

RELATIONAL KNOWLEDGE AND MARINE CONSERVATION

The Case of the *Pasua Rahui*, Tongareva, Cook Islands

Charlotte Chambers

(University of Edinburgh, Edinburgh, Scotland)

Introduction

I sit in the eaves of Papa Tom's house, listening to the sound of waves lapping the edge of Tongareva lagoon.^[1] The wind is strong and I strain to pick up Tom's quavering voice as he talks about his memories of Tongareva. Our conversation turns to the subject of a recent harvest of *Pasua*, a species of giant clam (*Tridacna maxima*) much favoured throughout the Cook Islands for their good eating. According to Tom, large quantities of *Pasua* are being removed from Tongareva lagoon by local people to take to Rarotonga for forthcoming Constitution celebrations. Tom is not impressed: "I don't know why we do that. They could just take one drum or two, not ten. The people don't care eh. When we are out of *Pasua*, what about our children eh? It's not good". Tom's sentiments are echoed in comments from other islanders I speak to, and by the time of my departure, it is rumoured that the Island Council are planning to place a *rahui* (harvest restriction) on the *Pasua*.^[2]

This situation concerning *Pasua* appears, at first glance, to be a classic resource management problem; an important food species is being depleted and the local authority, the Island Council, is taking action by considering a traditional management strategy to remedy the situation at hand. However, two questions arise: what is 'local' about this problem, and about the *rahui* enacted to reverse it? What are the peculiarities of Tongareva that have led to both the development of this practice and the knowledge that supports it? In other words, how have the epistemological structures and formulations related to the particular locality of Tongareva shaped this particular social and ecological outcome?

My research seeks to understand these questions by exploring the relationships, practices and knowledge systems that are invoked in the context of these efforts to arrest the decline in *Pasua* numbers. Accordingly, I have tried to understand how circulations of knowledge shape particular social and ecological outcomes and with what consequences. In the course of my research, I aim to question the distinction between local and (Western) scientific knowledge,^[3] explore the embedded nature of

knowledge, as well as explore the embedded nature of knowledge in spatialised social relations. I also wish to identify the influence of different actors, including the non-human and their biophysical environments on such circulations of knowledge. It is hoped that indirectly this work will shed light on the role of knowledge in conservation practice and discourse, while also challenging both the dominance of scientific discourses in marine conservation, and the recognition afforded traditional or local knowledges therein.

In this paper, I specifically focus on the importance of researching knowledge systems without relying on the misleading categorisations of either traditional or scientific which is prevalent in the literature I am engaging. I contend that a relational understanding of knowledge demands a far more nuanced portrayal: one that reveals overlaps and disjunctures, historical and contemporary forces at play in how knowledge systems work, and discusses consequences for the management of different marine environments. It is important to note that the literature review in this paper is by no means comprehensive. Rather, it is intended to give a foundational overview of the issues concerning knowledge, place and conservation, from which more specific questions and critiques will be generated in the future.

Categorising Knowledge

Traditional Marine Knowledge (TMK), according to Sabetian (2002), is a term that refers to the customary knowledge of marine life within indigenous communities. TMK forms an integral part of Customary Marine Tenure (CMT) systems, and the importance of this knowledge is increasingly being recognised by fisheries managers and integrated into scientifically based fisheries management programmes. This recent emphasis on TMK and CMT serves as a backdrop to conservation oriented activities performed under the rubric of improved natural resource management in the South Pacific. Johannes (1995), for example, advocates recording and integrating local knowledge with modern scientific knowledge to generate more comprehensive understanding of local fisheries. According to Johannes (2002), the goal of such programmes is to assist indigenous peoples to more effectively manage their marine resources, and further to help encourage such people to live in 'better balance' with their natural resources.

There are numerous examples of marine conservation programmes in the South Pacific that have, and continue, to build upon indigenous knowledge and management practices (see, for example, Aswani, 1999, 2002; Aswani and Hamilton, 2004). In current fisheries management more broadly, there is increasing attention to indigenous management techniques and the value of local knowledge of marine environments (see, for example, Hunn, 1993; Adams, 1998; Salomon et al., 2001; Peuhkuri, 2002; Sabetian, 2002; Wiber et al., 2004). This emphasis is justified by connections posited between fostering indigenous knowledge and improved fisheries management (Johannes, Freeman and Hamilton, 2000), accurate fish stock assessments (Aswani and Hamilton, 2004) and preventing the overexploitation of fisheries (Ruddle, 1998).

This focus on indigenous and local knowledge is long overdue in terms of the acknowledgement of non-Western scientific ways of knowing and has done much to

improve the standing of TMK and CMT governance systems in marine conservation initiatives more generally. Nevertheless, such knowledge is frequently viewed as subordinate and indeed, often as counterpole to scientific knowledge, particularly if and when conflicts arise (Peuhkuri, 2002). Furthermore, this emphasis leaves unchallenged the power-laden act of knowledge separation into either indigenous or scientific categories, or what can be understood as the politics of conservation. Questions regarding whose knowledge are deemed authoritative in debates concern the status of the marine environment, and by whom, and at what cost must be examined.

As a consequence, many academics have written detailed critiques arguing that categorisation is ultimately misleading because it relies upon, and serves to reinforce, a dichotomy between knowledge systems. In actuality, however, the boundaries are seldom so easily demarcated. Timo Peuhkuri (2002), writing on fish farming in Finland, asserts that there is seldom a clear-cut distinction to be drawn between scientific and what he terms 'lay knowledge'. Peuhkuri draws upon his analysis of fishermen's knowledge which suggests a mixture of traditional knowledge, knowledge based on local observations and popularised science. Similarly, in the case of my research on Tongareva, it was not possible to determine any overt distinguishable distinction between indigenous and scientific knowledge, nor did it appear useful to attempt to do so. Some people on Tongareva clearly had a particularly detailed knowledge about certain species, such as *Pasua*. More broadly, their knowledge can be described as coming from an amalgamation of first-hand observation, some scientific knowledge and information passed in the form of tradition.

Perhaps most trenchant, however, is the work of Arun Agrawal (1995, 2002) who focuses his criticisms regarding the categorisation of knowledge on the creation of databases, a common strategy for those advocating for the preservation of indigenous knowledges. According to Agrawal, if indigenous knowledge derives its potency from the many ways in which it is practiced, efforts to classify such knowledge, for example, in the form of a database, work to separate that knowledge from practice, and therefore, from its power. Thus, foregrounding knowledge is done so at the expense of ignoring the social, political and biophysical context in which it is situated. Moreover, in the process of such an act, only the forms of knowledge that are deemed potentially relevant or 'useful' are documented, which further advances the view of indigenous knowledge as a "resource to be used" (Agrawal, 2002:290)

The emphasis placed on distinguishing and categorising knowledge therefore fails to attend to the processes by which knowledge is constructed and validated. In this regard, the work of Gegeo and Watson-Gegeo (2001, 2002) is significant. They assert that much existing research into indigenous knowledges only focuses on the knowledge used in everyday use and practice. They suggest that what is needed is an examination of how different indigenous peoples construct knowledge, which they differentiate as "indigenous epistemology" (Gegeo and Watson-Gegeo, 2002:381). This insight is important as it encourages attention to the role of process in shaping thought and behaviour, while also drawing attention to the embeddedness of social practice in relations of power.

Here, the work of Hugh Raffles (2002a, 2002b, 2004, 2005) is notable. He uses the concept of ‘intimate knowledge’ in order to emphasise the affective practices through which knowledge is produced and the relational nature of such intimacies. In the context of Tongareva, for example, it is through embodied practice that people form relationships with other islanders, with visitors such as me, with the biophysical environment in which they live, and with the species such as *Pasua* that they utilise for food. The trope of intimacy draws attention to the places and spaces of encounter but, unlike local knowledge, avoids reifying “the taxonomy through which knowledges are hierarchised” (Raffles, 2002b:332). Also useful in this regard is David Turnbull’s concept of ‘knowledge spaces’ (Turnbull, 1997). As with Raffles, Turnbull’s work seeks to draw attention to the power laden conditions through which knowledge is created and the spaces in which certain knowledges become possible (for an extension of Turnbull’s conception of knowledge spaces see Wright, 2005).

While Raffles recognises the importance of locality in the production of knowledge, his work makes the vital distinction between locality and location. As he states:

Locality . . . should not be confused with location. It is rather a set of relations, an ongoing politics, a density, in which places are discursively and imaginatively materialized and enacted through the practices of variously-positioned people and political economies. (Raffles, 2004:2).

Thus, while emphasising the importance of place and its role in the production of knowledge, Raffles avoids suggesting a knowledge born of ‘rooted experience’. Here, it is important to note that while scientific knowledge is often portrayed to be ostensibly ‘place-less’, critics such as Donna Haraway (1991, 1997) and Bruno Latour (1993, 2004) have revealed that despite claims to neutrality, transcendence and universal applicability, scientific knowledge is also firmly situated.

I turn now to the significance of the ‘place’ of my research: the island of Tongareva located 1365 kilometres north east of Rarotonga.

Placing Knowledge

Tongareva, also known as Penrhyn and Hararanga, is the northern-most island in the Cook Islands group, and comprises a reef rim 77 kilometres long enclosing a massive, deep lagoon. In July 2005, I managed to attain a flight to this island during a reconnaissance visit to the Cook Islands for my PhD research. I initially wanted to visit Tongareva because of its portrayal as a ‘remote island’ seldom visited by tourists. This popular conception of the Pacific islands as insulated and isolated places has been critiqued by Edvard Hviding among others. He notes that Pacific islands “have always . . . been culturally complex with everyday connections far beyond the home island” (Hviding, 2003:47). While the geographic isolation and relative independence of Tongareva does mean that residents have a high degree of institutional autonomy in their decision making processes regarding the marine environment, Tongareva is by no means a self-contained or unchanging place. The 1991 population census estimated the population of Tongareva at 391 with the majority of people resident on the island of

Omoka. Current anecdotal estimates place the number far lower, with high numbers of people leaving to work in Rarotonga or New Zealand (Mataora Marsters, personal communication July 2005). So, the extensive out-migration means that the people of Tongareva are in regular contact with other people and places. The linkages which are maintained constantly reaffirm and redefine their valuation of their location and the systems and knowledge practices in relation to what Raffles (2002b:329) terms the “innumerable elsewheres in which people participate physically, imaginatively, culturally and through the expansive networks of translocal political and cultural economy”.

These demographic shifts reflect and influence current socio-economic and ecological changes on the island. The recent increase in the harvesting of *Pasua* is but one consequence of the growing commoditisation and monetisation of marine species and the consequence of creating such links with external markets (Ruddle, 1998). The lack of job prospects for people living on Tongareva means many families depend on *Pasua* for home consumption and have recently started sending dried or frozen *Pasua* to Rarotonga as a source of extra income (Koroa Raumea, personal communication April 2006). This is in addition to the well established practice of food gifting prevalent in the Cook Islands, where *Pasua* has high symbolic value (Papa Takake, personal communication May 2006). (For further information on the culture of food in the Cook Islands see Crocombe and Crocombe, 2003.) As a consequence, traditional management systems now exist under very different circumstances to how they existed in the past, and are increasingly affected by the processes of “national modernisation” (Ruddle, 1998:108).

Tongareva, therefore, like many other islands in the South Pacific, is a place that both reflects and continues to be constituted by past events and current changes in the movement of people and the flow of ideas. Doreen Massey’s (1994) understanding of places as particular moments in intersecting spatialised social relations is useful in this regard. It is clear that while local knowledge can be particularistic, it is constantly negotiated with and by a wide range of interlocutors, which stretch beyond the place in question. These theoretical perspectives, therefore, promote the exploration of the interrelationship between locality and knowledge in a manner that attends to the importance of embodied, situated encounter; in this case the encounter between both humans and non-humans and the embeddedness of such social practices in relations of power. In the context of a relational understanding of both place and knowledge, this encourages attention to the idea of place and knowledge as simultaneously “moment, product and negotiation” (Massey, 2005:354), and the important role that the non-human has in shaping these relationships.

Political ecology researchers assert that the physical state of resources and particular environments has considerable influence on how environmental problems are conceptualised and acted upon (for example Nightingale, 2005; Walker, 2005). Due to their isolation and small, relatively infertile landmass, Tongarevans depend greatly on the sea. *Kai moana* (food from the sea) is of critical importance, particularly given the high costs and difficulties associated with importing food. Tongareva lagoon is the largest in the Cooks group and has an abundance of a wide variety of fish. This unique marine environment has resulted in the development of unusual fishing techniques.

Refereed Papers From

The 2nd International Small Island Cultures Conference,

Museum Theatre, Norfolk Island Museum, 9-13 February 2006. Edited by Henry Johnson

Fishing according to seasonal and moon based variations is common. Cultural songs and dances performed for the annual Constitution celebrations are also based on different fishing/shell fish harvesting techniques. My future research will be directed to furthering my understanding of the influence of the biophysical environment of Tongareva lagoon by gathering oral accounts of biophysical change; for example the perceived changes in *Pasua* numbers, as well as obtaining information by utilising ecological research techniques such as Catch per Unit Effort (CPUE) methodology (eg Grant and Miller, 2004). This is not meant to bring about, however, a reification of the scientific knowledge that tends to form the backbone of institutionalised ecological science; rather, it is to see the story behind the different methodologies in relation to *Pasua*.

Furthermore, in explicitly attending to the non-human and biophysical dimension, and in particular the historical trajectory of this dimension, I hope to gain a sense of how the non-human has played an active role in shaping circulations of knowledge. As Massey (2005:355) asserts, negotiations “between human and nonhuman both varies dramatically between places... and is as ‘political’ and as contestable as is that which is . . . between humans alone”. Research into conservation, therefore, should recognise agency in species and their biophysical environment. Accordingly, organisms and their environments are not simply regarded as objects, but as active subjects, capable of affecting their biophysical environments (Lewontin, cited in Harvey, 1996:472). Such an approach also recognises that the non-human and their biophysical environments have their own lives and circumstances that no amount of familiarity can contain (Raffles, 2002b).

Conclusions

This paper began by questioning the value of distinguishing between local and scientific knowledges, and suggested a relational understanding of knowledge as a more useful way of conceptualising knowledge systems. Such an approach necessitates attending to what knowledge systems exist on places such as Tongareva without referring to labels such as indigenous vs. Western, or traditional vs. scientific. A ‘relational’ approach should enable the development of nuanced descriptions of how knowledge systems work, and with what consequences for the management of different marine environments and the particular species located within them. In addition, a relational understanding of knowledge also entails a relational understanding of place. In the context of islands such as Tongareva, this relational understanding necessitates considering the ‘localness’ of particular knowledges, practices and issues. However, the relational understanding must go beyond a mere recognition of locality and instead attend to the situated, embodied context of the social production of knowledge.

Researchers must also consider the importance of the effect and the influence of the non-human elements, their biophysical environments and the role that non-humans play in how knowledge is generated and circulated in particular environments. Recognising agency in such species as *Pasua* and Tongareva lagoon is an important conceptual step for conservation theory and practice, because in part it unsettles the uneasy boundary so frequently constructed between the ‘social’ and the ‘natural’. Attempts to articulate the

different practices and knowledge systems involved in marine conservation must also recognise the fundamentally relational nature of knowledges and practices and deal symmetrically with the different actors involved.

Endnotes

[1] I have disguised the names of individuals.

[2] *Rahui* is the Tongarevan spelling of *Ra'ui*, a Cook Island Maori term to describe placing harvest restrictions on either a particular area of the lagoon or on a particular species for a set period of time (for further information on *Ra'ui* see Ama, 2003).

[3] Throughout this paper, I will use terms such as indigenous, local, lay, traditional, Western, scientific, objective and modern without the use of quotation marks. This is not to dismiss their problematic nature but rather to enable ease of reading. In some instances I have chosen to specify science as (Western) science following Harding (1986:28) who discusses the 'objective', rationally based mode of scientific enquiry based upon "culturally specific notions of the powers and existence of reason, science and language".

Bibliography

Adams, T (1998) 'The Interface Between Traditional and Modern Methods of Fishery Management in the Pacific Islands', *Ocean and Coastal Management* v40

Agrawal, A (1995) 'Dismantling the Divide Between Indigenous and Scientific Knowledge', *Development and Change* v26n3

_____ (2002) 'Indigenous Knowledge and the Politics of Classification', *International Social Science Journal* n173

Ama, A (2003) 'Maeva- Rites of Passage: The Highlights of Family Life', in Crocombe, R and Crocombe, M T (eds) *Akono'anga Maori: Cook Islands Culture*, Suva: University of the South Pacific

Aswani, S (1999) 'Common Property Models of Sea Tenure: A Case Study from the Roviana and Vonavona Lagoons, New Georgia, Solomon Islands', *Human Ecology* v27n3

_____ (2002) 'Assessing the Effects of Changing Demographic and Consumption Patterns on Sea Tenure Regimes in the Roviana Lagoon, Solomon Islands', *Ambio* v31n4

Aswani, S and Hamilton, R J (2004) 'The Value of Many Small vs. Few Large Marine Protected Areas in the Western Solomon Islands', *SPC Traditional Marine Resource Management and Knowledge Information Bulletin* v16

Crocombe, R and Crocombe, M T (eds) (2003) *Akono'anga Maori: Cook Islands Culture*, Suva: University of the South Pacific

Gegeo, D W and Watson-Gegeo, K A (2001) "'How We Know": Kwara'ae Rural Villagers Doing Indigenous Epistemology', *The Contemporary Pacific* v13n1

_____ (2002) 'Whose Knowledge? Epistemological Collisions in Solomon Islands Community Development', *The Contemporary Pacific* v14n2

Grant, K L and Miller, M L (2004) 'A Cultural Consensus Analysis of Marine Ecological Knowledge in the Solomon Islands', *SPC Traditional Marine Resource Management and Knowledge Information Bulletin* v17

Haraway, D (1991) *Simians and Cyborgs and Women: The Reinvention of Nature*, New York: Routledge

_____ (1997) *Modest_Witness@Second_Millennium. FemaleMan©_Meets_OncoMouse™*, New York: Routledge

Harding, S (1986) *The Science Question in Feminism*, Milton Keynes: Open University Press

Harvey, D (1996) *Justice, Nature and the Geography of Difference*, Oxford: Blackwell

Hunn, E (1993) 'What is Traditional Ecological Knowledge?', in Williams, N and Baines, G (eds) *Traditional Ecological Knowledge*, Canberra: Australian National University

Hviding, E (2003) 'Between Knowledges: Pacific Studies and Academic Disciplines', *The Contemporary Pacific* v15n1

Johannes, R E (1995) Paper 12: Traditional Management Options and Approaches for Reef Systems in Small Island Nations
<<http://www.FAO.org/docrep.X5623E/x5623e0v.htm>>

_____ (2002) 'Did Indigenous Conservation Ethics Exist?', *SPC Traditional Marine Resource Management and Knowledge Information Bulletin* n14

Johannes, R E, Freeman, M R and Hamilton, R J (2000) 'Ignore Fishers' Knowledge and Miss the Boat', *Fish and Fisheries* v1

Latour, B (1993) *We Have Never Been Modern*, Cambridge, MA: Harvard University Press

_____ (2004) *Politics of Nature: How to Bring the Sciences into Democracy*, London: Harvard University Press

Massey, D (1994) *Space, Place and Gender*, Minneapolis: University of Minnesota Press

_____ (2005) 'Negotiating Nonhuman/Human Place', *Antipode* v37n2

Nightingale, A J (2005) "'The Experts Taught us all we Know": Professionalisation and Knowledge in Nepalese Community Forestry', *Antipode* v37n3

Peuhkuri, T (2002) 'Knowledge and Interpretation in Environmental Conflict: Fish Farming and Eutrophication in the Archipelago Sea, SW Finland', *Landscape and Urban Planning* v61

Raffles, H (2002a) *In Amazonia: A Natural History*, Princeton, NJ: Princeton University Press

_____ (2002b) 'Intimate Knowledge', *International Social Science Journal* v173

_____ (2004) *Social Memory and the Politics of Place-Making in Northeastern Amazonia*, Center for Global, International and Regional Studies. Reprint Series. Paper CGIRS-Reprint-2004-3

_____ (2005) 'Towards A Critical Natural History', *Antipode* v37n2

Ruddle, K (1998) 'The Context of Policy Design for Existing Community-Based Fisheries Management Systems in the Pacific Islands', *Ocean and Coastal Management* v40n2/3

Sabetian, A (2002) 'The Importance of Ethnographic Knowledge to Fishery Research Design and Management in the South Pacific: A Case Study from Kolombangara Island, Solomon Islands', *SPC Traditional Marine Resource Management and Knowledge Information Bulletin* n14

Salomon, A K, Ruesink, J L, Semmens, B X and Paine, R T (2001) 'Incorporating Human and Ecological Communities in Marine Conservation: An Alternative to Zacharias and Roff', *Conservation Biology* v15n5

Turnbull, D (1997) 'Reframing Science and other Local Knowledge Traditions', *Futures* v29n6

Walker, P A (2005) 'Political Ecology: Where is the Ecology?', *Progress in Human Geography* v29n1

Wiber, M, Berkes, F, Charles, A and Kearney, J (2004) 'Participatory Research Supporting Community-Based Fishery Management', *Marine Policy* v28

Wright, S (2005) 'Knowing Scale: Intellectual Property Rights, Knowledge Spaces and the Production of the Global', *Social and Cultural Geography* v6n6