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Fishing, Finning and Tourism: Trends in Pacific shark conservation and management

Erika J Techera

Centre for International and Environmental Law, Macquarie University, Australia

Abstract

Sharks have a key position in the ocean food chain and their removal could have far-reaching implications beyond the species themselves. Yet since the 1980s the harvesting of sharks, primarily for their fins, and their extraction as bycatch has resulted in a rapid decline in numbers. It is against this backdrop that the Pacific is leading the way in legal developments for shark conservation; from the US shark conservation law, and finning bans in Hawai'i, the Commonwealth of the Northern Mariana Islands and Guam, to the declaration of Palau's shark sanctuary. These national initiatives have been complemented by regional action including the adoption of a Regional Plan of Action for sharks by the Pacific nations. This article examines the legal developments and the emerging leadership role the region is taking. The lessons that they offer are explored, as well as some of the remaining challenges.

Keywords: environmental law, fisheries, Pacific islands, sharks, tourism.

Introduction

The Pacific region is one of the most significant fisheries in the world, contributing around 54% of global marine catches.¹ The Western and Central Pacific Fisheries Commission (WCPFC) area, for example, provides more than 50% of world tuna catch.² Harvests have steadily increased in this region, with 2007 producing the highest annual catch recorded to date³ the majority of growth being in the offshore sector.⁴ Many of the Pacific nations derive significant economic benefit from locally-based offshore commercial fisheries, with 27% of

¹ The FAO reports that in 2008 the Northwest Pacific, Southeast Pacific and Central Western Pacific fisheries contribute 25%, 15% and 14% respectively: FAO, *State of the Worlds Fisheries and Aquaculture 2010* (FAO, Rome 2010), 35.

² FAO Fisheries and Aquaculture Department, *State of the Worlds Fisheries and Aquaculture 2008* (FAO, Rome 2009), 83.

³ R Gillett, *Marine fishery resources of the Pacific Islands* (FAO, Rome 2010), 43.

⁴ R Gillett and I Cartwright, *The Future of Pacific Island Fisheries* (SPC, Noumea 2010), 5.

the total production from fisheries and aquaculture falling into this category.⁵ In addition, revenue is raised from the licence fees to fish in their Exclusive Economic Zones (EEZs). For example, 70% of the offshore catch in Pacific EEZs is by foreign vessels registered outside the region, which in 2007 contributed a total of \$77 million USD in access fees across the region.⁶ It is therefore clear that the economic significance and sustainable management of fisheries reflects an important national interest for these states.

The economic relevance of marine living resources is not limited to the commercial sector. Coastal artisanal fisheries are of critical importance for food security, human health and the maintenance of livelihoods.⁷ This is most evident in the small island developing states (SIDS) where many people are and will remain dependent upon marine areas and resources for food security.⁸ Fisheries also play an important part in the cultures and customs of the Pacific peoples. In an area of the world comprised of many small islands, where populations have historically lived in coastal communities, the indigenous peoples of the region have close cultural and spiritual connections with marine areas and resources. Pacific island communities have been managing and protecting marine areas and fish stocks for centuries and many traditional practices have developed.⁹ The ocean has, in addition, been a source of myth and legend, as well as materials for traditional ceremonies, arts and crafts.¹⁰ This social dimension in the Pacific further underlines the national interest at stake and the necessity to

⁵ Gillett and Cartwright, *The Future of Pacific Island Fisheries*, op.cit., 4. For a summary table of the marine fishery production in the independent states, see Gillett, *Marine fishery resources of the Pacific Islands*, op.cit., 10.

⁶ Gillett, *Marine fishery resources of the Pacific Islands*, op.cit., 41 and 44. It is estimated that the value of the 2007 tuna caught by vessels was \$1.1 billion USD: *ibid*, 44.

⁷ *Ibid*, 43.

⁸ R Gillett, *Fisheries in the economies of the Pacific island countries and territories* (Asian Development Bank, Mandaluyong City, Philippines 2009); Secretariat of the Pacific Community, *A Community-based Ecosystem Approach to Fisheries Management: Guidelines for Pacific Island Countries* (SPC, Noumea 2010), 42.

⁹ M Vierros, et al, *Traditional Marine Management Areas of the Pacific in the Context of National and International Law and Policy* (UNU, Darwin 2010); Secretariat of the Pacific Community, *A Community-based Ecosystem Approach to Fisheries Management: Guidelines for Pacific Island Countries* (SPC, Noumea 2010).

¹⁰ P D'Arcy, *The people of the sea: environment, identity and history in Oceania*, (University of Hawai'i Press, Honolulu 2006).

conserve and manage fisheries. Although often overlooked, the importance of culture cannot be underestimated. As will be seen below it has been at least one of the drivers in the recent rise in shark conservation and management measures in the region.

Conserving marine living resources in this region extends beyond socio-economic factors. From an environmental perspective many marine environments and species are globally significant. Nevertheless, not all marine species have received the same attention and some have failed to attract academic research interest or public support. This appears to have been the case with sharks which, apart from the whale shark, are rarely viewed as ‘charismatic megafauna’, unlike other marine species such as whales, dolphin and turtles. They are more often feared as predators or eaten as a delicacy, but as will be seen below, in this region of the world they have also been revered as gods. Regardless of these perceptions, the science appears clear that as top predators, sharks play an important role in the ocean food chain, removing weaker members of other species and maintaining overall ecosystem health.¹¹ At the very least they enrich the marine environment and in many cases they are critical elements ensuring stability of the ocean environment, yet their numbers continue to deteriorate.¹² Since the 1980s the harvesting of sharks, primarily for their fins, and their extraction as bycatch has resulted in a severe decline in species abundance.¹³ The combination of the specific characteristics of sharks and the increasing pressure being placed upon them has led to efforts to improve legal governance strategies.

¹¹ W D Robbins, et al, ‘Ongoing Collapse of Coral-Reef Shark Populations’ (2006) 16 *Current Biology* 2314-2319.

¹² RA Myers, et al, ‘Cascading Effects of the Loss of Apex Predatory Sharks from a Coastal Ocean’ (2007) 315 *Science* 1846-1850.

¹³ For example, in some parts of the world it is estimated that stocks of almost all shark species have declined by more than 50 per cent in the last two decades: JK Baum, RA Myers, DG Kehler, B Worm, SJ Harley, PA Doherty, ‘Collapse and Conservation of Shark Populations in the Northwest Atlantic’ (2003) 299 *Science* 389-392. See also DL Abercrombie, SC Clarke, & MS Shivji, ‘Global-scale genetic identification of hammerhead sharks: Application to assessment of the international fin trade and law enforcement’ (2005) 6 *Conservation Genetics* 775-788.

It is in this context that the Pacific is leading a trend in national and regional approaches for shark conservation and management. This can be seen in relation to the abhorrent practice of live finning. Despite the lack of a global ban, the Pacific nations have overwhelmingly sought to outlaw this practice. The Pacific is also home to the first and largest shark sanctuaries in the world.¹⁴ The underlying drivers of this trend are no doubt complex and include the influence of neighbouring powers and the focus placed on sustainable development. Furthermore, sharks have not been conserved for their environmental or intrinsic value alone. Rather there has been a shift away from harvesting to non-extractive utilization. Given that the majority of the world's fisheries are either fully- or over-exploited, there is little room for further economic development in the fisheries sector.¹⁵ It is in this context that recent attention has been paid to reducing the negative effect of fishing on coastal tourism¹⁶ and address the impending loss of the larger iconic species.¹⁷ In the search for alternative more sustainable livelihoods, non-consumptive options are being explored. Tourism provides one such opportunity, and is particularly attractive in this region of the world where the relatively pristine environment, combined with the tropical weather, makes this sector both attractive and viable. Although not without its own risks, tourism can provide an alternative to more damaging livelihood options.

This article examines the background to legal developments in the Pacific through a focus on the environmental importance of sharks and the socio-cultural context. Thereafter, the legal strategies and approaches are explored including the development of shark-based tourism. The significance of this analysis lies in the important standard setting role the Pacific islands can play. In a region which has historically had a small voice in many international

¹⁴ In Palau and the Republic of the Marshall Islands Respectively.

¹⁵ The FAO reports that 53% of fish stocks were fully exploited, 32% over-exploited, depleted or recovering from depletion: FAO, *State of the Worlds Fisheries and Aquaculture 2010*, op.cit., 8.

¹⁶ Gillett and Cartwright, *The Future of Pacific Island Fisheries*, op.cit., 13.

¹⁷ Including humphead wrasse and giant clams: *ibid*, 17.

negotiations, it is leading the way in this area. Nevertheless it is likely that some tensions will emerge, particularly in the context of international relations with the South East Asian states, which are not only the regionally significant fishing nations and powerful players in regional fishery management organizations (RFMOs), but which have historically had quite different cultural connections with sharks. Therefore, this article will explore the recent developments in law, analyse the future challenges and identify what lessons might be learnt from the Pacific.

Pacific Context

Sharks are part of the *chondrichthyan* group of fish which also includes rays and chimaera.¹⁸ Sharks are susceptible to over-fishing as they tend to be long-lived, are slow growing, have late sexual maturity and low reproduction rates, making it difficult for depleted stocks to be re-built.¹⁹ Although poorly researched it is clear that the Pacific is home to over 80 species of rays and sharks including the great white shark, whale shark and basking shark.²⁰ Marine scientific research in relation to sharks has lagged behind other species and the conservation status of about half of all shark species is unknown.²¹ Nevertheless, the scientific consensus is that the disproportionate removal of sharks could have far-reaching effects, well beyond the survival of the species themselves.²² Although there are significant gaps in catch data, that

¹⁸ IC Field, et al, op.cit.

¹⁹ JD Stevens, R Bonfil, NK Dulvy, and PA Walker, 'The effects of fishing on sharks, rays, and chimaeras (chondrichthyans), and the implications for marine ecosystems' (2000) 57 *ICES Journal of Marine Science* 476–494.

²⁰ FFA, *Pacific Islands Regional Plan of Action (PI-RPOA) on Sharks*, <http://www.ffa.int/sharks> (accessed 19 August 2011). See also NK Dulvy et al, 'You can swim but you can't hide: the global status and conservation of oceanic pelagic sharks and rays' (2008) 18(5) *Aquatic Conservation: Marine and Freshwater Ecosystems* 459–482.

²¹ IUCN, *The IUCN Red List of Threatened Species*. <http://www.iucnredlist.org/> (accessed 19 August 2011).

²² RA Myers and B Worm, 'Rapid worldwide depletion of predatory fish communities' (2003) 423 *Nature* 280–283; Myers, et al, 'Cascading Effects of the Loss of Apex Predatory Sharks from a Coastal Ocean' op.cit.; AS

which is available suggests that many shark species are at risk of extinction.²³ Estimates are that globally between 26 and 73 million sharks are the subject of trade each year,²⁴ with as many as 50 percent of sharks being caught incidentally.²⁵ While precise stock assessments and catch statistics in the Pacific are unclear, accessible information points to a significant depletion in numbers.²⁶ Significantly, the Asia-Pacific region also includes six of the top 11 shark fishing nations - Indonesia, Taiwan, US, Japan, Malaysia and Thailand.²⁷ Target destinations include China, Malaysia, Taiwan, Indonesia and Thailand, with the largest shark fin market being in Hong Kong.²⁸

Attitudes and approaches towards sharks are varied and complex. Despite being feared as dangerous predators by some, many other cultures have a different view. In the Asia-Pacific region this includes them being honoured as gods, as well as utilized for food, ceremonial and utilitarian purposes. For example, the native Hawaiian people traditionally used sharks teeth for cutting implements,²⁹ and the skins for temple and hula drums.³⁰ Some sharks were

Brierley, 'Fisheries Ecology: Hunger for Shark Fin Soup Drives Clam Chowder off the Menu' (2007) 17 (14) *Current Biology* 555-557.

²³ Field, et al, 'Susceptibility of Sharks, Rays and Chimaeras to Global Extinction' op.cit.

²⁴ SC Clarke, MK McAllister, EJ Milner-Gulland, GP Kirkwood, CGJ Michielsens, DJ Agnew, EK Pikitch, H Nakano and MS Shivji, 'Global estimates of shark catches using trade records from commercial markets' (2006) 9(10) *Ecology Letters* 1115-1126 at 1119.

²⁵ KN Topelko and P Dearden (2005) 'The Shark Watching Industry and its Potential Contribution to Shark Conservation' (2005) 4(2) *Journal of Ecotourism*, 108-128, at 108.

²⁶ WCPFC, *SPC – Progress Towards Shark Assessments* (23 November 2010), <http://www.wcpfc.int/system/files/documents/meetings/regular-sessions-commission/seventh-regular-session/meeting-documents/WCPFC7-2010-16%20SPC%20Progress%20Towards%20Shark%20Assessments.pdf> (accessed 19 May 2011).

²⁷ M Lack and G Sant, *The Future of Sharks: A Review of Action and Inaction* (TRAFFIC International, Cambridge and Pew Environment Group, Washington, DC 2011).

²⁸ DL Abercrombie, SC Clarke and MS Shivji, 'Global-scale genetic identification of hammerhead sharks' (2005) 6 *Conservation Genetics* 775-788. Both China and Hong Kong have only minor shark fisheries but are the main markets for shark fins: SL Fowler et al *Sharks, Rays and Chimaeras: The Status of the Chondrichthyan Fishes. Status Survey* (IUCN, Gland and Cambridge 2005). It has been estimated that the Hong Kong market's share of trade is between 50 and 85 per cent: SC Clarke, MK McAllister and CGJ Michielsens, 'Estimates of Shark Species Composition and Numbers Associated with the Shark Fin Trade Based on Hong Kong Auction Data' (2004) 35 *Journal of Northwestern Atlantic Fisheries Science*, 453-465.

²⁹ PV Kirch, *Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory* (University of Hawai'i Press, Honolulu 1985) 116 and 142.

³⁰ L Taylor, *Sharks of Hawai'i – their biology and cultural significance* (University of Hawai'i Press, Honolulu 1993) 19.

considered as the paramount 'aumakua (personal or family gods) and were kapu (taboo) due to their high status.³¹ There are similar traditions and beliefs in other parts of the Pacific. In the Fiji Islands, for example, the god *dakuwaqa* took the form of a shark and in some cases sharks were thought to be able to appear as humans.³² Similarly, the Tongan god *Taufa* was believed to be able to appear as a shark.³³

In marked contrast, in Chinese culture sharks are considered as a delicacy, most commonly consumed as shark fin soup. The Chinese tradition developed about 600 years ago, sometime during the Ming Dynasty.³⁴ Part of the attraction seems to have been the belief that the soup would assist with boosting sexual energy,³⁵ although more recently it has become a reflection of wealth and status.³⁶ While Chinese culture has been blamed as causing rapid growth in the shark fin industry,³⁷ perhaps conversely the Pacific traditions have contributed to the recent trend in shark conservation. For example, WCPFC recognizes in the preamble to its Shark Management Measures the 'ecological and cultural significance of sharks in the western and central Pacific Ocean.'³⁸ Another example is the use of manta rays in traditional medicine which is specifically referred to in the Guamanian legislation prohibiting the possession and sale of shark fins and ray parts.³⁹ In addition, despite the fact that in some places efforts were made to encourage the consumption of shark, a significant shark fishery did not develop in

³¹ C Takahasi, *Restoration of Huilua Fishpond* (University of Hawai'i Press, Honolulu 1999) 5.

³² P D'Arcy, *The people of the sea: environment, identity and history in Oceania*, op.cit., 42 and 44.

³³ Ibid, 41.

³⁴ Fowler, et al, *Sharks, Rays and Chimaeras*, op.cit., 22.

³⁵ LC Koo, 'The use of food to treat and prevent disease in Chinese culture' (1984) 18(9) *Social Science & Medicine* 757-766.

³⁶ Fowler, et al, *Sharks, Rays and Chimaeras*, op.cit., 22.

³⁷ Ibid, 19.

³⁸ WCPFC, *Conservation and Management Measure for Sharks*, CMM 2010-07, <http://www.wcpfc.int/system/files/documents/conservation-and-management-measures-and-resolutions/conservation-and-management-measures-/CMM%202010-07%20%5BSharks%5D.pdf> (accessed 19 May 2011).

³⁹ Guam Bill 44-31, *An Act to Prohibit the Possession, Selling, Offering for Sale, Trading, or Distribution of Shark Fins And Ray Parts*.

the Pacific.⁴⁰ Again this is noted in legislation. For example, a Commonwealth of the Northern Mariana Islands (CNMI) statute notes that ‘rays...are not traditional food fishes in the CNMI’ and ‘fishing specifically for such rays is not tradition in the CNMI.’⁴¹ Therefore, in the Pacific islands context, at the very least culture has not conflicted with shark conservation and it may have played a more significant part in driving recent initiatives. Whatever the motivation, the current trends in the region are worthy of further examination.

Legal Trends

International Governance

International law for the conservation and management of sharks is fragmented and piecemeal.⁴² The great white, basking and whale shark are listed on Appendix II of *Convention on the International Trade in Endangered Species (CITES)*.⁴³ This regulates their trade by requiring import and export permits but does not govern sale within any given country. At the 2010 CITES Conference proposals included the listing of an additional eight species of sharks on Appendix II, but these were unsuccessful. The same three species are listed on Appendix I of the *Convention on the Conservation of Migratory Species of Wild Animals*⁴⁴ (CMS) prohibiting their harvest. A further four species are listed on Appendix II CMS, requiring range states to enter into agreements for the benefit of the species.⁴⁵ Recent developments include a CMS memorandum of understanding (MOU) which includes

⁴⁰ See, for example, Hawai‘i: Alvin Tachibana, ed., *Ono Hawaiian Shark Recipes* (University of Hawai‘i Sea Grant College Program, Honolulu 1977).

⁴¹ Public Law 15-124, http://www.cnmilaw.org/pdf/public_laws/15/pl15-124.pdf (accessed 19 May 2011).

⁴² EJ Techera and N Klein, ‘Fragmented Governance: Reconciling legal strategies for shark conservation and management’ (2011) 35(1) *Marine Policy*, 73-78.

⁴³ *Convention on International Trade in Endangered Species of Wild Fauna and Flora* opened for signature 3 March 1973, 993 UNTS 243 (entered into force 1 July 1975).

⁴⁴ *Convention on the Conservation of Migratory Species of Wild Animals* opened for signature 23 June 1979, 1651 UNTS 356, (entered into force 1 November 1983).

⁴⁵ Spiny dogfish, porbeagle, shortfin mako and longfin mako.

strengthened conservation principles and calls for the development of improved management plans.⁴⁶ The MOU is global but only applies to the species listed on Appendix I and II. It has been signed by a number of Pacific nations including Australia, Nauru, Papua New Guinea, Tonga, Tuvalu and the Solomon Islands but not by Japan.

The FAO International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) is the only shark-specific regime. It was developed in response to concern over the poor conservation status of sharks and calls upon states to undertake shark assessments and to develop national plans of action (NPOAs) for the conservation and management of sharks. The IPOA-Sharks includes principles, objectives and implementation procedures as well as matters for inclusion in NPOAs and assessment reports.⁴⁷ While the IPOA-Sharks is more comprehensive than the treaties examined above it is only voluntary, and its implementation is patchy with uptake at the national level being slow.⁴⁸ In addition, issues surround the consistency and effectiveness of those shark assessments and NPOAs that have been prepared.⁴⁹ There has to date been no detailed assessment and evaluation of what has been done to conserve and manage sharks in accordance with the IPOA-Sharks at the national level and this will be necessary in order to determine what if any further action is needed at the global level.

The fragmented legal regime is compounded by well-known problems of illegal, unregulated and unreported (IUU) fishing generally and weak catch data and specificity in reporting

⁴⁶ CMS, *Memorandum of Understanding on the Conservation of Migratory Sharks* http://www.cms.int/species/sharks/MoU/Migratory_Shark_MoU_Eng.pdf (accessed 19 May 2011).

⁴⁷ FAO, IPOA-Sharks, Appendices A and B, respectively. See also IPOA-Sharks, paragraph 22.

⁴⁸ Only 13 of the top 20 shark fishing nations have developed plans: Lack and Sant *The Future of Sharks* op.cit.

⁴⁹ Lack and Sant, *The Future of Sharks* op.cit.

requirements relating to sharks in particular.⁵⁰ This problem has been acute in the Pacific because of the large expanse of marine areas involved and the often limited resources available to enforce fisheries laws through inspections, monitoring and policing activities. It is in this context that the recent regional and national action taken by Pacific states is most significant.

Regional approaches

Several strong regional organizations facilitate the governance of fisheries in the Pacific region: the Forum Fisheries Agency (FFA) and Secretariat of the Pacific Community.⁵¹ These bodies are supported by a number of other relevant bodies including the South Pacific Regional Environment Programme (SPREP), the South Pacific Applied Geoscience Commission (SOPAC) and the University of the South Pacific (USP).⁵² For example, the SPC Oceanic Fisheries Programme has initiated specific projects to better understand shark behaviour and biology; and established a database to act as a clearinghouse of Pacific regional data about shark tagging and research.⁵³ SPC has also initiated a Shark Research Plan, which is focused upon research, assessment and data collection, and appointed a Shark Assessment Scientist.⁵⁴

⁵⁰ In relation to the Pacific see WCPFC, *SPC – Progress Towards Shark Assessments* (23 November 2010) WCPFC7-2010/16, <http://www.wcpfc.int/system/files/documents/meetings/regular-sessions-commission/seventh-regular-session/meeting-documents/WCPFC7-2010-16%20SPC%20Progress%20Towards%20Shark%20Assessments.pdf> (accessed 19 May 2011).

⁵¹ Gillett, *Marine fishery resources of the Pacific Islands*, op.cit., 5.

⁵² Ibid, 5.

⁵³ Secretariat of the Pacific Community, *Keeping track of sharks: SPC kicks off two new shark projects*, SPC Fisheries Newsletter #133 (September/October 2010) http://www.spc.int/DigitalLibrary/Doc/FAME/InfoBull/FishNews/133/FishNews133x_04_TaggingSharks.pdf (accessed 19 May 2011); WCPFC, *SPC – Progress Towards Shark Assessments* op.cit.

⁵⁴ Secretariat of the Pacific Community, *New research plan provides a blueprint for addressing shark issues in the western and central Pacific*, SPC Fisheries Newsletter #132 (May/August 2010). http://www.spc.int/DigitalLibrary/Doc/FAME/InfoBull/FishNews/132/FishNews132_25_Clarke.pdf (accessed 19 May 2011).

Although sharks are not generally a target and are mostly harvested only as bycatch in the region,⁵⁵ the most significant RFMO has adopted specific Conservation Management Measures (CMMs) relating to sharks. The WCPFC, whose membership is drawn from across the Pacific including China, the US, Japan, South Korea and Indonesia,⁵⁶ provides that shark conservation measures shall ‘require that their fishers fully utilize any retained catches of sharks’ and that their vessels shall have ‘fins that total no more than 5% of the weight of sharks on board up to the first point of landing’.⁵⁷ This mechanism is controversial and somewhat ambiguous. Specific concerns include its failure to take into account differences between various species (the size of the fins and proportion of fin to carcass weight varies between species. In addition, it does not include weighing conditions - how wet or dry the fins are and whether a ‘dressed’ or ‘whole’ fish weight is used. Furthermore, finning techniques vary which may also affect the ratio. Lastly, this mechanism does not provide for any contribution to research and is difficult to enforce.⁵⁸ However the WCPFC CMM goes on to provide that measures ‘may alternatively require that their vessels land sharks with fins attached to the carcass’.⁵⁹ A ‘fins naturally attached’ approach would be preferable and would at the very least prevent the fins and carcass being landed separately, which currently complicates enforcement of the 5% ratio mechanism. Much stronger measures have been adopted by other organizations such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) which prohibits targeted fishing for sharks and provides that all bycatch shall be released alive.⁶⁰ Nevertheless, enforcement of these

⁵⁵ Gillett, *Marine fishery resources of the Pacific Islands*, op.cit., 37.

⁵⁶ Indonesia is an associate member only.

⁵⁷ WCPFC, *Conservation and Management Measure for Sharks*, ss. 6 and 7.

⁵⁸ See M Lack and G Sant, *Confronting Shark Conservation Head On!* (TRAFFIC International, Cambridge, UK 2006) 12 and 14–15.

⁵⁹ *ibid.*

⁶⁰ CCAMLR (2006). *Report of the Twenty-Fifth Meeting of the Commission*. http://www.ccamlr.org/pu/e/e_pubs/cr/06/i12.pdf (accessed 29 August 2011).

regulations remains problematic where the harvesting occurs far from shore, and flag and port state monitoring is weak.

The Pacific nations have responded to both the FAO IPOA sharks and WCPFC CMM by developing a Regional Plan of Action (RPOA).⁶¹ The RPOA is one of the first regional plans for sharks in the world.⁶² While it aims to assist Pacific nations it is not binding and does not proscribe specific actions to be taken.⁶³ Rather it provides guidance on assessing the impacts of fisheries on sharks, complying with the WCPFC CMMs and identifying other initiatives for the sustainable management of sharks in national and international waters.⁶⁴ The FFA, SPC and SPREP are moving to implement the RPOA across the region and it remains to be seen whether the plan will be effective in curbing the anticipated growth in the shark fin trade, particularly where efforts may be complicated by the tension created when the states with the greatest consumer demand for shark fins are also those that provide support within the Pacific for policing operations.

National approaches - Fishing

Across the Pacific there has been only patchy ratification of international law.⁶⁵ While two of the Pacific SIDS, the Marshall Islands and Cook Islands, have drafted NPOAs for sharks,

⁶¹ Forum Fisheries Agency, *Pacific Islands Regional Plan of Action (PI-RPOA) on Sharks*, <http://www.ffa.int/sharks> (accessed 19 May 2011).

⁶² The only other regional plans are the European Plan of Action and the Action Plan for the conservation of cartilaginous (Chondrichthyans) in the Mediterranean Sea. There is, in addition, a sub-regional Plan of Action prepared under the auspices of the West African Commission Sous-Regionale des Peches in 2001.

⁶³ M Lack and F Meere, *Pacific Islands Regional Plan of Action for Sharks, Guidance for Pacific Island Countries and Territories on the Conservation and Management of Sharks* (2009) http://www.ffa.int/system/files/Pacific%20Islands%20RPOA%20Sharks%20Final%20Report%20__3_.pdf (accessed 19 May 2011).

⁶⁴ Ibid.

⁶⁵ Only six Pacific SIDS are members of CITES: CITES, *List of Contracting Parties* <http://www.cites.org/eng/disc/parties/alphabet.shtml> (accessed 19 May 2011). Only three are signatories to the

neither have been finalized nor have management responses been implemented.⁶⁶ However, the US NPOA Sharks applies to the US territories of American Samoa, Guam, and the CNMI. None of the domestic legislation referred to below makes specific reference to the requirements of the NPOA and therefore it can be implied that these new initiatives are perceived to be in addition to any responsibility flowing from the FAO strategy.⁶⁷

Several countries have now taken specific measures to ban all shark finning and fishing and completely protect shark species. The most well known of these is Palau, whose waters were declared to be a shark sanctuary in 2009. Efforts to curb finning and strengthen conservation are long standing in Palau and began in the 1980s, well prior to the country's independence in 1994. In 2003 the then President Tommy E Remengesau Jr set fire to an intercepted cache of illegally harvested shark fins,⁶⁸ somewhat reminiscent of the burning of stockpiles of illegal elephant ivory in Africa.⁶⁹ This was followed by what was then some of the strongest anti-finning legislation in the world, supported by both the community and NGO sector.⁷⁰ Successive governments have sought to strengthen the Palauan approach culminating in President Johnson Toribiong's declaration of a marine sanctuary in September 2009.⁷¹ This protected area covers over 600,000 sq km of ocean contributing to a Micronesian conservation corridor across the region.⁷²

CMS with Palau the only one to sign the shark MOU: CMS, *Parties*
http://www.cms.int/about/Partylist_eng.pdf(accessed 19 May 2011).

⁶⁶ Lack and Meere, *Pacific Islands Regional Plan of Action for Sharks* op.cit., 3.

⁶⁷ In addition, PNG's National Fisheries Authority has developed a Fishery Management Plan for Sharks: R Gillett, *Fisheries of the Pacific Islands: Regional and national information* (FAO Regional Office for Asia and the Pacific, Bangkok 2011) 174.

⁶⁸ Radio New Zealand International, *Palau holds Shark Fin Burning Ceremony*, (8 May 2003),
<http://www.rnzi.com/pages/news.php?op=read&id=4671>(accessed 19 May 2011).

⁶⁹ JR Berger, 'The African Elephant, Human Economies, and International Law: Bridging a Great Rift for East and Southern Africa' (2000-2001) 13 *Georgetown International Environmental Law Review* 417-461.

⁷⁰ The Palau Shark Sanctuary NGO was established in 2001 in direct response to the shark finning problem. It not only advocated the declaration of marine protected area but also engages in public education programme.

⁷¹ BBC News, *Palau pioneers 'shark sanctuary'*, (25 September 2009) <http://news.bbc.co.uk/2/hi/8272508.stm> (accessed 19 May 2011).

⁷² Ibid.

A similar sanctuary had previously been created in Yap, in the Federated States of Micronesia, in relation to different chondrichthyan species. The *Manta Ray Sanctuary and Protection Act* 2008 established a sanctuary for manta rays ‘under the customs and traditions of the State of Yap’ recognising that it is one of the only places in the world where this species is resident all year round due to a ‘bionetwork of cleaning stations ... planktonic organisms, and a pollution-free environment’.⁷³ The Act establishes a sanctuary ‘as a safe and enduring habitat for manta rays’ covering all territorial waters subject only to the rights of traditional owners under custom and tradition.⁷⁴

Four other Micronesian islands have now joined Palau, passing a resolution to establish a regional shark sanctuary by December 2012 which will cover 5,000,000 sq km of the Pacific.⁷⁵ The Resolution also sanctions the development of laws to prohibit the possession, sale and trade of shark fins. Tokelau has now followed suit announcing a 320,000 sq km shark sanctuary in its EEZ.⁷⁶ This has been followed by the Marshall Islands’ and Cook Islands plans to declare two of the largest such shark sanctuaries in the world covering 1,990,530 sq km⁷⁷ and 2.3 million sq km respectively.⁷⁸ While the declaration of shark sanctuaries is a positive step forward much of the legislation that will be needed to support them remains to be enacted. As will be seen below the most challenging aspect is likely to be

⁷³ Yap State Law No.7-36 creates a new Chapter 12 of Title 18 of the Yap State Code:
<http://yapstategov.org/downloads/laws/YSL%207-36.pdf> (accessed 19 May 2011).

⁷⁴ S.1204 *Manta Ray Sanctuary and Protection Act* 2008.

⁷⁵ They include the Federated States of Micronesia, the Republic of the Marshall Islands and the US territories of Guam and the Commonwealth of the Northern Mariana Islands: Resolution of the 15th Micronesian Chief Executive Summit, 28 July 2011,
http://www.pewenvironmentgroup.org/uploadedFiles/PEG/Newsroom/Press_Release/15th_MCES_Resolution_-_Establishing_the_Regional_Shark_Sanctuary_in_Micronesia.pdf (accessed 5 October 2011).

⁷⁶ The Pew Charitable Trusts, *Tokelau Declares Shark Sanctuary* (7 September 2011)
<http://www.pewenvironment.org/news-room/press-releases/tokelau-declares-shark-sanctuary-85899363741>

⁷⁷ The Pew Charitable Trusts, *World’s Largest Shark Sanctuary Declared in Central Pacific* (2 October 2011)
<http://www.pewenvironment.org/news-room/press-releases/worlds-largest-shark-sanctuary-declared-in-central-pacific-85899364555> (accessed 5 October 2011).

⁷⁸ Pacific Islands Conservation Initiative, *Cook Islands Shark Sanctuary*
http://www.picionline.org/PICI_Sharks.htm (accessed 10 December 2011).

monitoring and enforcement across such large ocean areas, particularly by the poorly resourced Pacific island states.

These Pacific initiatives can already be seen to have played a standard setting role as they have been followed elsewhere in the world. The Bahamas has declared a shark sanctuary,⁷⁹ Honduras has implemented a total ban on shark fishing⁸⁰ and in the Indian Ocean the Maldives has done the same.⁸¹

State Finning Legislation

Perhaps the most significant development in the Pacific has been the strong stance taken against live finning of sharks. This abhorrent practice involves cutting off the fins and discarding the carcass, leaving the shark to starve to death or drown.⁸² The industry is driven by the high prices that may be charged for shark fins, which as noted above, are used to make shark fin soup considered a delicacy, predominantly in China. Calls for a global ban on shark finning have not been heeded and national measures have overtaken international efforts with various laws being adopted across the Pacific. Early legislation included the US *Shark Finning Prohibition Act* which was passed in 2000 with regulations being implemented in 2002. The Act required that fins be landed with the corresponding carcass within a 5% fin to carcass ratio. This has recently been significantly strengthened with the passing of the U.S. *Shark Conservation Act* introduced by Guam Delegate Madeleine Bordallo in 2009 and

⁷⁹ The Pew Charitable Trusts, *Bahamas Acts to Protect Sharks*, (5 July 2011) <http://www.pewenvironment.org/news-room/press-releases/bahamas-acts-to-protect-sharks-85899361467> (accessed 5 October 2011).

⁸⁰ Shark Savers, *Honduras and the Maldives Join the Ranks of Shark Sanctuaries*, (17 March 2010) <http://www.sharksavers.org/de/blogs-a-news/635-honduras-and-the-maldives-join-the-ranks-of-shark-sanctuaries.html>.

⁸¹ D Jolley, *Maldives Ban Fishing of Sharks*, New York Times, 9 March 2010 <http://www.nytimes.com/2010/03/10/world/asia/10iht-shark.html> (accessed 19 May 2011).

⁸² Most sharks need to swim to breathe by forcing water through their gills.

adopted in January 2011.⁸³ The legislation requires sharks caught in US waters⁸⁴ to be landed with their fins naturally attached, prohibits the possession of shark fins on board a vessel unless naturally attached, and bans the removal of shark fins at sea and as well as their transfer to another vessel.⁸⁵ The Act also strengthens government authority to urge other organizations and nations to adopt shark conservation measures, including the banning of shark finning, comparable to the US provisions.⁸⁶ However, trade in shark fins itself is not prohibited and is subject only to international protections, which as noted above are limited to just a few species.

Several of the US states and territories have now passed legislation closing this loophole. Despite there not having been a large targeted fishing industry for sharks in Hawai‘i, fins have been caught, landed and sold there. Hawai‘i has led the way in prohibiting shark fin trade, initially with law in 2000⁸⁷ and later legislation in 2010.⁸⁸ From 1 July 2011 it has been ‘unlawful for any person to possess, sell, offer for sale, trade, or distribute shark fins’ with exemptions for those with educational and scientific permits.⁸⁹

In the western Pacific the CNMI was the first US territory to pass laws regulating shark fishing. The 2008 legislation criminalizes the hunting of rays and prohibits the feeding of

⁸³ The Bill was quickly passed in the House of Representatives but delayed in Senate for nearly 2 years.

⁸⁴ This regulates fish caught between in the US EEZ, between 3 and 200 nautical miles from the mainland coast and around each US Pacific territory. Within 3 nautical miles state legislation applies.

⁸⁵ HR 81 s.103, amending s.307 Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1857(1)).

⁸⁶ HR 81 s.103, amending s. 608 of the *High Seas Driftnet Fishing Moratorium Protection Act* (16 U.S.C. 1826i). It further includes the violation of shark conservation measures in the definition of illegal fishing: s.102(b) HR 81 amending s. 609(e)(3) of the *High Seas Driftnet Fishing Moratorium Protection Act* (16 U.S.C. 1826j(e)(3)). Lastly it includes the identification of RFMOs and organisations that have not adopted equivalent measures: s.102(c) HR 81 amending s. 610 of the *High Seas Driftnet Fishing Moratorium Protection Act* (16 U.S.C. 1826j)

⁸⁷ Hawaii Revised Statutes 188.40-5.

⁸⁸ Senate Bill 2139 amends Chapter 188 of the Hawaii Revised Statutes.

⁸⁹ Senate Bill 2139, section 2.

sharks without a permit.⁹⁰ The feeding ban includes attracting sharks with blood or chumming and extends up to 1,000 feet from the coast or exposed reef.⁹¹ Permits may be obtained to feed sharks outside near shore waters.⁹² Interestingly, fines are used only to fund enforcement of the Act.⁹³ A further law makes it ‘unlawful for any person to possess, sell, offer for sale, trade, or distribute shark fins in the CNMI’ with an exemption for subsistence purposes and those with a permit to conduct research.⁹⁴

Following the CNMI lead, Guam introduced similar legislation in 2011 making it unlawful for a person to ‘possess, sell, take, purchase, barter, transport, export or import, offer for sale, trade, or distribute shark fins, alive or dead’.⁹⁵ Again exemptions are given for educational and scientific research and⁹⁶ subsistence purposes,⁹⁷ but in addition an exception is made where a shark is accidentally caught with a hook or line provided that the shark is immediately returned to the water.⁹⁸ Interestingly, public support for the bill was widespread evidenced, for example, by high school students who staged a symbolic shark fin burial.⁹⁹

⁹⁰ CNMI Public Law 15-124.

⁹¹ CNMI Public Law 15-124 §5642 (f).

⁹² CNMI Public Law 15-124 §5642 (e).

⁹³ CNMI Public Law 15-124 §5642 s.3.

⁹⁴ CNMI Public Law 17-27 s. 2.

⁹⁵ Guam Bill 44-31 s.4(a) ‘Take’ is defined in s.3 to include ‘harm’.

⁹⁶ Guam Bill 44-31 s.4(a).

⁹⁷ Guam Bill 44-31 s.4(b) .

⁹⁸ Guam Bill 44-31 s.3 .

⁹⁹ Reuters, *Guam Moves to Protect Sharks - Governor Calvo Signs Shark Fin Ban Into Law in Guam* (9 March 2011), <http://www.reuters.com/article/2011/03/10/idUS23020+10-Mar-2011+PRN20110310> (accessed 19 May 2011).

While there was some initial opposition from local commercial and recreational fishers¹⁰⁰ the Bill was passed unanimously in March 2011.¹⁰¹

The trend in shark finning legislation has since spread further with the Marshall Islands placing a temporary moratorium on the trade and export of shark fins pending the development of specific regulations.¹⁰² Finning legislation has recently been introduced in a number of other US states including Washington,¹⁰³ Oregon¹⁰⁴ and California.¹⁰⁵ These laws not only prohibit the practice of shark finning but also appear to be influencing the development of non-consumptive enterprises. For example, it has been reported that CNMI has already received enquiries from a 'Hong Kong-based entity planning to come to the CNMI for eco-tourism, as a result of the anti-shark fin law.'¹⁰⁶ This leads on to the next issue

¹⁰⁰ Interestingly, the Guam Fishermen's Cooperative was reported as focusing on the need to 'protect the traditions, custom, culture and livelihood of the people of Guam' and saying that 'Shark finning is not a practice that exists in Guam's Fisheries and it is not part of the long-standing traditions of the fishing community on Guam...The concern of the fishing community demonstrates that despite the increasing shark population, the community ... does not resort to this practice of shark finning': Pacific News Center, *Guam's Fishermen Support Alternative Shark Finning Bill*

http://www.pacificnewscenter.com/index.php?option=com_content&view=article&id=11707:fishermen-support-alternative-shark-fining-bill&catid=45:guam-news&Itemid=156 (accessed 19 May 2011).

¹⁰¹ Humane Society International, *HSI Applauds Guam Governor for Signing Shark Protection Bill* http://www.hsi.org/news/press_releases/2011/03/guam_sharkfin_ban_030911.html (accessed 19 May 2011); Guam and Micronesia Dive Travel, *Shark Fin Possession Bill Made Law Today in Guam*, <http://www.guammicronesiadivetravel.com/travelblog1/?p=1155> (accessed 19 May 2011).

¹⁰² The moratorium also applies to the trade and export of sea cucumbers: Marianas Variety, *Shark fin, sea cucumber exports banned in Marshalls* (4 March 2011) <http://mvariety.com/2011030334782/local-news/shark-fin-sea-cucumber-exports-banned-in-marshalls.php> (accessed 19 May 2011). See also, Physorg.com, *Sharks get protection in Marshall Islands*, (4 March 2011), <http://www.physorg.com/news/2011-03-sharks-marshall-islands.html> (accessed 19 May 2011).

¹⁰³ The State of Washington Senate Bill 5688, passed on 12 May 2011 prohibiting the sale, trade or distribution of shark fins or derivative products: Shark Research Institute, *The state of Washington bans sale, trade of shark fins*, <http://www.sharks.org/sri-main-blog/191-the-state-of-washington-bans-sale-trade-of-shark-fins.html> (accessed 19 May 2011). The Bill passed the House of Representatives 95-1 and passed the Senate unanimously: Shark Savers, *Honduras and the Maldives Join the Ranks of Shark Sanctuaries*, (17 March 2010) <http://www.sharksavers.org/de/blogs-a-news/635-honduras-and-the-maldives-join-the-ranks-of-shark-sanctuaries.html> (accessed 19 May 2011).

¹⁰⁴ Oregon House Bill 2838 (passed unanimously), has been criticised as the law would only be enforced 'by state police game officers on a complaint basis', and spiny dogfish are excluded from the Bill: J Tepper, 'Oregon Moves to Ban Shark Fin Soup' *The Dive Photo Guide*, 26 April 2011, <http://www.divephotoguide.com/underwater-photography-scuba-ocean-news/oregon-moves-ban-shark-fin-soup/> (accessed 19 May 2011).

¹⁰⁵ California Assembly Bill 376.

¹⁰⁶ HV Eugenio, 'Shark finning ban now a CNMI law' *Saipan Tribune* 28 January 2011, <http://www.saipantribune.com/newsstory.aspx?cat=1&newsID=106535> (accessed 19 May 2011).

of non-consumptive uses of sharks and whether tourism can provide an avenue for both sustainable utilization and livelihoods.

Tourism

While the door may be closing for shark fishers, opportunities are emerging in the tourism sector. Ecotourism involves nature-based activities, learning opportunities for participants and sustainable practices.¹⁰⁷ It allows people to appreciate the ocean environment and engage with marine species. It can improve public understanding and education about the species and their conservation status including involvement in research. Shark-based ecotourism therefore offers multiple benefits including raising awareness about species towards which many people appear to feel at best apathetic and at worst fearful.

Much of the Pacific legislation referred to above makes specific reference to tourism and the relative socio-economic benefits that may be derived from it. For example, the CNMI legislation banning the catching of rays found that

“Eagle Ray City” ... is popular with tourists because it is rare to find naturally occurring gatherings on a regular basis. The congregation of Spotted Eagle Rays is easily photographed; each photo taken home with the tourist is free advertising showing the great beauty and grand scale of aquatic life in the CNMI... Eagle Ray City is popular with local residents and good for the economy in that it is accessible only by boat; divers ... need to hire local guides and secure the services of local boats and captains to reach this spot. This type

¹⁰⁷ B Garrod and JC Wilson, *Marine Ecotourism: Issues and Experiences* (Channel View Publications, Clevedon 2003).

of ecotourism is beneficial to the CNMI's economy. It ... should be nurtured, protected and grown.¹⁰⁸

Similarly, Yapese waters are recognized as 'one of the very few places in the world where the promise of a manta ray sighting is very good all year round. This is a rarity of nature, an irreplaceable haven to manta rays, and a priceless treasure for the visitors and peoples of the State of Yap.'¹⁰⁹ This legislation provides for one of the only manta ray sanctuaries in the world, where the species is fully protected in all waters.¹¹⁰

Nevertheless tourism can present its own problems in terms of impacts on species, risks to participants and the sustainable regulation of the industry itself. Several scientific research studies point to the impacts of visitors on sharks¹¹¹ and the potential dangers to participants are clear. For the safety of both, regulatory authorities impose restrictions on visitor numbers, visitor and boat distances from sharks and the use of motorised and photographic equipment.¹¹² The issue of baiting sharks, to lure them to viewing sites, has been particularly controversial both in terms of the possible impacts on species and the risks to humans. The science in this area is unclear. There is some evidence that chumming and feeding sharks has the potential to cause changes in behaviour¹¹³ and aggressiveness towards humans.¹¹⁴

¹⁰⁸ CNMI Public Law 15-124, s.1.

¹⁰⁹ Yap State Law 7-36, s.1202.

¹¹⁰ Under the law it is prohibited to harm, catch or remove a manta ray. The law also provides for the promulgation of regulations and the adoption of management plans which must be 'consistent with the rights and interests of the traditional owners': Yap State Law 7-36, s.1205-6.

¹¹¹ AL Quiros, 'Tourist compliance to a Code of Conduct and the resulting effects on whale shark (*Rhincodon typus*) behavior in Donsol, Philippines' (2007) 84 *Fisheries Research* 102–108.

¹¹² For example, in Western Australia where swimming with whale shark is well established, those in the industry require a commercial licence to operate (under the *Conservation and Land Management Act 1984*) as well as a wildlife interaction permit (under the *Wildlife Conservation Act 1950*). In addition, there are two Codes of Conduct, one regulating visitor interactions with whale sharks and the other the industry: See Department of Environment and Conservation, *Swimming with Whale Sharks*, <http://www.dec.wa.gov.au/content/view/full/423/1251/1/1/> (accessed 1 October 2011).

¹¹³ BD Bruce & RW Bradford, *The effects of berleying on the distribution and behaviour of white sharks, Carcharodon carcharias, at the Neptune Islands, South Australia* (CSIRO, Hobart 2011).

Alternatively others argue that sharks are opportunistic feeders and cannot be conditioned.¹¹⁵ For example, cage diving with sharks is well established in Hawai‘i but the two businesses operating on Oahu have not been uncontroversial. Public unease centres around the issue of baiting sharks, with concern that they will come to associate boats and people with food and will be lured closer to shore. Recent literature in relation to Hawai‘i supports a negligible impact on shark species¹¹⁶ and studies elsewhere do not indicate any increased danger to people.¹¹⁷ Nevertheless, in 2002 the Hawai‘i State Legislature passed law making it ‘unlawful for any person to conduct any activity related to the feeding of sharks in state marine waters.’¹¹⁸ Again, similar legislation has been passed in the CNMI for example, which prohibited shark feeding in 2008.¹¹⁹ In other parts of the US this issue has spurred legislation to ban the practice of feeding and it remains controversial elsewhere.¹²⁰ Such legislation is unlikely to have any long-term effects as operators need only move more than 3 nautical miles off the coast, into federal waters, where no feeding restrictions apply.¹²¹ However, it has restricted further growth in the industry. For example, when a new operator wanted to start a similar business in East Oahu, public pressure forced him out. Furthermore, community members, opposed to shark feeding, have been blamed for the recent arson

¹¹⁴ E Clua, et al, ‘Behavioural response of sicklefin lemon sharks *Negaprion acutidens* to underwater feeding for ecotourism purposes’ (2010) 414 *Marine Ecology Progress Series* 257-266; MB Orams, ‘Feeding Wildlife as a Tourism Attraction: a Review of Issues and Impacts’ (2000) 23(3) *Tourism Management* 281-293.

¹¹⁵ RK Laroche et al, ‘Effects of provisioning ecotourism activity on the behaviour of white sharks *Carcharodon carcharias*’ (2007) 338 *Marine Ecology Progress Series* 199-209.

¹¹⁶ CG Meyer, et al ‘Seasonal cycles and long-term trends in abundance and species composition of sharks associated with cage diving ecotourism activities in Hawaii’ (2009) 36 *Environmental Conservation* 104-111.

¹¹⁷ R Johnson and A Kock (2006) ‘South Africa’s White Shark cage-diving industry - is their cause for concern?’ in Nel DC & Peschak TP (eds) *Finding a balance: White shark conservation and recreational safety in the inshore waters of Cape Town, South Africa; proceedings of a specialist workshop*. WWF, South Africa 2006).

¹¹⁸ Hawai‘i Revised Statutes §188-40.6.

¹¹⁹ CNMI Public Law 15-124.

¹²⁰ Florida passed Rule 68B-5.005 prohibiting the feeding of all fish species by divers in state waters: Associated Press, *Wildlife Commission Bans Shark Feeding*, <http://www.flmnh.ufl.edu/fish/sharks/innews/Largo1.html> (accessed 19 August 2011).

¹²¹ In a recent case against tour boat operators charged with feeding sharks, the judge dismissed the case as it could not be proven that the boats in question were in state waters: Star Advertiser, *Judge tosses shark-feeding suspects’ cases*, (21 January 2011) http://www.staradvertiser.com/news/20110121_Judge_tosses_shark-feeding_suspects_cases.html.

attacks on the tour boats.¹²² In addition, the island of Maui has prohibited shark-based tourism.¹²³

More positively, shark-based tourism has been established elsewhere including the Fiji Islands, offering multiple benefits through the closure of fisheries, establishment of a marine protected area and facilitation of alternative sustainable livelihoods for the local community.¹²⁴ The shark dive experience in Fiji does not utilize cages and involves close interaction with large predatory species, including bull sharks. The sharks are fed during the encounter yet there appears to have been no reports of injuries. This provides some further evidence that feeding does not necessarily create a risk for the participant, despite this being experienced in relation to other species.¹²⁵

These advances are all important in the quest to improve shark conservation and management. But as most of the initiatives are relatively new there is little literature reporting on their efficacy or effectiveness.¹²⁶ Shark finning laws are about to or have only just become operational. In other cases, particularly where marine protected areas have been announced, legislative provisions are not yet in place. Furthermore, once enacted such laws face further hurdles in terms of implementation as well as monitoring and enforcement. Therefore, there is little doubt that challenges remain.

¹²² Star Advertiser, *Some not surprised that shark tour boat burned* (14 January 2011) http://www.staradvertiser.com/news/20110114_Some_not_surprised_that_shark_tour_boat_burned.html (accessed 19 May 2011); Star Advertiser, *Fires Decried* (28 March 2011) http://www.staradvertiser.com/news/hawaiinews/20110328_Fires_decried.html (accessed 19 May 2011).

¹²³ The Maui News, *Council backs shark tours ban, kuleana lands bills* (5 September 2009) (accessed 19 May 2011). <http://www.mauinews.com/page/content.detail/id/523240.html?nav=10> (accessed 19 May 2011).

¹²⁴ JM Brunnschweiler, 'The Shark Reef Marine Reserve: a marine tourism project in Fiji involving local communities' (2010) 18(1) *Journal of Sustainable Tourism* 29–42.

¹²⁵ MB Orams, 'Feeding Wildlife as a Tourism Attraction: a Review of Issues and Impacts', (2002) 23 *Tourism Management* 281–293.

¹²⁶ Although it should be noted that shark-based tourism in Australia is over twenty years old.

Challenges and Conflicts

Perhaps the area with greatest potential to cause conflict is that of fisheries. This field is heavily influenced by international relations and politics, with some of the strongest and most vocal nations fighting against international measures to protect and conserve sharks. This was seen at the CITES meeting in Dohar. While the US, EU and Palau pushed for further listings, this was resisted by Japan China, Russia and their allies.¹²⁷ On a more positive note, at the most recent CMS meeting in November 2011, states agreed to list the giant manta ray on Appendices I and II.¹²⁸ While some RFMOs have acknowledged the need to address the increasing shark finning and bycatch problem, they have been slow to implement specific or precise measures. Where CMMs have been developed compliance and enforcement remain a significant issue, particularly in areas beyond national jurisdiction. Implementation of the RPOA remains outstanding and therefore national unilateral action, particularly in relation to finning, will be a testing ground for further regional initiatives. If sharks were required to be landed with fins naturally attached then enforcement would largely fall to the port state. Therefore, the FAO's work on Port State Measures will be relevant to implementation of the IPOA-Sharks and the Pacific RPOA in particular.

While national legislation outlawing finning has been adopted in a number of countries, it remains controversial. Although, the Hawaiian legislation did not attract much attention when it was passed in 2010, comments made at a recent Western Pacific Regional Fishery

¹²⁷ Japan Today, *Shark conservation proposal defeated at U.N. meeting* (23 March 2010) <http://www.japantoday.com/category/world/view/shark-conservation-proposal-defeated-at-un-meeting> (accessed 22 May 2011).

¹²⁸ CMS, *10th Meeting of the Conference of the Parties to CMS*, http://www.cms.int/bodies/COP/cop10/documents_overview.htm (accessed 10 December 2011).

Management Council (WesPac)¹²⁹ meeting suggest flaws which threaten its operation. While the State contends that the legislation is aimed at an animal rights issue and seeks to ban a cruel and abhorrent practice, fishers insist that landing a shark whole is not feasible. It is well known that sharks have to be treated quickly or else ammonia builds up and the meat becomes inedible. Therefore, it is argued that removal of fins on board is necessary during this process. Furthermore, the fins (particularly caudal tail fins) take up considerable room if left attached to the body of sharks. Their removal allows for more efficient packing of onboard freezers. So if sharks cannot be landed unless they are whole and they cannot be marketed unless the tail is removed, the legislation essentially bans the catching of sharks. However, it is clear that fins may be partially severed from the shark trunk, allowing for efficient packing but still meeting a ‘naturally attached’ requirement. As the Hawaiian state legislation only came into force on 1 July 2011, the full effect remains to be seen and any ensuing controversy will no doubt resurface again. This will remain an important area of research because, as noted above, other US states and jurisdictions are now moving to adopt similar legislative prohibitions.

Beyond the fisheries regime the conservation laws and tourism sector are also likely to raise concerns. Monitoring and enforcement of Palau’s shark sanctuary will be a significant challenge for a country with only one patrol boat and over 200 islands and 600,000 sq km to monitor.¹³⁰ This has been recognized by the government which led it to sign an MOU with Sea Shepherd Conservation Society (Sea Shepherd). The MOU provided that Sea Shepherd will work directly with Palau’s Division of Marine Law Enforcement (DMLE) to ‘patrol and

¹²⁹ The body with the responsibility of managing fisheries in US federal waters.

¹³⁰ BBC News, *Palau pioneers ‘shark sanctuary’*, (25 September 2009) <http://news.bbc.co.uk/2/hi/8272508.stm> (accessed 19 May 2011).

safeguard' the sanctuary.¹³¹ The partnership involved Sea Shepherd providing a vessel to patrol Palau's waters, assisting DMLE officers to 'facilitate prosecution of offenders'.¹³² This led to conflict with other nations such as Japan, long acquainted with Sea Shepherd and its activities to prevent whaling. Japan objected to the MOU and separately agreed to provide a Japanese vessel, and fuel, to assist Palau police its waters.¹³³ Nevertheless Sea Shepherd has a longstanding history of working with national governments in similar circumstances. For example, since 2000 it has been engaged in protecting the waters of the Galapagos Marine Reserve and assisting Ecuador to prevent illegal shark finning.¹³⁴ But these previous arrangements have not been uncontroversial and there have to date been no criminal prosecutions relating to illegal fishing.¹³⁵ Other cooperative arrangements in the region have tended only to involve inter-governmental collaborations. For example, the Kiribati Shipriders Agreement provides that Kiribati Maritime and Fisheries Officers are able to travel on US Coastguard vessels, assisting in the enforcement of Kiribati Law.¹³⁶ Similar assistance has been provided by the US in other Pacific islands and by New Zealand in Kiribati.¹³⁷ The involvement of Sea Shepherd raises legal issues surrounding the engagement of private organizations by states to police national laws and practical issues of politico-legal influences.

¹³¹ Sea Shepherd Conservation Society, *Sea Shepherd Partners with the Republic of Palau to Control Poaching*, (31 March 2011) <http://www.seashepherd.org/news-and-media/news-110331-1.html> (accessed 19 May 2011).

¹³² Ibid.

¹³³ Radio Australia News, *Japan says no to shark shepherds in Palau* (15 April 2011) <http://www.radioaustralianews.net.au/stories/201104/3193151.htm?desktop> (accessed 14 May 2011).

¹³⁴ Sea Shepherd Conservation Society, *Defending Sharks*, <http://www.seashepherd.org/galapagos/defending-sharks.html> (19 May 2011).

¹³⁵ Sea Shepherd Conservation Society, *Criminal Environmental Law as a Conservation Tool in Galapagos* <http://www.seashepherd.org/galapagos/environmental-law.html> (19 May 2011).

¹³⁶ Phoenix Islands Protected Area Kiribati, *Draft Management Plan 2010-2014*, 44.

¹³⁷ Kiribati: The Forum Principles http://www.forumsec.org.fj/resources/uploads/attachments/documents/PIFS_Good_Leadership_Report_Kiribati.pdf (19 May 2011).

Somewhat surprisingly, the shark-based tourism operations have also drawn negative attention as noted above. In Hawai'i, where more than 25% of revenue comes from tourism, the opposition is astonishing, perhaps more so as this state has led the world in tough legislation to outlaw shark finning practices. Tourism would appear to be a viable alternative involving relatively little risk to sharks or humans (at least where cages are involved) and economic incentives and sustainable livelihoods. Yet negative publicity persists in the community including amongst the local environmental NGOs. This is contrary to many other parts of the world where there is widespread support for tourism. Perhaps this reflects the fact that there is no strong fishery in Hawai'i and so in circumstances where finning is banned, there is no targeted fishery, the next area of focus is the tourism industry itself. But this belies the fact that tourism can have significant positive outcomes.

The above analysis indicates the complexity of competing interests and stakeholders in the shark conservation and management debate. As well as economic drivers there are clearly strong socio-cultural and political influences. Again the Hawaiian example, is telling. To what extent this is driven by local politics or culture is unclear, nevertheless the attitudes are hard to reconcile. This experience provides a powerful lesson to other nations as it appears clear that law- and policy-makers must consider not only the political context but the cultural backdrop. Indeed cultural heritage is used by South East Asian nations to defend the use of shark fins for soup and thus justify shark finning. There are two cultural aspects which might have led to the strong contrary stance taken by Pacific nations: first the fact that in some cultures sharks have traditionally had an elevated status and in some cases been considered gods. Secondly, while customary and traditional rights have been preserved in some legislation, there has never been a strong tradition of shark harvesting in any of the countries. Such fishing appears to have been limited to subsistence purposes rather than for economic

gain.¹³⁸ Thus the moves to close fisheries in these countries have avoided any direct cultural conflict.

There is little doubt, however, that fisheries are important to the region – whether locally conducted or offshore foreign licences. Where fishing is an issue the relative value of sharks to the tourism industry must be quantified and made publicly available. In order to garner public and government support for shark conservation, the economic value of sharks dead and alive, needs to be quantified. This is precisely what has been done in relation to Palau’s shark sanctuary where a recent report has confirmed that the value of sharks to the Palauan economy is approximately \$18 million USD being approximately 8% of the GDP.¹³⁹ The value of a shark alive and utilized non-consumptively in the tourist industry was estimated to be \$1.9 million USD across its lifetime - harvested and sold it would be worth 0.00006% of this.¹⁴⁰ A similar, but earlier, study confirmed the value of whale sharks in the context of ecotourism in Western Australia.¹⁴¹

Given the rapid adoption of laws prohibiting shark fishing and finning, and in light of the declaration of the Palau Shark Sanctuary, it would appear that tourism in the region is likely to be promoted and grow significantly. Therefore, identification of best practice legal strategies for shark-based tourism needs to be prioritized. This involves investigating not only human safety issues surrounding the feeding and chumming sharks, but also the likely impact of humans on sharks.

¹³⁸ See for example the CNMI legislation where it is noted ‘that the taking of sharks for subsistence purposes is a longstanding tradition’: CNMI Public Law 17-27, section 1.

¹³⁹ GMS Vianna, et al *Wanted Dead or Alive! The relative value of reef sharks as a fishery and an ecotourism asset in Palau* (AIMS and University of Western Australia, Perth 2010) iii and 30.

¹⁴⁰ Ibid iii.

¹⁴¹ B Norman & J Caitlin, *Economic Importance of Conserving Whale Sharks*, (IFAW, Australia 2007).

Lessons Learned and the Way Forward

The trend in shark conservation and management in the Pacific has largely been led by the Micronesian nations. On the one hand this is somewhat surprising as the close proximity to South East Asia, and high economic value of fins, would be expected to create pressure to leave sharks unregulated. However, these nations may have been less influenced by consumer demand, due to the strong stance taken by the US which has close historical and political ties to the region. While, it is clear that the area is emerging as a leader in shark conservation and management, there are several consequences of this trend which deserve much greater research and attention.

First, it is clear that these legal advances will only improve the conservation status of sharks if they can be enforced. It is likely that the Pacific SIDS will continue to need assistance from developed nations in monitoring and enforcing compliance with new laws. Recent developments in Palau merit further consideration. On the one hand they may exemplify public-private partnerships for conservation, but alternatively they could create tension, conflict and far-reaching implications for political relations. Given Japan's objection to the Palau-Sea Shepherd MOU, and Palau's previous history of alignment with Japan in international issues,¹⁴² resolving any conflict will be essential if the sanctuary is to be effective in protecting sharks.

¹⁴² Palau joined Japan, Norway and Iceland in entering reservations to the CITES listings of the great white and whale sharks: CITES, *Reservations Entered by Parties*, http://www.cites.org/eng/app/reserve_index.shtml (accessed 14 May 2011). See also, BBC News, *Palau pioneers 'shark sanctuary'*, (25 September 2009) <http://news.bbc.co.uk/2/hi/8272508.stm> (accessed 19 May 2011).

Secondly, if the measures taken in the western Pacific Ocean are successful it is unlikely that the shark fishers will be deterred. It is more probable that they will move on and extend their operations into the waters of the central and eastern Pacific nations. This trend is evident in other parts of the fisheries sector where, for example, increased IUU fishing for tuna has been reported in the Pacific Islands as stocks have been depleted elsewhere.¹⁴³ Only slightly further east is the Kiribati Phoenix Islands MPA which may well become the next hunting ground. Therefore, the legal strategies and approaches taken in Palau, Guam and the Marshall Islands must be explored as they may offer valuable experiences for other Pacific nations.

This leads to the third point which relates to the recent adoption of the Pacific RPOA sharks which is in the process of being implemented. In circumstances where other fishery issues such as IUU fishing are common throughout the region, a whole of Pacific islands approach appears to be both appropriate and most likely to be effective. Pooling expertise and resources (physical, legal and technical) will be essential. Therefore, regional bodies such as the SPC, FFA and SPREP must work together with individual Pacific states to operationalize new laws. The RPOA sharks may be a useful vehicle to set standards, raise awareness and build capacity across the region. From a legal perspective, a model NPOA could be developed for the Pacific SIDS, as well as a toolbox of draft regulations from which each state could pick and choose those which suit it best. This approach would seem to be most appropriate given the cultural commonalities that exist across the region – which extend beyond customs and traditions involving sharks and include customary laws and the legally pluralist nature of these states. The pioneering approaches taken by the Pacific SIDS up to now, need to be matched by innovation at a regional level.

¹⁴³ FAO *State of the World's Fisheries and Aquaculture 2008*, (FAO, Rome 2009) 83.

Conclusion

Recent action and announcements of future sanctuaries in the Pacific will effectively create a conservation corridor across a massive section of the Ocean, providing some protection for sharks at a time when scientific research is providing greater insights into their conservation status and behaviour. The Pacific has therefore taken a strong stance against shark fishing and finning and is leading an important trend. This provides an opportunity to showcase regional advances which will no doubt offer powerful experiences for the rest of the world. While international law and policy can be seen to have flowed down to the Pacific region through the recent adoption of the RPOA sharks, it remains to be seen whether these national developments can filter upwards and inform the international community. Space must be made for these experiences to be shared and lessons learned by other nations. Yet the Pacific SIDS lack resources to deal with what are likely to be significant challenges in implementing and enforcing new law. Only through continued cooperation and collaboration can the global conservation status of all sharks hope to be improved.