that FOS certification may not be as rigorous as it could be and while a lower cost of assessment may be attractive to fishing companies, this may not lead to a price premium in markets where robust certification is expected by consumers (Kirby et al., 2013). Furthermore, ISSA members pay a US$50,000 fee at the time of their initial application and must comply with ISSF policies, by-laws and traceability audits (Kirby et al., 2013). ISSF then requires ISSA

member directors to submit annual statements of compliance, with apparently no independent audit process (ISSF, 2013).

It is important for the MSC to target fisheries from the Global South to maintain its status in the market given that much of the global production of capture fisheries takes place within the waters of developing coastal countries (FAO, 2014). Fisheries from the Pacific region are in a healthier state compared to the fisheries in other regions and oceans and the MSC could capitalize on this. The practicality of the MSC process is discussed in the next two chapters, which attempt to give a detailed yet holistic view of the MSC certification programme in the Pacific.

Chapter 4.0: Case Study 1 – The Parties to the Nauru Agreement and MSC

4.1 Introduction

"We can maximise the benefits from our tuna resources if we own and control the vessels that harvest the tuna, own the production plants that process and value add our tuna and own the marketing and retailing platforms that distribute our tuna products in world markets. If not owning the facilities we must retain control of our fish" –
Transform Aqorau (Korea South Pacific Fisheries Forum Speech)

This Chapter examines the involvement of the Parties to the Nauru Agreement Office (PNAO) in the MSC certification scheme and the reasons for attaining the certification. It identifies the reasons why MSC was sought, how the MSC certification was achieved (the different stages and processes involved), examines the challenges and constraints involved in the certification process, and indicates that the chain of custody exercise reduces illegal, unreported and unregulated (IUU) fishing. It also shows that MSC influences environmental reforms within capture fisheries and the advantages and disadvantages of product labelling and certification for the development of the tuna industry.

The information presented largely reflects interviews with the relevant stakeholders in the tuna industry in PNA. This chapter also highlights the implications of MSC certification for the PNA as one of the two case studies on the assessment of the MSC programme in the Pacific region.

4.2 Historical Context

The eight PNA states (Federated States of Micronesia, Kiribati, Nauru, Palau, Papua New Guinea, Republic of Marshall Islands, Solomon Islands and Tuvalu) own the largest combined EEZ in the Pacific region as shown in the map below. The eight Pacific countries members (with the yellow coloured EEZ) cooperate to manage tuna which provide 25% of the global tuna supply (Banks, Clark, Huntington, & Lewis, 2011). The backdrop to the MSC certification of free-school skipjack lies in the compelling need of the PNA nations to address the issues of receiving higher returns on their tuna resources. The driving force was the establishment of the PNAO in 2010 following a Ministerial directive in 2009 Bikinebeu Declaration[15]. The Koror

[15] Signed in Tarawa, Kiribati in 2009, the Bikinebeu Declaration set up the PNA Office to serve its members by strategic fisheries conservation and management, initiatives to maximize profitability and benefits for Pacific Islanders and promotion of PNA waters as a globally recognized, sustainably managed and certified tuna fishery.

Declaration[16] in 2010 endorsed the support full for assessment for Marine Stewardship Council certification of the skipjack fishery as sustainable.

The following graph shows the geographical area of the PNA.

Map 1: Geographical Area of PNA

Source: The PNA Office, 2013

The PNA region is well known for its tuna resources. According to FFA Trade News (October, 2013) and Havice (2013), currently about 2.5 million tonnes of tuna are extracted annually from WCPO and over 1.3 million tonnes come from PNA EEZ (60% of the total volume). The national composition of the fleet is Taiwan, Korea, and the Philippines, followed by China and New Zealand. A more recent group of entrants to the fishery includes the Latin American fleets of Spain, El Salvador and Ecuador.

In 1982, the eight tuna-rich states signed the Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest, and they were termed by Doulman (1987) as the Nauru Group, now known as the PNA. Apart from a shared frustration with Distant Water Fishing Nations (DWFNs), they also shared a common tuna stock (skipjack tuna) which was the main interest of foreign owned fishing operations in their contiguous EEZs. The frustration was a result of FFA's inability to make quick decisions on fisheries management. The interests of

[16] Signed in Palau, in 2010, at the 1st PNA Presidential Summit, the Koror Declaration - confirmed and supported the Vessel Day Scheme (whereby fishing is limited by a set number of fishing days, closed off all high seas areas to fishing (latitude 10 degrees North and 20 degrees South).

states who did not have significant tuna resources within their EEZs seemed to have more influence in the FFA group (Doulman, 1987).

It was initially thought that the formation of PNA might lead to the disintegration of FFA; however, it operated within the wider regional group and has survived. Absence of a PNA office resulted in FFA providing secretariat services to PNA, and other administrative and technical support.

According to Gillett (2010), the late 1970s saw commercial Japanese and American purse seiners become fully operational in the western equatorial area of the Pacific region, especially in the PNA area. Consequently, the number of purse seine vessels operating in the Pacific region increased rapidly during the early 1980s (Gillett, 2010). Due to the extreme El Niño event of 1982 – 83 and to reduce dolphin mortality in their traditional fishing grounds, the USA purse seine fleet entered the Pacific from the east. In 1983, 62 USA seiners caught 179 000 t of tuna in the Pacific Islands area (Gillett, 2010). From the mid-1980s to 2003 the region experienced a major expansion of purse seine fleets. Access for these groups of vessels is under regional or bilateral fisheries partnership arrangements or agreements, including:

- bilateral intergovernmental agreements (between individual fishing states and individual PNA Parties);
- European Union Fishery Partnership Agreements (between the EU, and Solomon Is, Kiribati and FSM);
- a range of commercial agreements between associations or companies and individual PNA Parties;
- the US Treaty (between the Governments of certain Pacific States and the USA) (see www.pnatuna.com)

The decision to seek MSC certification was part of a range of activities undertaken by PNA to increase economic returns to its member states as well as to pursue sustainable management of the tuna resources even though the above agreements were already in place.

The decision for tuna caught in PNA waters to be certified as MSC began when an agreement was made by the Parties to establish a PNA office in Majuro, RMI from the beginning of 2010.

As a result of funding constraints, PNA had previously operated as a formal association rather than an independent institution. The PNG government provided funding to establish the PNA office and as a result, PNA gained momentum in taking their initiatives and formalising them to increase returns on tuna resources that had been long overdue. The initiatives included the Vessel Day scheme, limiting vessels from fishing in the adjacent high seas "pockets" (Eastern High Seas), establishing a National Observer Programme and setting up a fisheries data information system.

The past five years have seen PNA initiatives transforming the management of the (purse seine) tuna fishery, which has opened opportunities for development and maximized economic returns. PNA has been able to improve the management of its resources; as a result its presence as a negotiating group has been elevated in varying regional forums. This influence has modified the relationship between DWFN and the PICs.

4.3 MSC Assessment – First stage (Pre-assessment)

The assessment process for MSC certification for PNA purse seine skipjack tuna went through various stages before they were awarded the certificate, which is subject to renewal every five years. According to the PNAO (2013), it was a rigorous exercise for PNAO to undergo the assessment process. The pre-assessment was funded by PNG National Fisheries Authority as a contribution to the PNA Office.

The pre-assessment was initially for skipjack and yellowfin with regard to free schools (non-FAD), log sets (natural floating object), anchored FADs and drifting FADs. Intertek Moody Marine[17] recommended that drifting and anchored FADs were not viable for certification because of the global concern over FADs and high levels of bigeye mortality. FAD fishing is regarded by some as a destructive way of fishing as well as of targeting fish; many other types of marine life are killed or taken in the process, endangering the marine ecosystem. According to NGOs such as Greenpeace, "around half of the global catch is taken around FADs" (Barclay & Paris, 2013, pg. 25)

The pre-assessment report identified free and log sets for both skipjack and yellowfin as seeming possible to certify. However, grave concerns were expressed over the potential vulnerability of

[17] Intertek Moody Marine Ltd. is the leading certifier of fisheries against the MSC standard. It is an accredited MSC chain of custody certifier with clients in restaurant, retail, processing, wholesale and food service sectors.

yellowfin due to the high variance and uncertainty in scientific models used to assess their stock status. Therefore it was agreed to proceed with two parallel assessments for skipjack: free school and log sets.

The pre-assessment report and recommendations were considered at the Palau Leaders' Summit in February 2010. As a result, the PNA Office put the MSC full assessment of the skipjack fishery out to tender. The assessment took approximately 12 months to complete with very extensive consultation with PNA parties, industry and international NGOs. According to a PNA official, "there were 21 or 22 consultative meetings with more than a hundred industry groups consulted, which put PNA under a lot of scrutiny" (Pers. Comm, PNA Official: Managerial, 14 February, 2013).

The assessment report for the MSC certification for free-school skipjack tuna was finalised with a number of recommendations made (that had to be reviewed every two years) regarding the management of free-school skipjack against the Principles and Criteria of the MSC. The report indicated that there were gaps in the management practice for tuna fishery in the PNA that needed to be rectified (Banks, et al., 2011). It had eight recommendations to improve the management framework with five conditions to be implemented (Banks, et al., 2011). The recommendations included identifying limit and target reference points with a harvest control strategy for WCPFO skipjack stock through WCPFC. In addition, the PNAO had to apply a precautionary approach along with other related instruments to the Agreement[18]. Other recommendations were to include Indonesia, the Philippines and Vietnam in the framework for their support in the management of the stock and to implement partial strategies for yellowfin and bigeye. Stock assessment of silky sharks and blue marlin was also recommended.

[18] Parties to the Nauru Agreement.

The five conditions recommended for implementation to meet certification requirements are presented in table 1:

Table 1: Conditions and Timescale – PNAO

Conditions	Conditions and Timescale
Condition 1	The PNA had to adopt harvest control rules for the exploitation of skipjack tuna in their waters and to commission an independent report that effectively demonstrated limits on Parties Allowable Effort (PAE) level according to the VDS. This condition had two elements, which were defined as: a) The waters had to be archipelagic and consistent with harvest control rules. The exploitation rate had to be reduced, as limit reference points were approached (within 2 years of certification). Moreover, further assessment of the main uncertainties, for instance the fishing mortality in areas outside PNA waters, had to reduce the exploitation rate as limit reference points were approached. b)The PNA Implementing Arrangements and appropriate WCPFC conservation and management measures (within 2 years of certification) and that the tools in use were appropriate and effective in achieving the exploitation levels required under the harvest control rules to within 4 years of certification. If the tools were to change substantially, then their effectiveness had to be re-evaluated within one year.
Condition 2	PNA had to review all available data (observer, log sheet) to provide the necessary level of confidence that the shark bycatch management strategy was workable (within two years of certification) and that conservation outcomes for sharks were improved. The management strategy had to become a binding unit of certification within two years of certification.
Condition 3	The PNA flagged fleet to adopt both the *RPOA for Sharks* recommended prohibition on schools associated with whale sharks and the subsequent PNA decision to prohibit sets on whale sharks (from 1 January 2011) in the form of an Implementation Arrangement. This had to be documented and validated after a reasonable period of time after the implementation
Condition 4 and 5	Emphasized the need to establish the VDS scheme and the link to WCPFC requirements and scientific advice for monitoring and management performance evaluation. These two conditions focused more on the implementation of the VDS scheme at the national level. The VDS scheme was to be evaluated and reviewed within three years of certification.

Compiled by Maria Sahib, 6 November 2013.

As of December, 2014, all conditions have been addressed except for one which is determining the target reference point and harvest control rule. Although the MSC certification require all conditions to be addressed before recertification, this particular condition has been allowed to be carried over or re-written under the recertification in 2016 (PNAO, 2014).

4.3.1 The Vessel Day Scheme – an added advantage to MSC certification

One of the major transformations within the tuna fishery that took place among the PNA was the introduction of Vessel Day Scheme or the VDS. The VDS is an integral part of MSC because it is an important tool for the management strategy for skipjack tuna. The introduction of the VDS followed a review commissioned by the Parties in 2000 to assess the effectiveness of the licence allocation management scheme on achieving its objectives under the Palau Arrangement[19]. The VDS replaced the licence allocation scheme with a scheme that regulates the number of fishing days by purse seiners to be licensed by the Parties at any one time, in response to scientific advice of overfishing of yellowfin tuna and the rapid influx of foreign purse seine vessels into the WCPO (PNA, 2013). The Parties adopted the VDS in 2006 and it was implemented in 2007 (PNA, 2013).

More recently, the WCPFC has highlighted measures to conserve bigeye and VDS has been used in the management strategy to reduce bigeye mortality. The VDS has had its own set of ramifications that needed improving and understanding. The paramount issue of the VDS is that it has yet to be implemented fully and effectively. The shortfalls identified by both the PNAO and other stakeholders (Banks et al., 2011) were:

a) that there is a disconnect between the PAE and scientific advice on stock status,

b) the ad hoc basis for dealing with PAE (Parties Allowable Effort) allocation and the partial addressing of difficulties through increasing the TAE,

c) the lack of trading days or slow development of trading vessel days,

d) some Parties, overruns of their PAEs, and the confinement of limits to partial application at national level,

e) discrepancies in non-fishing days, such that provisions for non-fishing days applied for one Party and not for others,

f) a significant increase in efforts (of fishing) in the archipelagic waters since 2004 due to the lack of application of VDS to archipelagic waters of the Parties,

[19] The Palau Arrangement for the Management of the Western Purse Seine Fishery (*Palau Arrangement*) was first signed in October 1992 and came into force in November 1995. The Palau Arrangement was established to regulate the number of purse seine vessels to be licensed by the Parties at any one time, in response to science advice of overfishing of yellowfin tuna and the rapid influx of foreign purse seine vessels into the WCPO.

g) exceeding of the 3,907- day cap for the FSMA effort 2010 (maybe because of the lack of US effort under the US Treaty outside VDS) and more recently, overshooting of the cap by 56% (Tavaga, 2012).

The shortfalls identified have been rectified by the PNAO through a number of changes to the management scheme. The changes so far have included eliminating the rollover three-year management periods in order to prevent the automatic carry-over of days between management periods, prohibiting the transfer of days, disallowing the temporary allocations for special circumstances, requiring FSMA vessels to cease fishing once the cap for days outside home Party waters was exceeded in a management year, and inclusion of the US Treaty is under the VDS (PNA Report, 2012).

The VDS is important for the sustainable management of the skipjack fishery but more importantly, to raise the value of fishery. The assessment by the MSC had required the PNA to demonstrate that it had the capacity to ensure that the VDS was implemented effectively. The PNAO has taken the VDS and used it to their advantage. The scheme has exerted pressure on effort control and the solidarity among the members has given a new dimension to the ownership of the tuna fishery in the WCPFO. According to PNA (2013), the MSC required reforms within the existing management structure. The VDS was reviewed in the assessment in order to make arrangements robust enough to make changes to the fisheries, changes in the environment and changes in the stock.

4.4 MSC Assessment PNA – Second Stage (Group COC)

The MSC certification for free school skipjack tuna was awarded to the PNAO in late 2011. One of the important stages of the certification assessment process is the chain of custody exercise. This stage is the core of the certification scheme which tests not only the traceability of the fishing chain but also the documentation process of the fishing chain. The certification process has been very demanding and strenuous for the PNAO. An indication of this was apparent in the Group COC exercise of the PNA (Banks et al., 2011).

The PNA run a "Group" arrangement in the fishery, which means fishing companies participating in the MSC scheme are required to be members of the Group scheme. The captains of the PNA licensed fishing vessels are trained to understand the importance of storing MSC

eligible fish for traceability purposes. As such, real time data is captured and stored in the PNA database. Separate wells are used to store MSC-eligible fish to reduce the chances of contamination or mixing (as shown in Figure 2 and Figure 3).

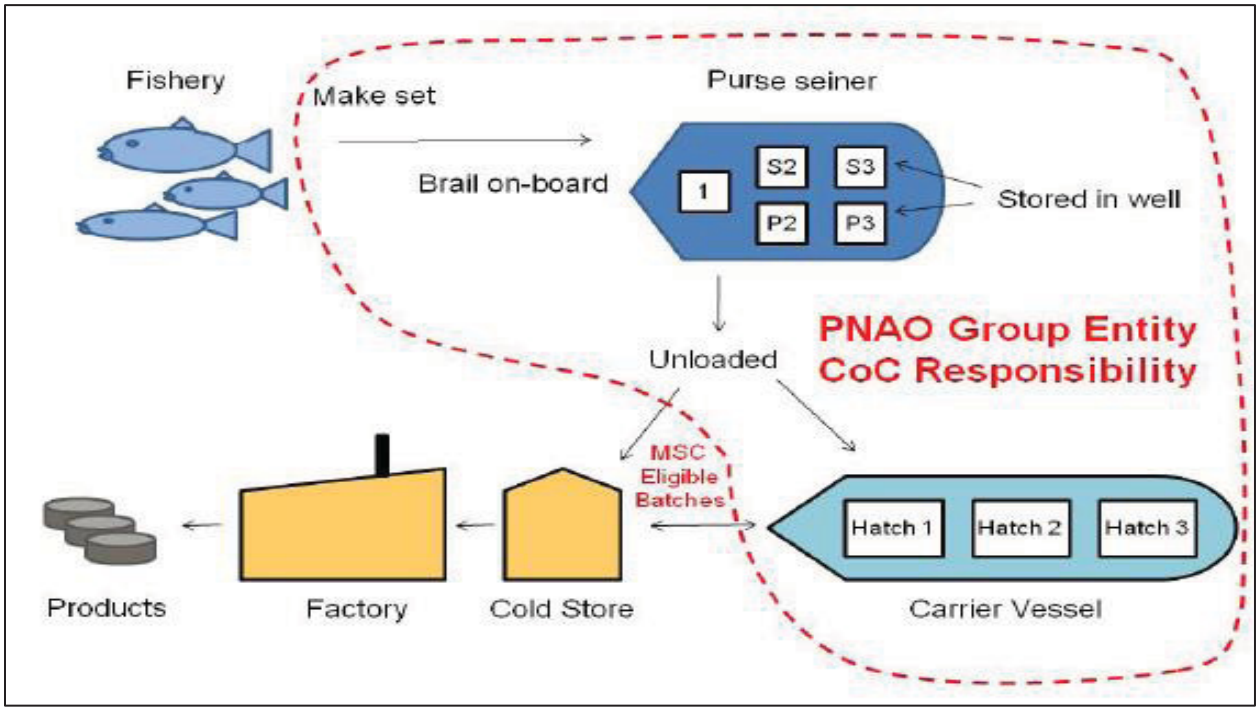
There are checks and balances in place to verify the volume caught. MSC trained Observers on board capture data separately from the captain of the vessel, for accountability and transparency. The volume of the catch is often estimated by using formulas and they can also be checked with brails. The brail is a scoop that takes the fish out and an estimation can be made by looking at the amount of fish brailed into the bin or the well. If the fish needs to be transferred to a dry hold, this can only be done under supervision. If the fish needs to be transferred to a carrier, this can only be discharged from an MSC eligible well to another MSC eligible well. In the case of other fish present in the holds of a carrier, the MSC-eligible fish can be separated using a double net layering (PNAO, 2013).

In cold storage the bins are numbered and stored separately. The fish are graded at this point. When the fish are graded they are put on a table to be sorted by species, size and weight and this makes it the final check from where the MSC-eligible fish becomes MSC-certified fish.
The Group COC involves the EEZs of the member states, as stated previously, which was a challenge in itself as fish from any EEZ of the member country could be either landed or transhipped in port and the procedure had to be equivalent for all members (PNAO, 2013). The documentation had to be as accurate as possible to achieve accountability and transparency when conducting the Group COC exercise.

4.4.1 Group COC

The diagram (figure 1) obtained from the PNAO shows how the Group COC works:

Figure 1: Group COC of PNA



Source: PNAO, 2012.

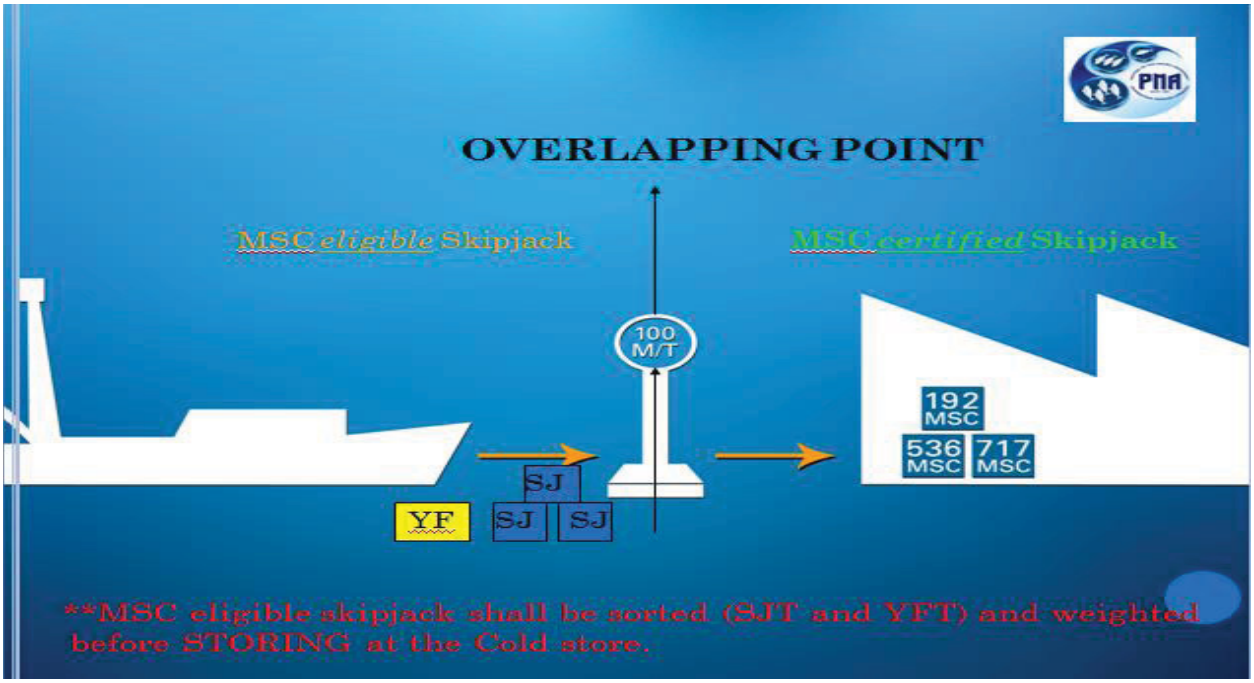
The Group COC covers the chain exercise from the net to the cold store door. It may include one or more transhipments. It utilises observer data, backed by company and captains' records. There are mass balances and checks throughout to substantiate the data collected. All MSC endorsed observers are further trained on MSC principles. The Group COC is shown below and provided by the PNAO (MRAG, 2009):

1. Participating company and fleet are members of the Group Agreement.
2. Eligible vessels are posted on the PNA web site.
3. It is initiated by the company first applying for a trip number and has in-house trained captain / crew.
4. Observer / captain agree that the trip is for free school, so the set is made.
5. Observer confirms well[s] to be loaded is / are empty or has only MSC-eligible tuna in it.
6. Brail numbers are verified and species composition, to estimate weight going into well[s] and to verify if it is free school.

7. If the MSC-eligible tuna is moved to dry hold, it is monitored and physically separated.
8. When it is transferred to a carrier, then the carrier must meet the steps 1 – 3 above.
9. The observer confirms the carrier hold to be loaded is empty or has only MSC-eligible tuna in it, as per 5 above. If the MSC-eligible tuna is from other vessel then net separation is allowed.
10. Mass balance is verified and the composition is sampled.
11. If there is a secondary transshipment then processes 8 – 10 is repeated
12. The MSC-eligible tuna is kept separate and discharged on its own. Bins are then verified empty and labelled MSC.
13. On out turn/grading of the bins, the eligible skipjack weight is verified, and total weights reconciled back to each stage.
14. If mass balances are verified, species sampling are consistent and no breaches are noted, the MSC certification can be issued on request.
15. The cold store is a cross over from fishery COC to processing COC, and traceability.

Figure 2 shows how the MSC eligible becomes MSC certified tuna at this particular point at the cold store.

Figure 2: Crossover from Cold Store



Source: PNAO, 2012.

The PNAO ran pilot programmes to test the effectiveness of the traceability of tuna through Group COC (Appendix 4). Traceability was the fundamental element that had to be strictly maintained throughout the stages of the procedure. The key step was to keep the MSC eligible fish separate and distinct from the non-MSC eligible fish. This applied to any fish caught in the PNA waters of the Western and Central Pacific ocean (WCPO).

The first catch of MSC-eligible free school skipjack tuna, was undertaken in September 2013, was seen by PNAO as an important milestone. According to industry information (1 October 2013), there was catch of 900 MT on board a purse seiner, Jin Hui9 (Appendix 5). One of the reasons why MSC-eligible skipjack was caught in September was that it was FAD closure season for the WCPO region. This compelled the vessels to fish FAD free skipjack tuna.

Companies had to develop policies and procedures to support MSC implementation. Therefore each company, broker or trader would have to have another branch in the organisational chart to indicate the management of the MSC fish. This process consumed a lot of time, energy and money because the crew of the vessels and the employees of companies themselves had to be trained. Consequently company policies were executed for documentation for imminent audits of the Group COC certification. The following flow chart captures the chain of custody exercise, the traceability process of MSC (figure 3).

Figure 3: Flow Chart showing Tuna from Net to Factory in RMI

Compiled by Maria Sahib, 1 October 2013.

4.5 Findings of MSC certification process of PNAO – A Stakeholder Perspective

The stakeholders interviewed in PNA and RMI overall indicated that there was a general support for the MSC programme. The fisheries authority of RMI, which is MIMRA, and the industry player, PPF, showed a lot of support for the PNA in getting the scheme started. However, there has been indication of challenges and constraints linked to MSC certification. Synthesising the perception of the stakeholders involved in PNA MSC certification, the following sections outline those challenges, together with the benefits associated with certification.

4.5.1 Results - Advantages and Disadvantages of MSC

There have been advantages and disadvantages to the MSC scheme for the PNA. The PNA, despite the increases in the price of tuna over the last decade, saw MSC as an opportunity to get premiums on the current price and also saw it as a means of ensuring sustainable management of the tuna fishery.

The advantages of MSC certified purse seine free school skipjack are that:

a) necessary environmental reforms are made to allow sustainable management and adhere to the MSC standard (a higher standard)

b) conservation of bigeye and yellowfin is possible because the target tuna is skipjack

c) it is FAD free

d) the Group COC puts onus on the industry to comply with the requirements

e) the MSC – certified observer programme rigidly follows MSC requirements

f) there is a premium price for MSC fish in the European market

g) the collective effort of the Group is recognized in sustainably managing the fishery

h) the fishery becomes subject to traceability and tracking

i) an independent third party assesses the management of the fishery of PNA.

Environmental reforms have been made at PNA for sustainable management and in order to adhere to higher standards. The office of PNA stated that ‘MSC standards require some reforms to take place’ (Pers. Comm. PNA Office: Administration). The conditions that are put out to the

holder of the MSC certificate have to be met by the respective governments. PNA is the regulator and the certificate holder so the reforms are mainly done by the PNA for its member countries. The conservation of bigeye and yellowfin is one of the principal objectives of the management tool of the PNA.

According to an executive of PNA, 'bigeye has been conserved through shutting the high seas, and using FAD bans'. Under MSC, vessels are compelled to catch free school thus indirectly conserving bigeye.

MSC has introduced a rigid way of managing the tuna resources of the PNA. The compliance requirements for the MSC are reflected in the annual audit, which is required to maintain the certification. Therefore adhering to the MSC standard is also a reflection of the collective effort of the PNA countries because if the member states do not cooperate they are at risk of losing the certification.

According to the PNA, the MSC program was perceived to be an economic opportunity to exploit a niche market and the premium price based on innovative product variation.

However, the disadvantages of the scheme are: a) very high fees – especially if one goes into adjudication; b) the involvement of only one assessment firm for assessing the fishery, which questions the credibility of the assessment; c) the negative effects on small fishermen are; d) the failure to include community based fishery in the scheme; e) the scheme – induced increase in the price for sustainability.

It is common knowledge that the fees are incredibly high for the MSC programme when compared to other wild capture fishery eco-labelling programmes. This was experienced by the PNAO. The representative of the administration of PNA admitted that 'they had decided to apply for MSC without considering the costs involved. They went ahead not knowing the work that was needed to be done' (Pers. Comm. PNA office: Executive officer, 14 February, 2013). The costs increase if one goes to adjudication, which the PNAO has also experienced. Adjudication is a process that a client of the MSC program goes through when objections to certify that client is upheld. The PNAO representative further stated that they paid a hefty sum (a confidential matter for the office) after it went through arbitration, as the PNAO representatives had to travel to London to present their case. The adjudication was a result of objection by ISSF, OPAGAC

(Organizacion de Productores Asociados de Grandes Atuneros Congeladores) and EUROTHON (the European Tropical Tuna Fishing, processing and trade Committee, managed jointly by the EU President, the Secretary of the General Assembly, and the Association Manager of the Brussels Office). The objection was that PNA did not have enough influence over the skipjack to exert management control. They had argued to the adjudicators that PNA had only minor control of the skipjack fishery. The PNAO rebutted this by presenting models based on MSC assessment. PNA had modelled their assessment on the basis that PNA's influence was maybe over 50% of the fishery. Subsequently, what had come to light was PNA's impact on WCPFO skipjack stock. The harvest was in fact at 70% (PNAO, 2013) which supported PNA's case.

Another concern with the MSC programme is the credibility of the assessing company. According to PNAO, they were 'disappointed with the quality of some of the assessments. Apart from being unique, the assessment was one of the most rigorous. As already mentioned there were a number of consultative meetings with over a hundred industry groups. There have been very few cases that have gone through adjudication in London,' (Pers. Comm. PNA Official: Managerial level, 15 February, 2013). The PNAO felt that they had been scrutinized more than any other MSC clients, despite having proper management and compliance strategies in place, such as the Observer programme. The official also indicated that 'within the company there were different consultants that meant that they had different levels of competence. Even if the certifying body recommends it on occasion, MSC had the last say'. The assessment firm was the same company that assessed FTBOA for MSC certification [see next chapter].

During the early years of the MSC scheme, bigger fisheries could afford the MSC programme. The key interviewee of the industry indicated that 'fishermen now cannot afford the tuna. They are the biggest losers. Fishing companies and institutions, not only PNA but all those that are involved within the tuna industry, have funds coming from quotas (catch-based fishery), which the small fishermen lack. They only rely on their catch and when they don't have their catch they are forced to buy fish because the cost of fish is sky rocketing. They are victims of this in terms of their return value' (Pers. Comm. Pan Pacific Food: Managerial staff, 16 February, 2013). The implication of the scheme is that small fishermen do not receive the premium price and this impacts on their livelihoods The scheme does not include community based fishery, although the Philippines is currently in the pilot phase of the community based MSC (May, et al., 2003).

However, MSC certification for community based fisheries in the Pacific will be unlikely due to lack of resources and lack of capacity of small markets of the Pacific to absorb MSC products.

The MSC scheme puts a price on sustainability. As one industry representative put it, 'since there is a price on sustainability, price of tuna is increasing, which subsequently increases profit margins for the industry '(Pers. Comm. PPF: Managerial Staff, 16 February, 2013).

The industry representative revealed that sustainability could only become an issue if the resources were not managed properly by individual countries. Similar sentiments were echoed by the other stakeholders, though they all agreed that the scheme put the region on a comparative, as well as competitive, advantage in the world of tuna.

4.5.2 Traceability and tracking – Does IUU fishing decline under MSC?

At the regional level, due to the vastness of the WCPO, it is difficult to address IUU fishing. Since the establishment of the WCPFC, IUU fishing has been considered and acted on by the CCMs. The WCPFC compliance strategy focuses on controlling high seas fishing, strengthening the exercise of control by coastal state Cooperating Commission Members (CCMs) the compliance with CCM obligations (Box 1) throughout the range of application of Commission measures, as most of the fishing occurs in the national waters (PNAO, 2013). Vessels that fail to comply are dealt with by the application of the WCPFC IUU listing procedure. However, if the CCMs fail to comply then they are addressed through the Commission processes of monitoring, reporting and accountability. The Commission has developed a formal process for the application of sanctions for non-compliance in 2012 (WCPFC, 2013). A Commission at-sea inspection scheme adopted in 2006 allows Commission Members, including PNA, to inspect foreign and other vessels on the high seas (WCPFC, 2013).

Moreover, the MSC program has boosted the capability of the PNA members to tackle IUU fishing in their own waters through the traceability and verification process.

Box 1: Combatting IUU and strengthening control and surveillance

- Establishing the WCPFC provided additional strength to ensure CCMs complied with Regional Management Decisions. Parties, including all DWFNs, are accepted as compliant and are monitored by CCMs in EEZs and WCPFC VMS on the high seas as well as 100% observer coverage for purse seiners in all areas between 20N and 20S, and all CCMs have mechanisms in place to respond to queries.

- CCMs report infringements to the Commission and propose such vessels for the WCPFC Draft IUU list for final decision by the Commission if the case has not been satisfactorily resolved. The Secretariat reports suspect activities to flag States to assist them in controlling their fleets.

- WCPFC support PNA and other Member International MCS operations – data on high seas operations. Reports on boarding are sent to flag State and copied to WCPFC. WCPFC is the only tuna RFMO allowing High Seas Boarding.

- Closure of other High Seas pockets will be a significant positive step to deter unauthorized vessels fishing in the Central Pacific if appropriate monitoring and observer coverage can be met, most particularly with unauthorized fishing inside the EEZs. (for those with VMS on board, as opposed to non-registered/unlicensed) This will have the benefit of concentrating authorized fishing activities inside the Party EEZs.

- Observer coverage is a clear advance and ensures compliance. The Regional Observer Programme deployment now has Commission approval to ensure carry-over of observers when working across EEZs. In the PNA waters, the PNA has declared that the ROP observer aboard must be from a PNA country.

Source: Carlot A, Flewwelling P and Richards A, WCPFC (I13) from PNAO, 2013.

The monitoring, control and surveillance (MCS) capacity varies in the PNA area and a network of PPBs (Pacific Patrol Boats) is being supplied by the Australian Government. MCS capacity is generally acknowledged to be moderate to good according to an assessment conducted by MRAG (2009) and IUU activity is usually detected.

The PNA have taken measures to combat IUU through the MSC certification. Under the Group COC, there are checks and balances in place that can detect discrepancies in documentation. A PNA representative stated that 'schemes such as Earth Island Institute operate on captain's declaration. There is no verification and validation and so if the fish turn up at canning factory, it is declared FAD free. This system has MSC where one needs a good COC. The fishery can be simple but it still needs a COC. Under MSC you can verify if fish was transferred from a boat fishing in Vanuatu waters to validate that the fish was caught in the area of certification' (Pers. Comm. PNA Official: Managerial, 15 February, 2013).

This also can be attributed to the National Observer Programme (NOP) where it is mandatory for vessels fishing in PNA waters to have an observer onboard and an added advantage to the MSC program. According to a senior observer, 'the observer keeps their data separately from the vessel itself. The vessel has no right to look at data of the observer. Observer data is totally confidential. There have been few incidents where the tonnage equally matches but it depends on how the observer does his calculations. For an experienced observer data can be verified by looking at the data the observer collected and cross checking with the vessels, if it is 50 tonnes on the form, and 50 tonnes on one set, both can be correct. But if it shows 100 tonnes for the last 20 set and 100 tonnes with the vessel and the observer, then questions can be asked such as, how come you have 100 tonnes over here and the vessel has 100 tonnes on the last 5 sets in a row, that would give you a discrepancy. Not all observers collect data according to the vessel. The observers are trained to collect data according to their estimates' (Pers. Comm. NOB: Senior Observer). The observer on board is another way to verify MSC – eligible catch on top of collecting data for the coastal states. As explained above the process of collecting and verifying data by observers, the MSC COC requires the same level of competence in tracing and documenting the data collected.

Nevertheless, in 2009, MRAG undertook an assessment of associated risks throughout the WCPO fleet and the specific compliance risks were identified within the region. Some of the major issues pointed out in the report were: 1) under – reporting of catches in vessel logs and weekly reports; 2) CCMs not reporting details on catch and effort to WCFPC; 3) failure to implement pre-fishing inspections to check licence and other details (e.g. ship's master); 4) high observer turnover; 5) weaknesses in implementation of fisheries violations in some countries; and 6) weak system of information exchange and data base management.

It was also identified in the report that the region's strengths were a) key solid national fisheries licensing systems with good databases and good regional systems; b) most notably the Pacific VMS, but also others within FFA, WCPFC and SPC (MRAG, 2009). The PNA run their own database (as previously mentioned) and is near – real time, which means as soon as a set is made and MSC – eligible fish is caught, the PNAO office is promptly informed.

The COC was identified by the stakeholders as being the heart of the certification scheme. According to an observer, 'it is a plan that will cover the fish from the net until the fish reaches the cannery or cold storage' (Pers. Comm. NOP: Senior Observer, 18 February, 2013). Another stakeholder emphasized that if the COC is not followed properly, then the certification loses its purpose and the client loses its certification. In the words of an official from PNAO, 'we have one database that takes fish from the net to the factory and another database takes you from the factory to the retailer. Since PNA has been compiling its own database, it is a world's first because fish can be traced from net to the shelf and backwards. Other fisheries do not have this kind of data nor do they have this type of chain of custody' (Pers. Comm. PNA Official: Managerial level, 14 February, 2013).

The industry representative indicated that the COC was only about traceability because as a QC (Quality Control) he was familiar with traceability. According to him it was 'basically keeping the identity of the fish coming from the ocean going into the boat and the cold storage and out onto the plant' (Pers. Comm. PPF: Managerial Staff, 17 February, 2013). The quality control was found to be the basics of traceability and it was a matter of proper documentation. All the stakeholders did agree that the COC held the key to the sustainability of MSC certification and providing another way of detecting IUU fishing.

Figure 4: The Quality Control Room of a Processing Plant in RMI

Photo: Maria Sahib, 2013.

4.6 Marketing Benefits under MSC – Final Stage

The Pacifical initiative was the brainchild of the PNAO. The initiative was a collaborative approach to increase their capacity to manage the region's tuna fisheries consistent with the MSC certification. It could also boost their individual national development aspirations. In order to strengthen its marketing power and expertise PNA formed a joint venture with the Netherlands based company Sustunable bv, a company which began trading responsibly caught tuna in 2007, and provides on-line traceability for their tuna products to retailers (PNAO, 2013). According to PNAO, the marketing office of Pacifical is based in the Netherlands, to remain geographically close to customers in the target markets.

The Pacifical aims to market its tuna at prices that are affordable to the average consumer, without positioning "sustainably caught and produced tuna" as a highly priced premium niche product only within the reach of those with larger budgets (PNAO, 2013). According to the

Pacifical website, PNA tuna processing plants (in PNG, RMI and SI) also process tuna products for the local population, since tuna is high in protein and a healthy food source for the PNA people. This offers food security and saves valuable foreign exchange, now spent to buy foreign food (see www.pacifical.com).

The Pacifical and MSC logos are copyrighted and they would appear together only on MSC certified tuna products from PNA. A code on products made with the Pacifical tuna can be used to trace the product back to the factory and boat that caught it so there is a degree of certainty regarding its origin. If the logo was to be duplicated, this certainty would be lacking to consumers about where and how their tuna was caught. A research undertaken by Tilburg University, commissioned and funded by Pacifical, into perceptions of European and non-European consumers about the Pacifical logo generated positive results. The study was conducted to determine how people felt after looking at the Pacifical Logo and whether it is an appropriate logo for Pacifical. The research was essentially done in Amsterdam with the total sample size of 125 people of different age, sex and nationality (Linek, 2011).

Figure 5: The Pacifical Logo

Source: PNAO, 2013

In addition the study revealed that the PICs were generally associated with holiday destinations, good weather and fun, which indicated the limited knowledge foreigners, had of the region. There was no association of fish with the PICS and this clearly indicated the need for promotion of the PNA region worldwide to attract attention for the MSC certified tuna product.

Overall there was a positive experience with the Pacifical tuna logo and very few negative remarks were made by either European or non-European citizens (Linek, 2011). The image on the logo was perceived to be unattractive to some with quite a few recommendations made for the displayed woman to have thinner lips. Although less than 50% of the respondents stated that the logo on a food product would draw their attention, this proved to be a very positive remark, considering that every product competes to catch the attention of a consumer. Consequently if about 50% of consumers picked up a Pacifical Tuna product just because of the logo, the product would be a guaranteed success as reported in the study. The overall impression was that the Pacifical logo was extremely well received and had the desired impact to promote the PNA and its people (Linek, 2011). Although Pacifical has taken the responsibility of creating market

access for PNA MSC – certified tuna, the implication is the governance structure of Pacifical. The body within the PNA, to whom Pacifical reports is unclear. Furthermore, there has to be transparency and accountability of Pacifical's long term role in the PNA governing body.

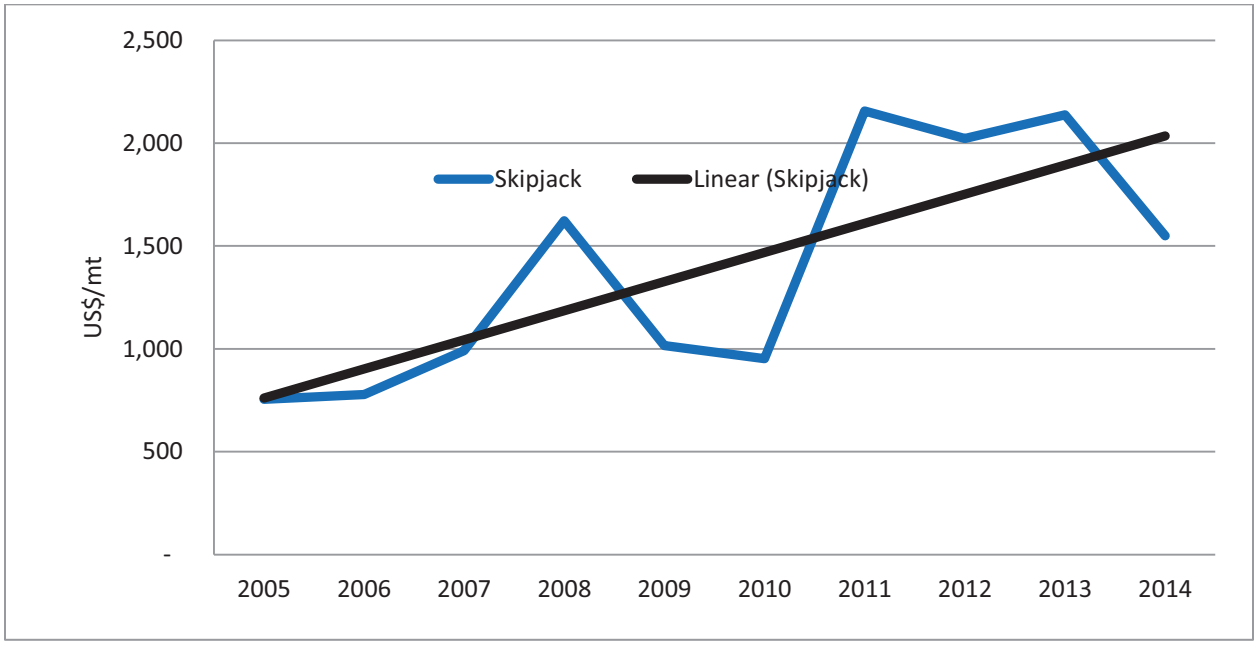
4.6.1 Market Dynamics and Politics

Eco-labels have become a highly politicised issue for the fishery sector. The MSC program is controversial because it is seen as the highest standard for eco-labels by many, yet some tend to support other eco-labels that do not follow FAO guidelines. The high standard of the MSC certification in turn guides the market into absorbing MSC – certified products and providing competition to big brands in the tuna industry. The strongest opposition to the MSC program has been from the US big brands because they are the founders of rival eco-labels such as ISSF as previously discussed.

The representatives of the PNAO felt that the reason 'ISSF has been vocal against MSC in the Pacific is because it was losing market share, shelf place and it stood to promote their individual companies in each country' (Pers. Comm. PNA Official: Managerial level, 14 February, 2013). The PNAO also felt that Earth Island Institute was a threat to Pacifical because they wanted Pacifical to sign up to EII to be able to sell Pacifical tuna as dolphin – safe. However according to PNAO, MSC is already a much higher standard than the dolphin – safe logo and that should not become an impediment to selling Pacifical Tuna.

In 2009 (when PNAO was being set up, though it started in 2010), the average value of a fishing day was $900. In 2012, the PNAO had a benchmark of $5000 and $6,000 in 2013; most days have traded at $5500, although some days have been traded around $3000 for the last 2 years. A decade ago the fish was worth $450 a tonne. In 2010 it was worth about $1000 - $1100 a tonne (Graph 2). In 2013, the price went up to $2,350 a tonne. But whilst the countries' revenue has grown, it still retains roughly 8% of the total regional revenue (PNAO, 2013). The industry profits have gone up by tenfold. With the fuel prices fluctuating, the catch rates are constant, dropping slightly, the efficiency of vessels is increasing and the number of vessels is increasing. Consequently the value of the catch per tonne has increased dramatically but the operating costs still remain the same. On top of the increased values of catch rate, the MSC certification acts like an 'icing on the cake' (Pers. Comm. PNA Official: Managerial level, 14 February, 2013).

Graph 2: Bangkok Skipjack Price Trends 2009-2013

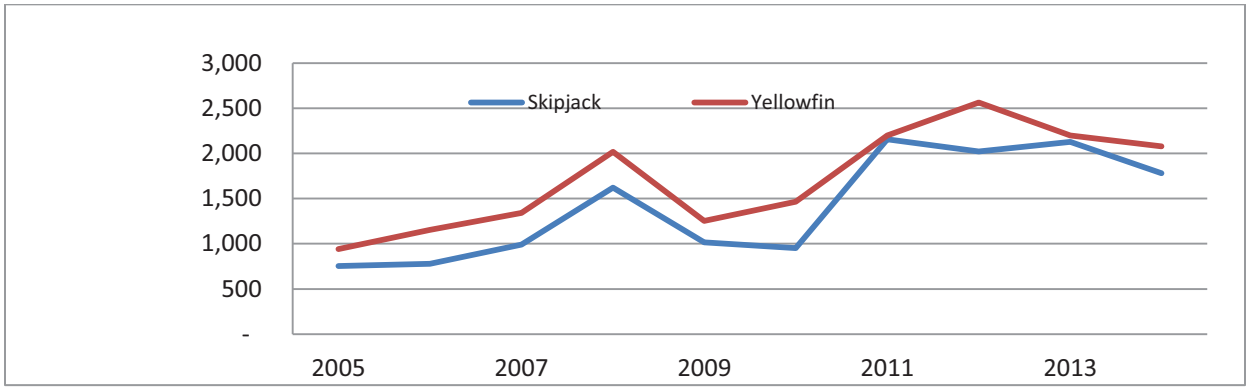


Source: PNAO, 2014

According to the PNA, the VDS does not allow parties to reach their full potential in terms of benefits. The VDS does not add value to the fishery, although it increases the revenue for individual countries. However, if value is added to the fishery, the benefits then can be maximized and the returns can be made to the countries instead of to the industry. The politics at play and the dynamics of the market indicate that eco-labels such as the MSC create an opportunity maximise revenue and have been found to be very lucrative to PICs because of their credibility.

In the last decade prices for tuna had sky rocketed and are indicative of the demand for healthy tuna products globally. According to PNAO (2013), the value of tuna ten years ago was less than $500/tonne. The tuna fishery gradually increased to a little more than $1000/tonne and the current market price is around $2000 - $2500/ tonne. The government fisheries official of RMI stated that 'the market went from an average of $900/tonne to well above $2000/tonne. And is currently making a lot of money for the tuna industry' (Pers. Comm. MIMRA: Administration, 18 February, 2013). This trend is reflected in graph 3, which shows that purse seine caught skipjack price has been gradually increasing in the last four years.

Graph 3: Fish price changes associated with purse seine caught fish, 2005-2013 (US$/tonnes)



Source: http://www.customs.go.th/Customs-Eng/Statistic/StatisticIndex2550.jsp

4.6.2 Social Accountability of the MSC

One of the other benefits as a result of MSC is social accountability. Social accountability can be defined as "an approach towards building accountability that relies on civic engagement, i.e., in which it is ordinary citizens and/or civil society organizations who participate directly or indirectly in exacting accountability" (Malena, Forster, & Singh, 2004). It can be achieved through a wide range of actions and instruments. Fisheries must be compliant with the relevant social and labour laws where that fishery operates and this is assessed under the general governance performance indicators in Principle 3 of the MSC certification program. In the new MSC requirements, PI 3.1.2 on consultation, roles and responsibilities addresses some of the issues on social accountability. The PNAO conducted a self–review to assess social accountability of two of the processing plants in PNG. RD Tuna Canners in Madang and Frescomar-Frabelle (PNG) Ltd in Lae were the subjects and it was realized during the assessment that these plants did not have any social accountability policy in place therefore were non-conforming to the MSC holistically. The internal audit was done on labour standards, human rights and working environment (Hidalgo, 2011a, 2011b).The assessment showed that:

a) There were no signs of child labour.

b) There were no signs of forced labour – openness of management.

c) Union membership was available for workers.

d) A code of conduct was in place.

e) There was a harmonious workplace culture (Hidalgo, 2011a, 2011b).

However, the assessment also identified weakness such as:

a) Workers did not have a day off after working 6 consecutive days.

b) Only people below the age of 45 years were hired – a clear case of age discrimination.

c) Workers were not aware of benefits apart from normal salary.

d) The number of migrant workers was high.

e) General maintenance of the facility was lacking. (Hidalgo, 2011a, 2011b).

The results indicated understanding of best practice labour conditions at RD Tuna Canners. Therefore social accountability at processing plants across the PNA states needed a policy to integrate worker's social welfare and wellbeing at the work sites.

4.7 Environmental Reforms within PNA under MSC

The certification process required PNAO to undertake some reforms to meet the standards. The PNA has gone through them in order to gain the certification. The PNA office confirmed that 'together with the VDS, the PNA structure had to be reviewed and that some immediate environmental reforms had to be made. The PNAO is a regulatory body as well as the holder of the MSC certification, which means that PNA had to meet the MSC requirements. This meant that institutionalising the requirements of MSC had to be robust enough to make changes to the fishery, the environment and the changes in the stock' (Pers. Comm. PNA Official: Administration, 18 February, 2013).

The added responsibility of being a certificate holder means fulfilling the conditions laid out by the MSC. The fishing industry, the states and other stakeholders have had to demonstrate compliance to MSC COC in order to catch MSC eligible fish to be MSC – certified, so the onus was on the PNA office to see that framework was robust enough to meet the standards or monitor that fish are caught only from a certified fishery.

The recent changes proposed by the PNAO after the WCPFC Scientific Committee meeting in August, 2013 and workshop outcomes to the current CMMs are intended to control effort in fishing in the Pacific effectively. The new CMMs for Tropical Tuna include reducing FAD use, applying clear purse seine effort limits in all areas, reducing fishing mortality on bigeye tuna

from all longline fishery and longline bigeye reductions and FAD set reductions (PNAO, 2013). These efforts are all towards fulfilling MSC conditions in the long term as a way to address sustainable exploitation of tuna.

4.8 Conclusion

The MSC program has raised the bar on fisheries sustainability standards for the PNA. Despite the costs incurred initially and the various changes to the management measures, the PNA was awarded the MSC certification with the Group COC certificate. The MSC certification of PNA is subject to review in five years. The conditions set for skipjack free school purse seine fishery encouraged improvements to the tuna management framework of the PNA. The Group COC improved the documentation of free school skipjack and most importantly, took positive steps to conserve bigeye and yellowfin tuna. The VDS scheme has strengthened control on the effort and management of vessels in the PNA's EEZs. The Observer programme has reinforced documentation and has had positive impacts on IUU although addressing violations (by coastal states) still needs further improvement. The MSC standard incorporates social accountability to improve social and health measures of the workers in the fishing industry. The aim of the Pacifical brand is to put PNA tuna on the global market and give recognition to healthy MSC certified PNA tuna. However, the Pacifical as a marketing arm of PNAO is still unclear of its purpose in the long term.

The new changes proposed include effort cuts to both longline and purse seine equally, and FAD reductions, reflecting the review of management measures by PNA to manage tropical tuna sustainably. With the first batch of MSC – eligible free school skipjack tuna, it is predicted that more catches are going to follow soon. However, this can only be sustainable if it becomes a licensing condition. In summary, the MSC process has brought a positive change to the tuna management framework initiated by PNAO. The economic benefits can be evaluated only once the MSC labelled (Pacifical) tuna has been marketed in Europe over a longer period of time. According to PNAO, the decision to get their free school skipjack was worth the effort. Numerous lessons were learnt, such as the costs involved, identifying and setting of limit and target reference points, developing harvest control rules, strengthening of the management framework and the politics of eco-labelling schemes. The main advantage, according to the PNA officials, has been getting the PNA tuna on the global market as sustainable, giving the Pacific a comparative and competitive edge.

Chapter 5.0: Case Study 2 – The Fiji Tuna Boat Owners Association

5.1 Introduction

"Sustainability never tasted so good"

"The Marine Stewardship Council sets a global standard for sustainable fishing. The fisheries that are certified are recognized by a distinctive blue eco-label. The MSC intends to safeguard the world supply of seafood by introducing best environmental options. Sustainable fishery is equally important to the industry and the consumers because of the lack of healthy fish stocks around the world". [20]

This chapter focuses on the MSC certification of the Fiji Tuna Boat Owners Association FTBOA, In assessing this process the fundamental issues that will be discussed are environmental reforms, the industry's views on the certification scheme, the view of the fishery authority (Department of Fisheries), the inputs of the World Wildlife Fund (WWF) on assisting FTBOA in applying for the certification and the views of the Forum Fisheries Agency on MSC certification. This chapter will also discuss the process of Chain – of – Custody (COC) exercise and make comparisons with the PNA Group COC. This chapter also highlights the reasons why MSC was sought, how it was achieved, the challenges involved and traceability issues pertaining to IUU under MSC and the advantages and disadvantages of product labelling and certification.

5.1.1 History of Fiji Tuna and FTBOA

The history of harvesting tuna in Fiji goes back more than 60 years, before the introduction of the UN Convention on the Law of the Sea. In the 1950s the albacore fishery was developed by the distant water fishing nations of Japan, Korea and Taiwan. They have, historically, targeted albacore in the Pacific and the Taiwanese fleet continues to account for a substantial component of the longline catch. Along with Pago Pago (American Samoa), Santo Island (Vanuatu), Noumea (New Caledonia), Papeete (French Polynesia), Fiji was providing landing ports for the tuna longline fishery between the early 1950s and the early 1960s (Gillett, 2007). The United States of America also established themselves in the south-western Pacific. Consequently American and Japanese presence in the Pacific boosted industrial tuna fishery through the establishment of loining and canning plants.

In Fiji, the key development of the tuna industry started with the establishment of the Pacific Fishing Company (PAFCO) in 1964. PAFCO played an important role in developing local fisheries to supply them with fish and re-export to America and Japan (DeMers & Kahui, 2012).

[20] Adopted from MSC video on Fiji Albacore MSC certification. See http://www.youtube.com/watch?v=7KS26X5x5F4, retrieved 20 September, 2013

This was followed by a government-owned venture in the 1970s, which resulted in the Ika Corporation. It was not until the 1990s that the presence of Chinese longliners began to be felt peaking at 457 vessels. This resulted in the vessels being licensed and based in Fiji, one of the five countries including RMI, FSM, Tonga and Palau that was Chinese flagged but locally based. The albacore tuna caught from Fiji and Tonga were mainly for canning purposes (Gillett, 2007).

In the late 1980s the domestic longline ventures began to encourage exports when the local currency devalued due to political instability. Direct flights to Japan for sashimi boosted the exports and improved profitability of the fishery (Gillett, 2007). Two decades later the decline of tuna stocks in the North Eastern and Western and Central Pacific has affected the local tuna industry generally. As a result Fiji developed and implemented a Tuna Management Plan in 2002 to encourage and enhance local participation in the tuna fishery. Albacore has been fully exploited while yellowfin and bigeye are over exploited (DeMers & Kahui, 2012).

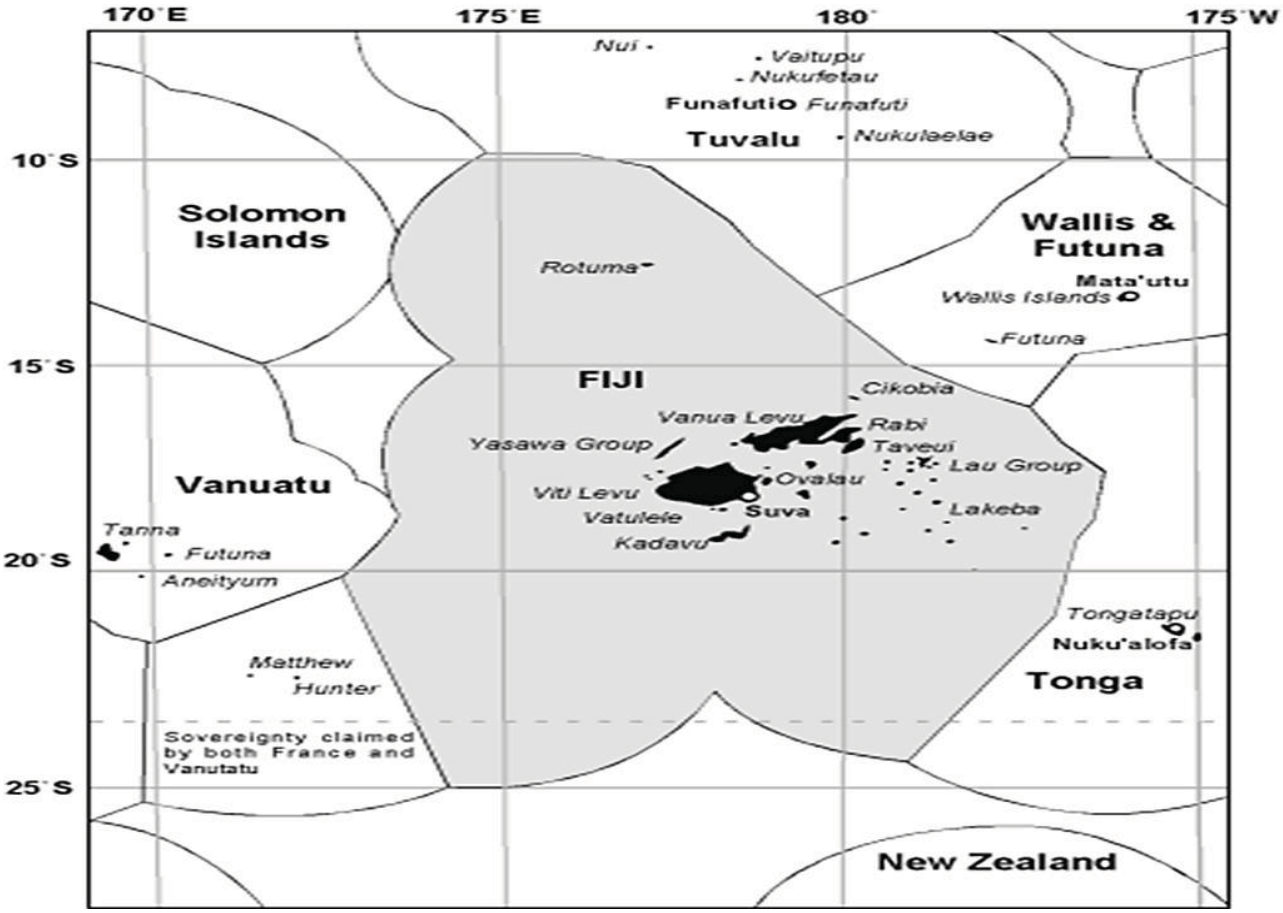
The local fishing company, Fiji Fish, has been one of the leading longlining companies in the country. Fiji Fish, together with Solander (Pacific), a branch of a New Zealand based company and Tri-marine Pacific Limited hold the MSC certification through the Fiji Tuna Boat Owners Association. Members of the FTBOA include Solander (Pacific) Limited, the Fiji Fish Marketing Group Ltd, Sea Quest (Fiji) Ltd and Cleveland Limited. FTBOA was formed around the end of 2005 and was registered in 2006. The organisation was formed to provide a united voice for the Fijian tuna boat owners and sea going personnel, to facilitate and encourage the promotion of the economically and biologically sustainable use of tuna and tuna related resources in Fiji and the Region and undertake, and to co-ordinate and promote liaison and negotiations with the Fiji Department of Fisheries and or its successor. FTBOA, though, sees themselves as the real local fleet as they are domestically flagged and employ locals to work on their vessels and processing plants. Fiji also has another interest group known as the Fiji Offshore Fisheries Association (FOFA), which mainly comprises Chinese investors (some holding Fijian citizenship).

The EEZ of Fiji is flanked by that of Vanuatu to the west, Solomon Islands to the North West, Tuvalu to the North, Wallis and Futuna to the North East and the Kingdom of Tonga to the South East, as shown in Map 2. In addition to this, approximately 40 percent of the Fijian EEZ is bordered by the high seas (Tavaga, 2012). The WCPFC, while noting that current catch levels from the South Pacific albacore stock appear to be sustainable, applied a capacity limit because

of the uncertainty and potential economic effects of a declining catch per unit effort. The Conservation and Management Measure (CMM) for South Pacific Albacore (CMM-2010-05, replacing CMM-2005-02) adopted, in accordance with Article 10 of the WCPFC Convention, (WCPFC, 2000) states that: "Commission Members, Cooperating Non – Members, and participating Territories (CCMs) shall not increase the number of their fishing vessels actively fishing for South Pacific albacore in the Convention Area south of 20ºS above current (2005) levels or recent historical (2000 – 2004) levels." Annual catches from 2006 to 2008 were similar to those in 2005. The catch in 2010 (88,919 t) was the highest on record (12,000 t higher than the previous record in 2009 at 76,500 t) (Williams & Terawasi, 2011). The CMM protects the legitimate rights and obligations of South Pacific states who may wish to pursue a responsible level of development of their fisheries for South Pacific albacore.

No other controls are considered necessary at this stage, although provision exists, and there is a clear intention, to limit fishing activity as required in the WCPFC Convention, including applying the precautionary approach. Nevertheless, the effectiveness of controls to reduce fishing mortality on South Pacific albacore remains doubtful. MSC complements the WCPFC as it has proved willingness to bring in changes to management of tuna through legislative reforms. There is also indication of adopting limit reference points, target reference points and harvest control rules at the Commission because it is the requirement of the MSC certification process

Map 2: Fiji's EEZ



Source: http://fisherymanagement.wikia.com/wiki/Fiji, retrieved 1 October 2013.

5.2 MSC Assessment FTBOA – First Stage

FFA carried out an initial study on the fisheries in the Pacific eligible for MSC certification. A preliminary report indicated that albacore and skipjack would be possibilities. This led FTBOA with FFA to embark on getting FTBOA assessed for MSC certification on their fisheries. The FFA financially supported FTBOA to get assessed as a fishery. FOFA (Fiji Offshore Fisheries Association) initially was invited to join FTBOA on this project, but they rejected the proposal. FOFA has vessels that fish outside the jurisdiction of Fiji, which was also an issue for FTBOA to consider when applying for assessment. However, FOFA has recently decided to undergo MSC certification assessment to maximize returns on the fishery.

In 2008 an assessment of WCPO carried out by SPC, found lower levels of stock size and estimates of maximum sustainable yield than had previously been recorded. This led to doubts about the sustainability of the South Pacific albacore stock. It was imperative that catches

remained at levels that were sustainable considering the rates of fishing mortality of adult albacore.

Table 2 is adapted from Fiji's Annual Report to the WCPFC Scientific Committee (SC) Meeting in 2010.

Table 2: Record high catches of Albacore in the Pacific

SC Meeting#, Yr & Location	Highest Recorded Total Catch (Year)	Highest Recorded Total Catch* (Mt)
SC4- 2008 Port Moresby, PNG	2004	22, 287
SC5 - 2009 Port Vila, Vanuatu	2004	21, 793
SC6 - 2010 Nuku'alofa, Tonga	2006	20, 508

*High records owing to high catches of Albacore (SC4-2008) and Albacore & Yellowfin (SC5-2009, SC6-2010).

Table 3: Annual catches of Albacore tuna by the Fiji Domestic Longline Fleet, 2003 – 2009

Species	Total Catch (Mt)						
	2003	2004	2005	2006	2007	2008	2009
Albacore	6, 881	11, 040	8, 816	11, 689	7, 076	7, 609	7, 166

Source: Amoe, 2010.

According to the report at the WCPFC Fifth Regular Meeting of the Scientific Committee in 2009, (Williams & Terawasi, 2009) stated that "the Bangkok albacore market price (10kg and up, cost and freight) averaged US$2,225/Mt in January 2008". The report also stated that "according to FFA database11 the price level steadily rose in the following months to a peak of US$2,650/Mt in September and that the prices dropped slightly in the months that follow and steadied at US$2,625/Mt till December". In the first half year of 2009, Bangkok albacore prices fluctuated but with an overall downtrend to a low of US$2,350 in June and in the previous year Thai imports of frozen albacore declined 7 per cent to 32,792 Mt, reversing the growth of 6 per cent the previous year as indicated in the report. In the same year prices improved by 28 per cent to US$2488 (2.49/kg) from US$1,948/Mt (US$1.95/kg) and the US import price for fresh albacore rose 3 per cent to US$4.20/kg while prices for fresh landings at selected Japanese ports rose substantially by 52 per cent to US$3.13/kg (Williams & Terawasi, 2009).

The change in prices of albacore over the last decade is indicative of potential high prices due to fluctuating catches. However, MSC was seen as one of the means of providing maximum benefit to the albacore industry in Fiji.

5.2.1 MSC Certification Assessment Process

The MSC certification of FTBOA is for albacore tuna (*Thunnus alalunga*) caught by pelagic longline in Fiji's Exclusive Economic Zone (EEZ). The assessment conducted by the Intertek Moody Marine revealed that there were conditions to the assessment that had to be fulfilled by FTBOA. From the FTBOA assessment report (Akroyd, Huntington, & McLoughlin, 2012) the conditions that were set out by the assessor for FTBOA to be met as outlined in table 4.

Table 4: Conditions and Timescale – FTBOA

Conditions	**Condition and Timescale**
Condition 1: Reference Points	FTBOA must be able to provide evidence to demonstrate target and limit reference points consistent with the management objectives and scientific stock assessment by the third annual audit.
Condition 2: Harvest Strategy	FTBOA must be able to provide evidence that a harvest strategy for southern albacore (which is responsive to the state of the stock) and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points is in place by the third annual audit.
Condition 3: Harvest Control Rules and Tools,	FTBOA must be able to show that well-defined harvest control rules have been proposed, tested and established for the fishery.
Condition 4: Status retained non–target species.	FTBOA must be able to partially strategize effective management measures that do not hinder recovery and rebuilding of blue shark, short-finned mako, silky and oceanic sharks
Condition 5: Management Strategy retained non-target species.	FTBOA must be able to prove that: a partial management strategy is in place that maintains bycatch at levels that are highly likely to be within biologically based limits or ensures that the fishery does not hinder their recovery; there is some objective basis that the partial strategy will work; there is some evidence that the partial strategy is being implemented effectively.
Condition 6: Information/monitoring retained non-target species	FTBOA must be able to provide evidence that sufficient information is available to support a partial strategy to manage main retained species, or detect any increase in risk. The information collected must be sufficient to estimate outcome status with respect to biologically based limits.
Condition 7:	FTBOA must be able to have a reporting system to record the

Information/monitoring ETP species	occurrence and outcome of all interactions with sea turtles and that seabirds has been developed at the fleet level to determine whether the fishery may be a threat to protection and recovery of the ETP species, and if so, to measure trends and support a full strategy to manage impacts. The data collected should be sufficient to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.
Condition 8: Compliance and Enforcement	FTBOA must be able to provide evidence that sanctions that deal with noncompliance are applied consistently.

Compiled by Maria Sahib, 5 November 2013.

The main condition for MSC certified FTBOA albacore tuna is that the stock is harvested at a sustainable level with little or no bycatch. There is little environmental impact; moreover, the fishery has to provide evidence that well – defined harvest control rules have been proposed, tested and established for the fishery and provide evidence that a partial strategy of demonstrably effective management measures is in place so that the fishery does not hinder recovery and rebuilding of blue shark, short-finned mako, silky and oceanic sharks (Akroyd et al., 2012). The fishery also has to provide evidence that a reporting system to record the occurrence and outcome of all interactions with sea turtles and seabirds has been developed at the fleet level, to determine whether the fishery may be a threat to protection and recovery of the ETP (endangered, threatened or protected) species and if so, to measure trends and support a full strategy to manage impacts (Akroyd et al., 2012).

5.3 MSC Assessment FTBOA – COC of FTBOA (Second Stage)

Like all other MSC clients, FTBOA had to prove that it had traceability mechanism in place. The COC of FTBOA as shown in Figure 6 is simple and straight forward. According to the FTBOA assessment report (Williams & Terawasi, 2009) the first discharge of catch from the vessels is recorded allowing traceability between the fishery and the first point of the chain of custody. The logbook also provides a record of the time, location and nature (species and volumes) of the catch. All FTBOA vessels are fitted with VMS units (compulsory license condition). The data are verified using the logbook reporting and associated detailed unloading records on species number and weights, as well as landing declarations at the point of landing. The combination of logbooks, observer reports and practice provides a series of independent and verifiable mass-balance measures that would enable transgressions to be detected (Akroyd et al., 2012).

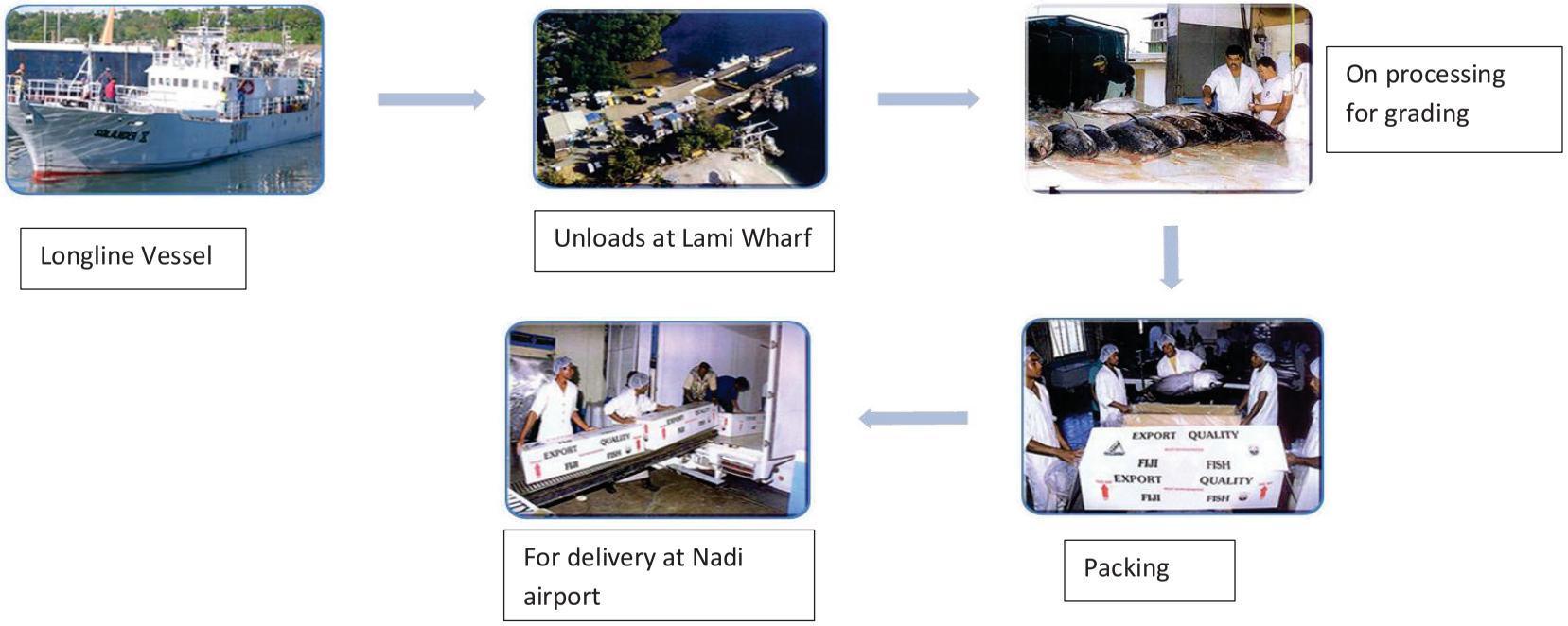
The onus is on the Government and FFA to monitor all vessel movements. The COC indicates that on rare occasions FTBOA vessels may fish outside Fiji EEZ and to do so they require a 'voyage' or High Seas permit which has tenure for only one fishing trip. The fish caught from that voyage or from High Seas is non-MSC and classified as such (Akroyd et al., 2012).

Fiji already complies with the EU catch certificate requirements for those vessels exporting to Europe. Furthermore, the FTBOA is testing the UK based system, trace-all, which codifies each fish at the point of capture for the traceability exercise. A government fisheries official stated that trace-all company from Scotland is working with FTBOA with the traceability purposes: from the net to boat, the landing, and the processing, back to the truck and to the market' (Pers. Com, Senior Official: Fisheries Department). The catch from FTBOA vessels is unloaded in the Port of Suva, where all members of FTBOA are based. The FTBOA vessels include both non-refrigerated smaller vessels and larger refrigerated vessels. The smaller ones use ice to keep the catch fresh and the larger ones use recirculating chilled seawater for fish chilling. The species that are retained are gilled and gutted on landing and trunks are then stored, in either ice or recirculating chilled seawater.

No transshipment takes place since Fiji Fish and Solander operate "transfer" vessels. These vessels are obligated to have 100% Observer coverage from the Department of Fisheries to be consistent with the WCPFC conservation and management measure CMM 2006-07 and CMM 2007-01. They are approved only to transfer from vessels as agreed by the Fisheries Department. The fish are then separated onboard the transfer vessel. The landing record of the catch has to match the catcher vessel's logbook.

The vessels use two points of landing in the port of Suva. The Fiji Fish vessels unload at their fisheries terminal in Lami and the other vessels unload at the designated commercial fisheries wharf at Walu Bay in Suva. The Department of Fisheries staff is present at each unloading to measure and record each fish. The MSC certification was awarded to FTBOA in December 2012 and is valid for five years. Since this certificate is conditional, it will be reviewed after two years. As this stock is shared with New Zealand trawl fishery, the review will cover this issue. New Zealand trawl fishery has been certified two years prior to FTBOA's certification. As a result the onus is on FTBOA to fulfil the conditions set out in the certificate.

Figure 6: Flow Chart showing the COC of FTBOA



Compiled by Maria Sahib, 28 October 2013 (source: http://fijifish.com.fj/tuna.html).

5.4 Findings of MSC certification process of FTBOA (A Stakeholder Perspective)

The various stakeholders agreed that the MSC certification process generally has been a positive change for the fisheries sector in Fiji. It brought about many changes that have positively impacted the management of the national fishery. The following section highlights significant changes and the thoughts of the various stakeholders themselves on the certification scheme.

5.4.1 Results - Advantages and Disadvantages

Firstly, being a small island developing state, it is rather difficult for Fiji to adhere to international standards, generally because of lack of funding and capacity. Being awarded such a highly credible eco-label is commendable in itself because it has shown the commitment of the local fishing industry to be sustainable. The advantage of being awarded MSC certification puts Fiji on the global scene. The industry representative informed that 'either with or without MSC, they have their own interest to remain sustainable by fighting to reduce licence numbers. They also realized that unless the fleet is economically viable they will not have a domestic industry and will end up being dominated by the foreign vessels. FTBOA aims to remain profitable, thus they had to resort to this avenue' (Pers. Com. FTBOA: Executive Member, 13 March, 2013).

Secondly, necessary reforms to management measures have been implemented in order to adhere to the MSC standards. The process highlighted weaknesses in the existing national policies and consequently allowed improvements to be made. In his in-depth interview a government official stated that 'they had to go through major reforms to get assessed' (Pers. Com, Fisheries Department: Senior Official, 20 March, 2013). The WWF representative had a similar view, mentioning that governance was one of the areas that needed strengthening to be credible. In the interview he indicated that 'issues such as observer coverage, management plan, reference points and the licensing system needed to be ironed out for MSC assessment, with IUU as a major concern. Therefore the governance component was deemed really important. The Eco Based Management (EBM) through the FTBOA tuna plan was also seen as important' (Pers.Com, WWF: MSC Personnel, 15 March, 2013).

Thirdly, a premium price because of the MSC logo for FTBOA means that the tuna can have value added before selling it in the niche markets. The pre-requisite for price premium is the consumers' willingness to pay for an eco-labelled product and this is evident in the niche markets of Europe and the US. Prior to selling MSC fish, FTBOA exported whole fresh and frozen tuna. With the MSC, they now can process and export fresh steaks and loins to the markets. The industry representative indicated that they prefer to see more value adding to utilize the MSC logo. They perceive that they gain real benefits rather than just sending whole fresh fish out for auctions to Japan or US.

The major disadvantage of MSC certification for FTBOA has been the costs involved. A small local association was given financial assistance by FFA, a regional organization. This assisted FTBOA in

applying for the certification. In the words of a key representative from an RFMO, 'Fiji requested assistance from FFA and a MOU was signed for FTBOA to be financially sourced and those funds will not be recovered. The costs side of the certification was not considered at the time of pre-assessment, but later in the process it was revealed that the fee was too high for FTBOA to pay' (Pers. Com, FFA: Executive Official, 22 March, 2013).

Another drawback is that apart from FTBOA, other industry players would be disadvantaged, because their fish might not be worth as much as MSC – certified fish. There is already a disparity at the national level industry groups. Now with the introduction of MSC certification, albacore caught by fishers other than FTBOA may fetch a lower price. The RFMO representative indicated scepticism about healthy competition and it was indicated that 'competition may increase among the fishers but one group having advantage over all the others'.

5.4.2 Traceability and tracking – IUU under MSC

The COC is much simpler for FTBOA than for PNA. All the fish caught on FTBOA longline vessels can be MSC certified fish, so there is no need for separation of fish into separate wells as required by vessels fishing for MSC fish in PNA waters. Non-target species that were marketable are caught in this fishery; however, separate hatches were not required. Species identification was clear enough and onboard processing was also not an issue. The fish are packed fresh on ice and go to the factory to be MSC certified for export to either Japan or US (Pers. Com. FTBOA: Executive Member, 13 March, 2013).

Tracking is also a non-issue for FTBOA. It was stated by the government official that 'vessels could be tracked using the Vessel Monitoring Scheme or VMS. FAO was using Fiji as a pilot programme. Videos were being used for the longline vessels for a recording up to 5 years as part of the e-monitoring programme conducted by SPC. This was also confirmed by the industry representative, who stated that 'Fiji has probably one of the strictest port controls for domestic boats than for any country in the region and around the world. Even stricter than Australia or NZ because every single fish that is caught is recorded by fisheries and measured in length, during unloading. There were extended logbooks which most of the foreign vessels are required to have. All the vessels in the fishery are equipped with VMS so that boats can be detected within the 200 mile zone. The boats, however, are not equipped to go outside the zone' (Pers. Com. Department of Fisheries: Government Official, 20 March, 2013).

IUU fishing is prevalent in the Pacific region and it can be detected under monitoring, control and surveillance (MCS). Observer program, VMS, e-monitoring are all MCS mechanisms to deter IUU fishing in the WCPFO region. The vastness of the seas of the PICs and the lack of resources for monitoring and surveillance is one of the reasons why IUU fishing takes place in the region. IUU in itself is a broad issue. 'Non-reporting can be IUU which happens both in high seas and in EEZ. Even the use of illegal gear is IUU' (Pers. Com, Senior Official: Fisheries Department, 20 March, 2013). IUU fishing includes:

- unauthorised or illegal fishing in EEZs and in RFMO convention areas
- using prohibited gear
- failing to report catches

IUU fishing can also be associated with organised crime in industrial fisheries and is increasingly observed on the high seas (Aqorau, 2013). The major contributor of IUU fishing is the lack of control by flag states. The PICs in particular do not have enough resources to be effective in enforcing measures to deter IUU. There is an enormous responsibility on coastal nations (developing states) for monitoring and surveillance. But the majority of the IUU fishing is practised by developed states. According to Aqorau (2013) IUU fishing by vessels that fish with impunity has become a threat to the sustainability of fish stocks worldwide. This is reflected in Erceg (2006), when she states that Article 73 of the UNCLOS prohibits coastal States from including imprisonment as a penalty for violating fisheries laws and regulations in the absence of agreements between the States concerned. However, bilateral agreements, such as the Memorandum of Understanding (MOU) signed by Australia and Papua New Guinea in 2002 under the Niue Treaty on Cooperation in Fisheries Surveillance and Enforcement can be used to facilitate prosecution of IUU fishing (Erceg, 2006).

In 2012, a monitoring and surveillance operation known as the 'Kurkuru' helped in combatting IUU fishing under a $10-million European Union-funded project known as DEVFISH2 – the Development of Tuna Fisheries in the Pacific, African, and Caribbean countries (SPC, 2011). This operation saw the region's biggest ever surveillance operation and involved five maritime patrol aircraft, 12 patrol boats, a frigate and a Coast Guard boat, all surveying an area of approximately 30 million square kilometers (SPC, 2011).

Under the MSC for FTBOA the fish is "traced" ashore under the same process as required for the EU IUU import regulations. EU IUU import regulations require all third countries exporting their fish and fishery products to adhere to strict compliance with their EU IUU Regulations as well as international and regional arrangements on sustainable fishery. However, the EU declared Fiji's fisheries law to be out of date, which resulted in the development and enactment of 'Offshore Fisheries Management Decree 2012'.

The EU has been accused of having double standards when it comes to IUU fishing despite the MSC standards followed by FTBOA. EU has labelled Fiji as an IUU state. In an article in the local business magazine, *Islands Business*, in its January 2013 issue, it was reported that "the EU has blocked certain regulations such as 'flick the switch' proposal by the Pacific Islands Forum Fisheries Agency (FFA) countries that would allow, for example, EU flagged tuna fishing vessels to be tracked throughout the Western and Central Pacific ocean" (Tabureguci, 2013). According to a key industry player 'at the last

WCPFC Fiji came out as the gold star rating on IUU fishing and yet the EU are trying to put Fiji with other countries like Panama, Belize and Cambodia and Vanuatu who are non-compliant with IUU. We've got 8 to 10 Spanish longliners fishing in the high seas South of NZ and they have no VMS, no log books, no recording, and no nothing. Incidentally they could be EU vessels that are engaging in IUU. So it's farcical' (Pers. Com. FTBOA: Executive Member, 13 March, 2013).

5.5 Market Benefits under MSC – Final Stage

Under MSC certification, market benefits are almost immediate to the retailers. In June 2013, the first consignment of MSC-labelled tuna left Fiji for Spain. Earlier in the year, Anova Seafood formally launched their Fiji Albacore tuna range at the European Seafood Exposition (ESE) in Brussels (MSC, 2014). Anova Seafood began with importing fresh perch (freshwater fish) from Lake Victoria in Kenya and became a supporter of sustainable fishing practices and obtained MSC products (see www.anovaseafood.com). In addition to gaining access to new markets, FTBOA members have also been able to add value through certification to their tuna products to increase competitiveness and export earnings (MSC, 2013). The MSC certified albacore loins are sold directly to Europe – either fresh or frozen to be served as steaks – rather than exported frozen whole for canning as before. This creates more jobs locally for loin processing, and the net return is higher (MSC, 2014).

FTBOA has reportedly received a large number of requests for their MSC certified albacore. FTBOA's marketing is done through the Fiji Fish Marketing Group Limited. They do not have a marketing platform like the PNA. A key representative indicated that 'some of the buyers have started to ask if we have any MSC fish by looking at our website, people are calling me from all over the world. So now it gives me a lot of marketing opportunities and I can play one off against the other by saying that you can get the product if you pay this much' (Pers. Com. FTBOA: Executive Member, 13 March, 2013). This was reported prior to the MSC fish being sold to Anova. However, the representative also pointed out that marketing for MSC fish was not feasible mainly because of lack of the required volume of fish. In the words of the representative, 'I don't think we can go down that road. One, we don't have the volume. We have only 28 boats. The whole fishery I'm talking about has 2,000 - 4,000 tonnes per year in a good year. So it is a big difference from the PNA skipjack fishery' (Pers. Com. FTBOA: Executive Member, 13 March, 2013).

A key NGO stakeholder indicated that they usually assist the clients of the MSC programme with selling their products in the market. As an important stakeholder in MSC certification they recognize that there are markets that already are enquiring about companies or fisheries that have been MSC certified, such as albacore. To assist the marketing of MSC certified albacore from Fiji, WWF is utilising their offices in Europe consistently and continuously to engage with colleagues in Australia, Europe and the US to sign FTBOA as a supplier for MSC certified albacore.

Looking for markets for their MSC albacore was not difficult for FTBOA. As mentioned by the FTBOA key representative, interest from supermarket chains was generated through FTBOA's advertisement of the availability of MSC certified albacore on their website (www.fijifish.com.fj). The direct impact of politics of MSC labelled products from Fiji has not been an issue that FTBOA has to deal with, compared to the PNA case. However, the only issue is having market access to Europe. While individual markets have shown interest and have become equation retailers (for example of Anova Seafood) for MSC products, the EU has labelled Fiji as a noncompliant state (Tabureguci, 2013) and yellow carded Fiji.

5.5.1 Sustainability

Sustainability of the tuna resource was indicated to be paramount for all the stakeholders interviewed in this case study. Maintaining the certification scheme was also identified as a fundamental issue. In the words of the key industry representative, sustainable management within the EEZ is easier to manage than outside of the EEZ, 'What happens outside is beyond our control, beyond Fiji government's control, all we can do is put pressure on our government at industry meetings and at regional meetings to try and get the other PICs to act in a way that will encourage a more sustainable way of managing Southern albacore fishery' (Pers. Comm. FTBOA: Executive, 13 March 2013). The industry informant went on to say that 'there was a concern with the number of longliners fishing the southern albacore fishery among the PICs. An article was written by American Samoa, who are concerned, together with Samoa and Tonga, on foreign fishing fleets not only fishing in other PI countries but in the high seas for albacore, particularly the Chinese fleet' (Pers. Comm. FTBOA: Executive, 13 March, 2013).

The sustainability of the MSC certification was another issue of concern. The markets that are particular about the products coming from a sustainably managed fishery were also identified as important for the MSC products. The key NGO representative stated that 'a lot of interest was generated by buyers and market chains in Europe, the US and even in Australia and NZ that were looking at products coming from sustainably caught fisheries, not just tuna but other fisheries as well'. The fisheries official also indicated that "the main issue was the sustainability of the resources that everyone was aiming at. In order to maintain the status with MSC, compliance was necessary for the sustainability of the resources." (Pers. Comm. WWF: MSC Personnel, 15 March, 2013).

The fishing industry was seen to be very supportive of managing the tuna resources sustainably. The key fisheries official specified that 'Fiji is doing a lot through the industry. Especially the support from the industry is good in terms of sustainability of the resources' (Pers. Comm. Department of Fisheries: Government Official, 20 March, 2013).

5.5.2 Social Accountability

As mentioned in the previous chapter, social accountability is essential for holistic development of the fishing industry. The FTBOA looks into the social welfare of not only their crew, but also of the observers

onboard. They are responsible for the observers' insurance and social wellbeing onboard their vessels. According to the FTBOA, observers are part of the National programme, and the FFA Regional Programme cost is borne by the industry or the boat owners including food and insurance. An MOU has been drawn between the fisheries department and the industry to have 20 observers on Fiji – flagged vessels. The industry admits that observers are a necessary part of the programme, whether one is part of MSC or not, as a requirement under the WCPFC.

A recent study by Greenpeace Australia on 'Transforming Tuna Fisheries in Pacific Island Countries' indicated that "factories around the Pacific region that may process MSC-certified tuna are seeking certification under the Social Accountability 8000 scheme" (Barclay, & Paris, 2013, pg. 10). That is what PNAO did, conducting a self-review of social accountability of one of the processing plants, RD Tuna Canners, in PNG to gauge how socially responsible they were towards their workers.

5.6 Environmental Reforms within FTBOA under MSC

Fiji, similar to PNA, had to go through reform of their fisheries management framework in order to comply with the conditions of the MSC certification. The key NGO representative confirmed that 'the Tuna Management Plan had expired, although it is used as guidance and something they are revising in Fiji. These are examples of what needs to be strengthened and what needs to be achieved in order for FTBOA to meet some of the conditions in three years. So in a way, the certification is indirectly pushing the RFMO and also government to get up and do something about it' (Pers. Comm. WWF: MSC Personnel, 15 March, 2013).

A representative of the fisheries department reiterated that new the Offshore Fisheries Decree had strengthened the fisheries legislation and was now inclusive of the offshore marine resources. In order to try to help the industry, Fiji is reviewing its fisheries laws. There are two new decrees; the Offshore Fisheries Management Decree, which was officially passed in January 2013, and the Aquaculture Decree. Hence under MSC certification, environmental benefits are also immediate elements that need to be addressed.

5.7 Conclusion

It can be concluded that FTBOA assessment of the MSC certification scheme has not been as complicated as that of the PNA because it deals with several states while the other is a much smaller group within a state. There have been issues such as the cost of the MSC programme, environmental reforms, identifying limit reference points, target reference points and harvest control rules which were similar to the PNA case. The control of effort in the high seas outside of the Fiji's EEZ has been one of the fundamental issues for sustainability of the albacore fishery. The MSC certification has prompted legislation on offshore fisheries that had been lacking in the previous Fiji Fisheries Act. The Offshore Fisheries Management

Decree 2012, which will be promulgated in 2014, includes stringent management and compliance measures.

The FTBOA is simpler in terms of the Chain of Custody because all fish caught by the vessels of FTBOA are MSC albacore so there is no need for separation of catch and there is no fear of contamination or mixing. The support for FTBOA (for this programme) has been enormous from non-governmental organisations, regional fisheries management organisations and most importantly, the support from the government.

The MSC certification process has led to much needed reforms to the Fiji tuna management strategy.

Nevertheless the influx of foreign fishing vessels has become an issue for sustainability. Foreign vessels especially from China are heavily subsidised by their government, which has led to a dramatic increase in the number of vessels in the high seas adjacent to Fiji's EEZ. This may put pressure on the stock and thus the sustainability of the fishery may negatively be impacted. While this is not related to the certification of albacore tuna by FTBOA but an exogenous pressure that undermines the sustainability of the stock. This therefore can indirectly affect the profitability of FTBOA and their ability to continue to participate in the certification programme.

Chapter 6.0: Conclusion

"The fishermen know that the sea is dangerous and the storm terrible, but they have never found these dangers sufficient reason for remaining ashore." – Vincent Van Gogh[21]

This thesis has assessed the MSC certification scheme in the Pacific region centring on two organisations, PNA and FTBOA, who were each awarded the certificate in recent years. Through a literature review of documentary evidence and interviews, it is evident that MSC certification has become a marketing tool as well as a conservation incentive for the fishing industry. It is also evident that the literature on the MSC programme is more focused on developed countries and there is a paucity of information on developing countries. The study pointed to a knowledge gap of MSC in developing countries and the main concern that emerged was the feasibility of MSC certification for countries such as PICs. There has been a tremendous increase in the demand for eco-labelled products because consumers in developed countries have become better informed of adverse environmental impacts of fishing. Consequently consumers in the EU in general and in the US demand accountability of products that they consume (Ponte, 2008). This has eventuated in products being eco-labelled and certified to meet consumer demand on credibility and transparency as attributes of products, although there is a lack of market penetration by products such as tuna (Kirby et al., 2013). This thesis examines the implementation of MSC certification in the region and explores the benefits, challenges and implications.

The MSC requires its clients to manage fisheries resources sustainably (to maximise benefits and for long-term returns). Although skipjack and albacore tuna of PNA and FTBOA respectively are fished at an acceptable level, MSC certification requires these fisheries to continue to be harvested sustainably.

The various studies have shown that the MSC certification is most widely known eco-label in wild capture fisheries and is thought to be more credible because of third – party certification process. It also states that the MSC certification is prevalent in developed countries' and the niche markets for MSC products carry premium prices with greater consumer awareness. As such the demand for sustainable products is likely to increase further. The study also indicates that the MSC as an eco-label for wild capture fishery has become a contentious issue amongst other eco-labels, since there is a continuous decline of tuna stocks around the world today. Secondly, eco-labels are voluntary measure which in turn has led to many different labels which can confuse consumers. This study has identified some gaps within this context. The gaps included a lack of study done on developing countries experience with MSC certification, the practicality of MSC and the environmental reforms that were required by the MSC programme to meet their standards. MSC fisheries clients are defined as those groups (such as companies, fishers, associations) that participate with full assessments. As the standard setter, the role of MSC with clients is as an advisor to assist them through the certification process. MSC's fisheries outreach work involves working with clients to ensure they

[21] See https://bmkaratzas.wordpress.com/maritime-tradition-2/old-salt-maritime-words-of-wisdom/, retrieved 20 July, 2013.

understand the process and are comfortable throughout. The case studies on PNA and FTBOA bring to light the challenges for clients of MSC such as insufficient data for accurate assessment of the fishery, opposition from stakeholders to the fishery being assessed and obtaining maximum value for their products from a certified fishery.

An analysis of the MSC certification in this thesis has revealed that the MSC has been successful in becoming the main reference point in the market for sustainable fisheries by working aggressively with major retailers and catering businesses to find a consumption outlet for sustainable fish.

The key findings of this research reveal that MSC is feasible for developing countries such as the PICs. The reason for MSC being sought for both organisations was the same, to maximize economic returns on their tuna fisheries. The MSC certification was difficult to achieve for PNA due in part to strong opposition and competition from other eco-labels in the international market. It was not so difficult for FTBOA, even though both organisations underwent the same process.

The challenges and constraints of both organisations were somewhat similar. The lack of funding has been a constraint to applying for MSC certification. The cost (ranging from US$35,000 for small fisheries to US$350,000 for large industrial fisheries) of applying for MSC certification is high for PICs but they have found ways around it. The main challenge, however, has been to improve on existing fishery management frameworks to adhere to the already high standard of MSC requirements.

This study also confirms that IUU fishing can be detected to some extent under MSC, due to the stringent traceability process – the chain of custody exercise. The COC puts the onus on the industry to comply with the requirements as industries become an important beneficiary of the premium prices. It can be argued that MSC certification does help to reduce IUU by way of requiring having proper documentation and catching records. The MSC certified observer programme rigidly follows MSC requirements directly contributing towards combating IUU fishing.

MSC certification influences environmental reforms, as demonstrated for both fisheries in this study. Due to the certification process, important environmental reforms have been made to improve the sustainability of the fisheries. Independent, third-party assessment of the state of management of the fisheries of the PNA and the FTBOA revealed both weaknesses and strengths of the existing management framework. PNA had to review its VDS scheme as a management strategy for the skipjack tuna, while FTBOA had to put in place new legislative policies for offshore fisheries, particularly the albacore tuna resources.

The advantage of product labelling and certification for both organisations is that there is the potential to capture a premium price for MSC fish, thus tuna from the Pacific is likely to get recognition globally for being sustainably managed.

MSC certification of tuna by the PNAO and FTBOA seems to have been worth the effort because it has compelled the government and the industry to work together with NGOs to improve their tuna management framework. The collective effort of the RFMOs, industry and government is recognised in sustainably managing the fishery by involving them in the assessment process.

The MSC certification programme is generally feasible for developing countries such as the PICs as it is evident through the certification of tuna fisheries of the PNA and FTBOA. However, there a need for a cost and benefit analysis of the MSC certification in the region. This research only assessed the certification process in the Pacific during its early stages. Despite the certificates being awarded, MSC fish reached the markets towards the end of the year they were certified in. This research could be used to form a basis for the larger cost and benefit analysis and could be further expanded into other avenues such as social accountability and governance in the MSC certification program. This thesis could also be used to do more research on the social accountability of the workers who are employed in the MSC certified fishery, once the benefits are realized.

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Appendices

Appendix 1

Interview Schedule: Generic Questions

1. How is the capture fishery sustainable under the MSC?
2. What does MSC mean for your organisation?
3. What does the certification process involve?
4. What is the traceability issues concerning tuna fishery?
5. Has MSC proved to be an incentive for sustainable fishery?
6. What are the challenges faced by the industry under MSC?
7. Has it helped reduce IUU?
8. What are the benefits under MSC? And who benefits the most?
9. What are the costs involved for full MSC assessment? And who pays for the costs?
10. What are the advantages of product labelling and certification?
11. What are the disadvantages of product labelling and certification?
12. Can MSC be extended to other fishery products apart from Tuna?
13. Is the supply chain for the niche markets under MSC sufficient?
14. Tuna being the common resource, does the government provide the right environment for the facilitation of MSC?
15. Has MSC influenced environmental reforms within capture fisheries?
16. Does the RFMOs support the certification and in what way?
17. Has the certification made any significant impact on the fisheries that it has certified?
18. What do you think MSC means for the Pacific region if any other Pacific island country decide to participate in the certification scheme?

Appendix 2

MSC Principles and Criteria

Principles	Intent	Criteria
Principle 1 - A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery[22].	The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favour of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.	1. The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity. 2. Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame. 3. Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.
Principle 2 - 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.	The intent of this principle is to encourage the management of fisheries from an ecosystem perspective under a system designed to assess and restrain the impacts of the fishery on the ecosystem.	1. The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes. 2. The fishery is conducted in a manner that does not threaten biological diversity at the genetic, species or population levels and avoids or minimises mortality of, or injuries to

[22] The sequence in which the Principles and Criteria appear does not represent a ranking of their significance, but is rather intended to provide a logical guide to certifiers when assessing a fishery. The criteria by which the MSC Principles will be implemented will be reviewed and revised as appropriate in light of relevant new information, technologies and additional consultations

		endangered, threatened or protected species. 3. Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.
Principle 3 - The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.	The intent of this principle is to ensure that there is an institutional and operational framework for implementing Principles 1 and 2, appropriate to the size and scale of the fishery.	**A. Management System Criteria:** 1. The fishery shall not be conducted under a controversial unilateral exemption to an international agreement. The management system shall: 2. demonstrate clear long-term objectives consistent with MSC Principles and Criteria and contain a consultative process that is transparent and involves all interested and affected parties so as to consider all relevant information, including local knowledge. The impact of fishery management decisions on all those who depend on the fishery for their livelihoods, including, but not confined to subsistence, artisanal, and fishing-dependent communities shall be addressed as part of this process; 3. be appropriate to the cultural context, scale and intensity of the fishery – reflecting specific objectives, incorporating operational criteria, containing procedures for implementation and a process for monitoring and

		evaluating performance and acting on findings; 4. observe the legal and customary rights and long term interests of people dependent on fishing for food and livelihood, in a manner consistent with ecological sustainability; 5. incorporates appropriate mechanism for the resoltuion within the system[23]; 6. provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing; 7. act in a timely and adaptive fashion on the basis of the best available information using a precautionary approach particularly when dealing with scientific uncertainty; 8. incorporate a research plan – appropriate to the scale and intensity of the fishery – that addresses the information needs of management and provides for the dissemination of research results to all interested parties in a timely fashion; 9. require that assessments of the biological status of the resource and impacts of the fishery have been and are periodically conducted; 10. specify measures and strategies that demonstrably control the degree of

[23] Outstanding disputes of substantial magnitude involving a significant number of interests will normally disqualify a fishery from certification.

		exploitation of the resource, including, but not limited to: a) setting catch levels that will maintain the target population and ecological community's high productivity relative to its potential productivity, and account for the non-target species (or size, age, sex) captured and landed in association with, or as a consequence of, fishing for target species; b) identifying appropriate fishing methods that minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas; c) providing for the recovery and rebuilding of depleted fish populations to specified levels within specified time frames; d) mechanisms in place to limit or close fisheries when designated catch limits are reached; e) establishing no-take zones where appropriate; 11. contains appropriate procedures for effective compliance, monitoring, control, surveillance and enforcement which ensure that established limits to exploitation are not exceeded and specifies corrective actions to be taken in the event that they are. **B. Operational Criteria** Fishing operation shall: 12. make use of fishing gear and

		practices designed to avoid the capture of non- target species (and non-target size, age, and/or sex of the target species);minimize mortality of this catch where it cannot be avoided and reduce discardsof what cannot be released alive; 13. implement appropriate fishing methods designed to minimise adverse impacts on habitat, especially in critical or sensitive zones such as spawning and nursery areas; 14. not use destructive fishing practices such as fishing with poisons or explosives; 15. minimise operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.; 16. be conducted in compliance with the fishery management system and all legal and administrative requirements; and 17. assist and co-operate with management authorities in the collection of catch, discard, and other information of importance to effective management of the resources and the fishery.

Appendix 3

Introduction

The MSC Certification Requirements V1.3 (issued 14 January 2013 and became effective March 2014) sets out requirements for organisations operating over multiple sites that seek certification ("group certification[24]"). It has been developed for use by Conformity Assessment Bodies (CAB) and in order to assist both groups of individual enterprises and multiple site companies ("organisations") achieve certification in an effective and cost efficient manner while providing stakeholders with an appropriate level of assurance of conformance.

Checklist of Requirements for Group Chain of Custody Certification

= applicable for all groups
= applicable only for Reduced Risk Groups (RRGs)
= applicable only for non-Reduced Risk Groups (non-RRGs)

Applies to	Requirement
	BC1 Management Responsibility
All	BC1.1.2 The group entity shall nominate one person ('the MSC representative') who irrespective of other duties, is responsible for ensuring the group's conformity with all MSC group CoC requirements.
	BC1.1 Management systems and documentation
All	The name, position and contact details of the MSC representative shall be documented and communicated to the CAB
All	BC1.1.1 The group entity shall establish and maintain management systems that provide assurance that every site covered in the group certificate conforms with the MSC group CoC requirements
	BC1.1.2.1 The CAB shall be advised of changes of MSC representative within 10 days
All	BC1.1.3 The group entity shall document the roles and responsibilities of the MSC representative, internal auditors, and other key personnel at the group entity and site level
All	BC1.1.4 The group entity shall ensure that all documents demonstrating conformity with the MSC group CoC requirements are stored for a minimum of three years
Non-RRG	BC1.1.5 The group entity shall establish and maintain documented policies and procedures covering the following:
Non-RRG	BC1.1.5.1 Division of roles between the group entity and sites, including how any changes to MSC group CoC requirements and internal group policies or documents will be communicated to sites
Non-RRG	BC1.1.5.2 The process for ensuring that all internal auditors and other key personnel are trained on MSC group CoC requirements and relevant internal policies to ensure competence in performing functions related to the MSC group CoC requirements
Non-RRG	BC1.1.5.3 The process for ensuring MSC certified products are purchased, received, and handled in conformity with MSC requirements in section BC2.2
Non-RRG	BC1.1.5.4 The process for ensuring that traceability is maintained throughout all stages of product handling so that that all MSC certified products are traceable back to a certified supplier and forward to the immediate customer, and to enable an input/ output reconciliation as required in sections BC2.3 and BC3.2
Non-RRG	BC1.1.5.5 The process for ensuring that if the MSC ecolabel is applied by sites and/or the group entity, it used in conformity with the requirements set out by MSCI and the licence agreement, as required in section BC2.5
Non-RRG	BC1.1.5.6 The process for verifying the effectiveness of internal control systems, which shall include procedures for the following: a) Conducting input/output reconciliations at site level as per BC3.2.3 b) Conducting internal audits of sites and documenting audit results as per BC3.1 c) Identifying non-conformities and issuing corrective actions and sanctions as per BC3.4
	BC1.2 Group Control

[24] For CoC assessments commencing before 14 March 2013, Table BC1 shall become effective by recertification.

All	BC1.2.1 The group entity shall demonstrate its ability to ensure that all sites conform with MSC group CoC requirements, including that: a) For each site there will be a designated contact who is accountable for ensuring the site complies with all MSC group CoC requirements and relevant internal policies b) Sites will conform with the terms of the contract between the group entity and the CAB c) Sites will allow the group entity, CAB, MSC, and ASI access for purposes of conformity audits to the site's premises and records and approval to speak with personnel

Applies to	Requirement
	d) Sites will accept any sanctions applied to the site by the group entity or CAB in the case of non-conformity
All	BC1.2.2 The group entity shall sign a certification contract with the CAB and shall be responsible to the CAB for the following related to the group entity and all sites: a) Conformity with MSC group CoC requirements b) Fulfilment of any conditions on sites or the group entity raised by the CAB c) Payment of all certification costs related to sites and the group entity d) All communication with the CAB (excluding expedited or unannounced site audits)
All	BC1.2.3 Sites shall not use subcontractors to handle MSC certified products unless subcontractors hold their own CoC certificate, are part of the group, or perform only storage or transport activities.
All	BC1.2.3.1 All subcontractors shall be used in conformity with Annex BD4 of the MSC Certification Requirements.
Non-RRG	BC1.2.4 The group entity shall enter into an agreement with each site, which will set out as a minimum: a) That the site will meet all requirements in BC1.2.1 b) The responsibilities of each site and key personnel with respect to MSC group CoC requirements c) That the site agrees to be listed as a site in the group's application for MSC certification and may be listed on the MSC website d) In the case of sites that are not part of the same legal entity as the group entity, the agreement shall contain the name and/or legal identify of each party, contact name and addresses, and be legally binding on the group entity and the site's owner.
Non-RRG	BC1.2.5 The group entity shall demonstrate the implementation of the agreement in BC1.2.4 in one of the following three ways: a) The sites are fully owned by the group b) The group entity has a contract with each of the sites requiring the site's compliance with decisions made by the group entity c) The group entity has other evidence of a commitment from each of the sites as outlined in BC1.2.4.
	BC1.3 Site Register
All	BC1.3.1 The group entity shall maintain a register of all sites included in the group certificate, which shall be provided to the CAB before the initial audit and shall include for each site: a) Name or position, email, and phone for a designated contact at each site who is responsible for ensuring the site conforms with MSC group CoC requirements b) Physical and postal address of the site c) Status of each site (current, suspended, or withdrawn) d) Date of joining and (if applicable) leaving the group certificate.
All	BC1.3.2 The group entity shall keep the site register up to date and notify the CAB within 10 days of any sites added or withdrawn, by sending the CAB details for new or withdrawn sites as specified in BC1.3.1.

Applies to	Requirement
All	BC1.3.2.1 If the number of sites added since the last CAB audit is in excess of 10% of the number of sites at the time of that audit, or if the additional sites add new activities to the scope of the certificate, the CAB must provide written consent before new sites can be added.
All	BC1.3.2.2 When the CAB is notified of new sites to be added, the CAB may decide to conduct additional audit activities if deemed necessary.
All	BC1.3.3 When sites are withdrawn from the group certificate, the group entity shall notify the site that they may no longer continue to use the MSC claim or ecolabel anywhere on the site, including packaging and menus
	BC2 Internal Control System
All	BC2.1 The group shall be able to demonstrate that procedures covering requirements in BC2 are implemented, either through written documentation or evidence of existing procedures and management systems (these may not be MSC specific).
	BC2.2 Purchasing, Receiving, and Handling
All	BC2.2.1 The group shall have an implemented process to ensure that MSC certified products shall only be purchased from certified suppliers that have a valid MSC certificate.
All	BC2.2.2 The group shall have an implemented process for confirming that all MSC certified products delivered or received at all sites are verified as MSC certified.
All	BC2.2.3 The group shall have an implemented process to ensure that all MSC certified products are identifiable as such at all stages of purchasing, storage, processing, packing, labelling, selling and delivery.
All	BC2.2.4 The group shall have an implemented process for product that is labelled or identified as MSC certified but cannot be verified as such (non-conforming product), which shall include the following: a) The group MSC representative shall be alerted within two days of non-conforming product being identified at a site. b) The group MSC representative shall determine the underlying cause of the issue and shall issue corrective actions against all sites potentially impacted. c) Non-conforming product shall be quarantined, relabelled, or otherwise prevented from being sold as certified or labelled as certified until its certified status can be verified. d) If there is a risk that non-conforming product has been sold or shipped as certified, the CAB shall be alerted within two days of identifying the issue and recall or relabelling procedures shall be followed where needed to prevent affected product being sold as MSC certified.
All	BC2.2.5 Records shall be kept of any incidence of non-conforming product and the corrective actions taken as per section BC2.2.4.
	BC2.3 Traceability

Applies to	Requirement
All	BC2.3.1 There shall be a system to ensure that all MSC certified inputs can be traced back to the immediate supplier, and MSc certified outputs can be tracked forward to the immediate customer. If the group entity or site is a retail or foodservice site dealing with final consumers, forward traceability to each consumer is not required, however total volumes of certified products sold must be recorded to enable an input/ output reconciliation.
All	BC2.3.2 Where product is transformed or repacked, in-process traceability shall be established so that all MSC certified product will be identified and segregated during all handling and storage operations.
	BC2.4 Personnel and training
All	BC2.4.1 There shall be an implemented process to ensure that all key personnel are competent to perform functions related to the MSC group CoC requirements. Competence shall be based on appropriate training, skills, and experience for the relevant functions performed.
All	BC2.4.2 All internal auditors shall be able to demonstrate competence in carrying out internal audits, including knowledge of the MSC group CoC requirements, internal audit processes, identification and grading of non-conformities, and issuing corrective actions as defined in sections BC3.1 and BC3.4.
All	BC2.4.3 The group entity shall maintain a record of MSC training completed and shall be able to demonstrate that all key personnel receive training at a frequency as required to maintain knowledge of current MSC requirements.
	BC2.5 Ecolabel use and licensing
All	BC2.5.1 The group entity shall be responsible for ensuring that all sites using the MSC ecolabel shall do so in conformity with all MSCI licensing requirements as found at http://www.msc.org/documents/logo-use.
RRG	BC2.5.2 If the group entity or any sites use the MSC claim or ecolabel, then the group entity shall be responsible for having a valid licence agreement (which covers all sites and all relevant products) and coordinating all ecolabel applications for approval, collection of turnover declarations from sites, and payment of ecolabel fees with MSCI.
Non-RRG	BC2.5.3 If the group entity and all sites are part of the same legal entity and the MSC ecolabel or MSC claim are to be used, the group entity shall sign the licence agreement on behalf of the group. The group entity shall coordinate required ecolabel applications for approval and turnover declarations and shall be responsible for fee payments for all sites in the group.
Non-RRG	BC2.5.4 If the group entity and sites are not all part of the same legal entity and the MSC claim or MSC ecolabel are to be used by individual sites, then each site shall sign a licence agreement with MSCI. Each site shall be individually responsible for their ecolabel applications for approval, turnover declarations, and payment of ecolabel fees. If the site fails to comply with MSCI licensing requirements, MSCI will notify the group entity, which shall audit the site and if necessary, issue a non-conformity against the site.
	BC3 Verification System **BC3.1 Internal site audits**

Applies to	Requirement
Non-RRG	BC3.1.1 An onsite internal audit shall be conducted of every site before initial certification to ensure the site conforms with the MSC group CoC requirements.
Non-RRG	BC3.1.1.1 The group entity shall ensure that all non-conformity identified during internal audits is recorded and corrective actions are verified as completed and effective before the certificate is issued.
All	BC3.1.2 The group entity shall conduct an internal audit of all sites at least once per year after the initial certification to verify that each site is in conformity with MSC group CoC requirements. This requirement does not apply to the group if all seafood handled by the group entity and its sites is exclusively MSC certified seafood. The requirement does not apply to all sites in a stratified subgroup if all seafood handled by the stratified subgroup is exclusively MSC certified
All	BC3.1.3 If during an internal site audit the group entity discovers that the site is not in conformity with an MSC requirement, the non-conformity shall be graded as follows: a) Critical non-conformity: Any incidence where product is found to be labelled or sold as 'MSC' or 'MSC certified' but is shown not to be MSC certified shall be graded as a critical non-conformity and the group entity shall follow procedures as set out in BC3.4.1 and BC2.2.4. b) Non-conformity: All other cases where the site is not in full conformity with an MSC requirement shall be graded as a non-conformity and the group entity shall follow procedures as set out in BC3.4.2.
Non-RRG	BC3.1.4 There shall be an annual schedule for internal audits for sites which shall contain: a) The proposed date of the next internal audit b) The date of the last internal audit c) The result of the last internal audit, specifying open non-conformities and the dates by which they must be closed d) The name of the internal auditor who performed the last internal audit e) The site's current status (current, suspended or withdrawn).
	BC3.2 Input/output reconciliation
All	BC3.2.1 The group shall ensure that records are retained to enable a reconciliation of MSC certified inputs/ outputs of any certified product, over any given timeframe, for a designated shipment or group of shipments.
RRG	BC3.2.2 The group entity shall verify conformity with requirements in BC3.2.1 through conducting on a minimum annual basis, either: a) An input/ output reconciliation for a sample of MSC certified products across the entire group entity (including all sites on the group certificate), or b) An input/output reconciliation for a sample of MSC certified products handled at site level at a sample of sites.
RRG	BC3.2.2.1 If an input/ output reconciliation is conducted at a sample of sites (rather than the entire group entity) the sample size shall be defined as .5 * square root of the total number of sites, rounded up. At least 50% of the site samples shall be selected at random.

Applies to	Requirement
RRG	BC3.2.2.2 Requirements in BC3.2.2 do not apply to the group if all seafood handled by the group entity and its sites is exclusively MSC certified seafood. Requirements do not apply to all sites in a stratified subgroup if all seafood handled by the stratified subgroup is exclusively MSC certified
Non-RRG	BC3.2.3 The group entity shall verify conformity with BC3.2.1 through reviewing records of input/ output reconciliations from every site on an annual basis. Requirement BC3.2.3 does not apply to the group if all seafood handled by the group entity and its sites is exclusively MSC certified seafood. The requirement does not apply to all sites in a stratified subgroup if all seafood handled by the stratified subgroup is exclusively MSC certified
Non-RRG	BC3.2.4 The group entity shall be confident that systems used for input/ output reconciliation are effective for all MSC certified products handled by the site
	BC3.3 Internal review of the group entity
All	BC3.3.1 At least once a year (and before initial certification) the MSC representative shall conduct an internal review to verify the group's conformity with MSC group CoC requirements and the effectiveness of the group's management system.
All	BC3.3.2 The internal group entity review shall include: a) An assessment of the group's ability to conform with MSC group CoC requirements b) A review of the latest versions of MSC group CoC requirements, including any changes since the previous review and how these will be incorporated into procedures c) A review of internal and CAB audit reports from the previous year, non-conformities identified, corrective actions issued, and whether non-conformities have been closed d) A review of any complaints received relating to the MSC programme and actions taken as a result e) Identification of any systemic issues or recurring site-level non-conformities, and proposed changes to the group's systems to address these issues f) Documentation that all relevant sections of BC3.3.2 have been completed For the initial group entity internal review (before certification) points c- f may not be relevant for Reduced Risk Groups if internal site audits have not been completed.
All	BC3.3.3 Any proposed management changes arising from the group internal review and the timeline for their implementation shall be documented and communicated to the group entity's management
	BC3.4 Non-conformities and sanctions

Applies to	Requirement
All	BC3.4.1 If a critical non-conformity is identified, the group entity shall follow the procedure below: a) Within two days of detection, issue a critical non-conformity against all sites affected and alert the sites, MSC representative, and CAB b) Within two days of detection, suspend the site from the group certificate until the CAB and group entity are confident that all underlying causes of the non-conformity have been addressed c) Identify whether this is a site-specific non-conformity or if it has the potential to affect other sites and may indicate a breakdown in the group's systems or processes d) Issue corrective actions to address the non-conformity, including actions that must be taken by any affected sites and the group entity to prevent reoccurrence e) Ensure that the non-conformity has been corrected within 30 days of detection f) Ensure that the site makes no claim relating to MSC certified products during the suspension g) Record evidence of the information in parts a-f above for all critical non-conformities identified.
All	BC3.4.2 If a non-conformity is identified, the group entity shall follow the procedures below: a) Issue a non-conformity against all sites affected and ensure the sites are alerted within four days of the non-conformity being detected b) Investigate the cause of the non-conformity c) Identify whether the cause is a site-specific non-conformity or if it has the potential to affect other sites and may indicate a breakdown in the group's systems or processes d) Issue a corrective action to address the non-conformity, including actions that must be taken by any affected sites and the group entity to ensure similar non-conformity does not occur at other sites e) Verify that the non-conformity has been corrected within 90 days of detection f) Record evidence of the information in parts a-e above for all non-conformities identified.
All	BC3.4.3 If a non-conformity detected at the site level has not been fully corrected within 180 days of detection, a critical non-conformity shall be issued against the site and the group entity shall follow procedures as outlined in BC3.4.1.
	BC3.5 Decision on site conformity
Non-RRG	BC3.5.1 The decision on whether a site is in conformity with MSC group CoC requirements shall be made by a person or a committee who has not been involved in the site audit (a "decision maker"), and shall be based on the objective evidence provided by the site audit and all other evidence that may be available to the decision maker. The MSC representative shall be notified of all decisions related to site conformity.
Non-RRG	BC3.5.2 If the group entity does not have a person that was not involved in the site audit, a committee of key personnel from sites may make the conformity decision, excluding themselves from decisions affecting their own site.
	BC3.6 Verification records

Applies to	Requirement
All	BC3.6.1 The group entity shall maintain the following records related to the internal verification system, which may be in electronic or hard copy and may be kept at the group entity or site level: a) Schedule of all internal audits completed, including date of the audit and site name or number b) Internal audit results, including objective evidence, audit notes, non-conformities, corrective actions, and evidence that the non-conformities have been closed out within the designated timeframe c) Records of all input/ output reconciliations performed as specified in BC3.2, including the site number (if applicable) and date, volumes of inputs/ outputs, supporting documentation, and any non-conformities resulting d) Records of all traceability exercises performed as per section BC2.3 and any non-conformities resulting.

Appendix 4

Traceability of the Product / Track and trace system		Control No. : Date Created. : Date Revised. : Revision No. : Responsible :
7.0 Product Traceability Documentation		

Traceability Documentation

#	Stage	Controls	Record on	Comments
1	Storage and weighing in fish bins and loading into thawing bins for thawing	1-Fish reception, scale control. Laboratory control Histamine and salt 2- Fish preparation and thawing monitoring 3-Cold store map	Weight control, traceability tag, numbered bins, Fishing vessel name.	
2	Precooking/ Cooling/ Misting	3-Fish preparation report 4-Control time report (racking) 5-Fish weight and pieces per tray 6-time and temperature	BBT thawing, butchering, misting, precooking, misting, fogging. Quantity of fish by number of pieces. Time steam on and off, quantities	
3	Skinning & Cleaning	5-Sensorial evaluation and cleaning. 6-Time and temperature control	Sensory check, per precooking cycle, per line, per lot and fishing vessels	
4	Tuna Loin cleaning, Weighing and Metal detector and/or Tuna loin shaping, weight control	7-Loin cleaning and sensory 8- Metal detector control 9-Weight control 10-Moisture control	Weight report and loin report. Control per fishing vessels and per line. According to buyer specification. Time control.	
5	Contact plate freezer	10-Frezing time and temp. 12-Quantity per layer and per contact plate freezer	Weight, quantities and time &temperature. Numbers of bag (finished product) per contact freezer and per fishing vessels.	
9	Codification	13- 100% on each bag	100% in bags	
10	Shipping / Container Loading	14-Loading plan (based on the order guide) 15-Packing list / Sales orders 16-Container loading control	Control per container. (fishing vessel origin). Checking loading report.	
12	Cold store	17-Cold store map for finished goods.	Everything is mapped	

Traceability test at the factory (documentation):

Documentation linked to Chain of Custody (According to MSC standard www.msc.org)

Check list of documentation related with Chain of Custody	
Item checked	**Status**
1. Can you provide evidence that you have purchased fish from certified sources?	
2. Do your purchase orders specify that fish is to come from a certified source?	
3. Does the paperwork (invoices, dispatch paperwork) from your suppliers show their certification number and its expiry date?	
4. Have you requested a copy of your supplier's certificate?	
5. Once received do you ensure that certified fish is identified and segregated from non-certified fish during storage, food preparation and service to your customer?	
6. Do you ensure that non-certified fish are not mixed with certified fish if a species comes from both non-certified and certified sources?	
7. Do fridges and freezers have designated and identified areas where certified fish are held?	
8. Is there clear demarcation of any temporary or 'in process' storage areas for certified fish?	
9. Can you demonstrate that during any product filleting / cooking that cross contamination of certified and non-certified material is prevented?	
10. If there was a product recall would you be able to trace all certified fish that you had received?	
11. Is it possible for you to relate the number of products prepared using certified material against the amounts you purchased?	
12. Is there a quantity control of Label and cartoons (boxes) for finished products	
13. Are your staff aware of, and do they understand, the requirements to ensure traceability of certified fish?	

Check list of documentation related with Chain of Custody

Control System	a.1	Description of formal document control systems	
	a.2	Physical evidence of document control system	
	a.3	Who is responsible for document control	
	a.4	Training support to control	
Confirmation of Inputs	b.1	Ordering systems specify the need for raw material CoC certification	
	b.2	Evidence of raw material CoC certification with accompanying documents	
Segregation of Certified and Non-Certified Inputs	c.1	Methods for identifying certified material throughout the production/storage chain, esp. in the presence of non-certified material	
	c.2	Physical and/or temporal separation of certified and non-certified production runs	
	c.3	Ability to record and recall the input/output weights of different batch runs of certified material	
Secure Product Labelling	d.1	Security of label production	
	d.2	Label types, adhesion and legibility	
	d.3	Physical control (quantities of Labels and cases with logo)	
	d.3	Incorporation of producer information on labels	
Identification of Certified Outputs	e.1	Identification of certified outputs (see also Point 4 regarding label adhesion)	
	e.2	Sales invoice able to be linked to certified products and batches	
	e.3	Sales invoices inc. description of product, record of volume/quantity and quote the CoC registration code and expiry date. (per batch, quantities, etc)	
Record Keeping	f.1	System for recalling entire 'chain of custody' information (species, production dates and information, volumes, etc) from product outputs (batch numbers or other production identifiers) back to certified inputs (from reception to container loading)	
	f.2	Record shall be sufficient to allow a weight conciliation (conversion rates) between received quantities and exported quantities.	
	f.3	System records kept for a minimum of three years.	

Appendix 5

OBSERVER: LENJA
NAME: JUNNY
TRIP NUMBER: M10011

MSC CATCH REPORT FROM JIN HUI9

F/V:	JIN HUI 9		CALL SIGN:	BIWO	MSC NO.:		M10011	
MSC SET NO.	DATE	TIME(LT)	POSITION		SKJ	YF	TOTAL	HATCH NO.
SET 1	8/29/2013	10:25	02°23'.000"S	171°16'.000"E	20	0	20	S9
SET 2	8/29/2013	17:10	03°00'.000"S	170°42'.000"E	1	0	1	S9
SET 3	8/30/2013	7:30	03°09'.000"S	170°34'.000"E	5	0	5	S9
SET 4	8/31/2013	7:59	03°17'.000"S	169°18'.000"E	0	0		
SET 5	9/4/2013	18:18	00°10'.000"N	156°07'.000"E	0	0		
SET 6	9/5/2013	8:54	00°04'.000"N	155°59'.000"E	0	0		
SET 7	9/7/2013	8:35	02°28'.000"S	164°21'.000"E	40	0	40	S9=29T,P9=11T
SET 8	9/11/2013	7:22	03°13'.000"S	167°35'.000"E	0	0		
SET 9	9/13/2013	10:13	03°18'.000"S	166°17'.000"E	110	0	110	P9=44T,S8=45T,P8=21T
SET 10	9/13/2013	14:41	03°17'.000"S	166°13'.000"E	0	0		
SET 11	9/14/2013	9:45	03°20'.000"S	166°07'.000"E	35	0	35	P8=20T,S6=15T
SET 12	9/15/2013	17:23	02°22'.000"S	166°16'.000"E	4	0	4	P8=4T
SET 13	9/16/2013	7:53	02°32'.000"S	165°57'.000"E	7	0	7	S6=7T
SET 14	9/17/2013	8:12	02°23'.000"S	165°56'.000"E	0	0		
SET 15	9/17/2013	14:37	03°17'.000"S	165°54'.000"E	0	0		
SET 16	9/18/2013	8:48	03°18'.000"S	165°49'.000"E	0	0		
SET 17	9/19/2013	7:20	03°30'.000"S	169°01'.000"E	0	0		
SET 18	9/19/2013	10:29	03°42'.000"S	169°02'.000"E	0	0		
SET 19	9/19/2013	13:21	03°48'.000"S	169°09'.000"E	1	0	1	S6=1T
SET 20	9/23/2013	17:20	03°01'.000"N	167°05'.000"E	7	0	7	S6=7T
SET 21	9/24/2013	6:33	03°08'.000"N	167°11'.000"E	110	0	110	S6=20T,P6=50T,S4=40T

SET 22	9/24/2013	10:48	02°08'.000"N	167°07'.000"E	20	0	20	P4=20T
24-SEP-2013,BRINE HATCH NO.S7(55T） TRANSFER TO DRY HATCH NO.S9;								
24-SEP-2013,BRINE HATCH NO.P7(55T) TRANSFER TO DRY HATCH NO.P9;								
SET 23	9/25/2013	6:18	03°53'.000"N	169°36'.000"E	40	0	40	P4=20T, S7=20T
SET 24	9/25/2013	10:08	03°58'.000"N	169°42'.000"E	30	0	30	S7=5T, P8=25T
SET 25	9/25/2013	15:46	04°14'.000"N	169°40'.000"E	0	0		
SET 26	9/25/2013	17:37	04°15'.000"N	169°40'.000"E	40	0	40	P7=15T,S8=25T
SET 27	9/26/2013	9:41	04°14'.000"N	170°08'.000"E	30	0	30	S3=30T
SET 28	9/26/2013	12:32	04°14'.000"N	170°07'.000"E	40	0	40	P3=40T
26-SEP-2013,BRINE HATCH NO.S5(45T)TRANSFER TO DRY HATCH NO.S8								
26-SEP-2013,BRINE HATCH NO.P5(45T)TRANSFER TO DRY HATCH NO.P8								
26-SEP-2013,BRINE HATCH NO.S7(25T)TRANSFER TO DRY HATCH NO.P8								
SET 29	9/27/2013	7:08	04°03'.000"N	170°13'.000"E	0	0		
SET 30	9/27/2013	9:00	04°03'.000"N	170°14'.000"E	60	0	60	S7=25, S5=35T
SET 31	9/27/2013	14:25	04°10'.000"N	169°44'.000"E	0	0		
SET 32	9/28/2013	9:41	04°23'.000"N	169°14'.000"E	0	0		
SET 33	9/28/2013	11:36	04°24'.000"N	169°14'.000"E	40	0	40	S5=20T,P5=20T
SET 34	9/28/2013	16:09	04°44'.000"N	169°12'.000"E	60	0	60	P5=35T,S4=15T,P4=10
28-SEP-2013,BRINE HATCH NO.P7(25T)TRANSFER TO DRY HATCH NO.S8								
SET 35	9/29/2013	7:54	04°53'.000"N	169°10'.000"E	0	0		
SET 36	9/29/2013	16:18	04°54'.000"N	169°11'.000"E	0	0		
SET 37	9/30/2013	7:10	05°00'.000"N	169°29'.000"E	0	0		
SET 38	9/30/2013	9:23	05°05'.000"N	169°31'.000"E	50	0	50	S2=30T, P2=20T
SET 39	9/30/2013	12:52	05°07'.000"N	169°30'.000"E	30	0	30	P2=10T,S3=15T, P3=5T
SET 40	9/30/2013	15:34	05°11'.000"N	169°32'.000"E	40	0	40	P7=40T
SET 41	10/1/2013	6:18	05°13'.000"N	169°39'.000"E	80	0	80	NO.1=30T,P4=5T,S5=5T,P5=5T,S6=15T,P6=15T,S7=5T

TOTAL CATCH ONBOARD	900	0	900
MSC TOTAL TONS ONBAORD	900	0	900

VESSEL NOW FULL TRANSIT TO MAJURO PORT

Appendix 6

A list of formal objections to MSC fishery certifications, tonnages here are based on documents available from the MSC in December 2012.

No	Fishery and scientific name	Gears used	Certified tonnage	Objection date	Major Concerns	Objecting Organisations	Result
1/2	New Zealand Hoki (Macruronus novaezelandiae)	Mid-water and bottom trawl	121,748	April 2001; October 2006	Impact of trawling on seafloor, high levels of seabird bycatch (and some fur seal bycatch)	Royal Forest and Bird (first objection); Royal Forest and Bird, WWF-NZ (second objection)	Certification upheld both times
3	South Georgia Toothfish (Dissostichus eleginoides)	Bottom set longline	1843	April 2003	Lack of data on the toothfish population and on the impact of fishing on the ecosystem	National Environmental Trust, The Antarctica Project	Certification upheld
4	Gulf of Alaska Pollock (Theragra chalcogramma)	Pelagic trawl	79,805	August 2004	Low stock size; impact on pollock-dependent predators, high salmon bycatch	Alaska Oceans Program, Greenpeace, National Environmental Trust	Certification upheld
5	Bering Sea and Aleutian Islands Pollock (Theragra chalcogramma)	Pelagic trawl	1,219,000	September 2004	Inadequate information on pollock stock size; fishery managers in violation of the law	Alaska Oceans Program, Greenpeace, National Environmental Trust	Certification upheld
6	Pacific Hake Midwater Trawl (Merluccius productus)	Pelagic trawl	217,075	June 2009	Hake stock in decline but catch limits set at historically high levels	Oceana, Monterey Bay Aquarium	Certification upheld
7	Denmark Blue Shell Mussel (Mytilus edulis)	Mussel dredge	22,407	October 2009	Ecosystem impacts of dredging and mussel removal (i.e., loss of filtration by mussels)	Danish Society for Nature Conservation	Certification upheld, objection withdrawn by objectors due to cost
8	Aker BioMarine	Pelagic	39,578	December	Impact of catches on	Antarctic and Southern Ocean	Certification

	Antarctic Krill (Euphausia superba)	trawl		2009	krilldependent predators	Coalition	upheld
9	Ross Sea Toothfish (Dissostichus mawsoni)	Bottom set longline	1461	December 2009	Uncertainty about toothfish life history characteristics, and fishery impacts on the ecosystem	Antarctic and Southern Ocean Coalition	Certification upheld
10	British Columbia Sockeye Salmon (Oncorhynchus nerka)	Seine, gillnet, troll, beach seine, wheels, weirs, dip nets	1316	March 2010	Low abundance of the Fraser River stock and lack of information for the causes of this low abundance	Watershed Watch Salmon Society, David Suzuki Foundation, Skeena Wild Conservation Trust, (separate objection) Gitksan Watershed Authorities (withdrew later)	Certification upheld
11	Faroese Pelagic Organization NE Atlantic Mackerel (Scomber scombrus)	Pelagic trawl	17,450	July 2010	Stock in question is a straddling stock but Faroe Islands withdrew from international negotiations and unilaterally set catch limits	Marine Scotland	Objection upheld, fishery not certified
12	Gulf of California Mexico – Sardine (Sardinops sagax)	Purse seine	138,068	April 2011	Concerns about long-term stock health, bycatch levels, high percentage of sublegal size of sardines caught and lack of public scrutiny of fishery data	Comunidad y Biodiversidad Sonora, Mexico	Objector and client reached agreement before conclusion of objection, certification upheld
13	Danish Fishermen's Producer	Set gill and trammel net, Danish	7266	February 2011	Impacts of trawling on benthic habitats and species	WWF Netherlands, North Sea Foundation, WWF Denmark, WWF	Certification upheld

	Organization North Sea plaice (Pleuronectes platessa)	seine, demersal trawl				Germany	
14	New Zealand albacore tuna troll (Thunnus alalunga)	Troll	3265	March 2011	Fishery's RFMO (WCPFC) has not developed an appropriate harvest strategy	International Seafood Sustainability Foundation (ISSF)	Certification upheld
15	Suriname Atlantic seabob shrimp (Xiphopenaeus kroyeri)	Twin rig otter trawl	10,000	July 2011	Insufficient data to support harvest strategy; bycatch strategy unsupported by data; lack of evidence that fishery does not harm ecosystem	WWF Smart Fishing Initiative	Certification upheld
16	PNA Western and Central Skipjack Tuna (Katsuwonus pelamis)	Purse seine	422,921	August 2011	Fishery's RFMO has not developed an appropriate harvest strategy; other significant weaknesses in management	EUROTHON, ISSF, Organización de Productores Asociados de Grandes Atuneros Congeladores (OPAGAC)	Certification upheld
17	Southeast US North Atlantic Swordfish (Xiphias gladius)	Pelagic longline and hand gear buoy line	200	August 2011	High levels of sea turtle bycatch	Turtle Island Restoration Network	Certification upheld
18	North West Atlantic Canada longline swordfish (Xiphias gladius)	Longline	999	September 2011	High levels of bycatch of endangered or threatened sharks and turtles	David Suzuki Foundation, Ecology Action Centre, Oceana, and Sea Turtle Conservancy	Certification upheld
19	Isefjord and East Jutland Danish blue shell mussel (Mytlius edulis)	Mussel dredge	4737	November 2011	Lack of knowledge of stock status; impact of dredging on dependent species and habitat	Allan Hansen, a local citizen concerned about environmental impacts of fishery	Certification upheld, objection fee was not paid

Adapted from Christine et al. 2013

Appendix 7

Interviewees

1. Dr. Transform Aqorau
2. Mr. Maurice Brownjohn
3. Mr. Glen Joseph
4. Mr. Fernando Maliwanag II
5. Ms. Anne Junio
6. Mr. Bernard Fiubala
7. Mr. Steven
8. Mr. Andrew
9. Mr. Lloyd Aqorau
10. Mr. Russell Dunham
11. Mr. Aisake Raiwalui
12. Mr. Seremaia Tuqiri
13. Mr. Pio Manoa
14. Mr. Bill Holden
15. Mr. Ling