



Fixing marine governance in Fiji? The new scalar narrative of ecosystem-based management

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ABSTRACT

Although there is widespread concern over degrading marine environments, there is debate within the global marine conservation agenda about the nature of the problem and appropriate solutions. At the center of this debate lie questions about the appropriate scale at which to plan and implement marine resource management. In the late 1990s, Fiji became recognized as one of the most successful examples of community-based marine resource management in the world. Recently, there has been a move to manage human–environment interactions at larger “natural” scales. We draw from the political ecology and “politics of scale” literatures, and a critical realist understanding of nature and politics, to explain the emergence of large-scale management and conservation in Fiji. We contribute to a “political ecology of scale” by developing the concept of a scalar narrative to show how social and ecological scales are reworked in the development of an ecosystem-based approach to marine management in Fiji. In doing so, we consider implications of the struggle to define the appropriate scale of marine management, which is closely bound to debates about the role of science and local participation. Our findings suggest that the struggle to define the scale at which marine management should be planned and implemented is inseparable from the struggle over who should define, inform, and conduct the governance process. We aim to clarify marine policy debates as policy actors worldwide move forward to implement ecosystem-based management, increase marine protected area coverage, and pursue sustainable development.

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“Man is the measure of all things...” (Protagoras, c. 481–420 BC)

1. “Where man is not the measure of all things” (WWF 2010)

In the late 1990s, Fiji, along with the rest of Oceania, experienced a “renaissance of community-based marine resource management” (Johannes, 2002). This shift corresponded with a global trend toward community-based approaches to management, in a variety of guises, in the 1980s and 1990s (Western et al., 1994; Brown, 2002) under rubrics such as community conservation, collaborative management, and community-based management (Adams and Hulme, 2001). In place of top-down models, international non-governmental organizations (NGOs) and government agencies directed attention to the local or community level and helped to promote Fiji in the global imagination as an example of marine management at this scale. As of 2009, over 200

villages across the 14 provinces in Fiji had established community-based management (CBM) in some form under Fiji’s locally managed marine area (FLMMA) network (for a total area of 10,816 km²) (Govan et al., 2009b).

A decade later, international conservation NGOs are attempting to institutionalize another scale of marine management; a scale based on ecological criteria under the rubrics of spatially delineated “ecoregions.” The move to plan and manage at ecoregional scales in Fiji is part of a broader trend among conservation NGOs and donors, and backed by resource managers and scientists in response to their concerns about a global marine biodiversity crisis (Adger et al., 2001; Gray, 2010). One common explanation for marine crises more generally is the mismatch between scales at which ecological processes operate and problems emerge, and those at which they are managed (e.g., Berkes, 2006; Cash et al., 2006). The marine science and conservation community has argued that management is often at too small a scale for the processes at stake (e.g., Roberts et al., 2001). In Fiji, this movement to scale up management is reflected in government commitments to place 30% of marine areas in “ecologically representative networks of marine protected areas” by 2020 (Govan et al., 2009b, p. 11).

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Although there may be ecological arguments in support of large-scale marine management, the move to scale up planning and management to ecological scales has also been interpreted as a backlash against CBM (Wilshusen et al., 2002; Brosius and Russell, 2003) and efforts to integrate conservation and development. For many conservationists, the results of integration attempts have been poor in terms of conservation returns (e.g., Ferraro and Kiss, 2002; Kiss, 2004). As a result, a return to strictly protected areas has been promoted by some (e.g., Terborgh, 1999), though often with new kinds of incentives for would-be resource users; for example, direct payments for people to forgo resource use under terms set in “conservation contracts” is one way that old style protectionism is being repackaged (e.g., Gjertsen and Nietsen, 2010). The “back to the barriers” paradigm has also been linked to the return of a strong U.S.-led vision of conservation (Hutton et al., 2005).

While many have written in a general sense about how these scalar shifts correspond with changes in conservation ideology and policy, there is little understanding about how and why new scales of marine management are constructed, negotiated, and legitimized in particular places (Brosius, 2006). The trend to radically shift the scale at which marine nature is planned and managed for away from the “community scale” and toward the “ecoregional scale” has led us to question how a new scale of marine management is negotiated in a place with a pre-existing dominant scalar management practice, and with what consequences. In Fiji, marine management at the community scale has been on-going and even celebrated as a model. Thus, Fiji provides an illustrative case through which to examine how and why larger management scales are established in a context where the state and its partners have already institutionalized the community scale as the appropriate one for management. In this paper, we suggest that conservationists in Fiji are using a third and most recent approach to marine conservation, ecosystem-based management (EBM), to attempt to ‘fix’ the scalar tensions between ecoregional and community-based approaches by appealing to the logic, language, and practices of both. EBM is adapted differently in different countries, contexts, and professional communities. In Fiji, EBM has been driven by conservation organizations and focuses on spatial planning and management.

In this paper, we use the term marine management to describe any interventions by states, NGOs, and communities to manage marine resources to a wide variety of ends (including conservation). We use the term marine conservation to describe efforts tied to the global marine conservation agenda driven by scientists, NGOs, donors, and some states, with the goal of increased protection of marine biodiversity through expanded networks of marine protected areas, often with extensive no-take zones (see Agardy et al., 2003; Gray, 2010). In doing so, we do not mean to imply there are always clear and strict divisions between marine management and conservation, or the people and institutions promoting them (Jeanrenaud, 2002). The lines are often blurred, as we will illustrate in the case of Fiji. We make the distinction between the two mainly for the sake of clarity in writing.

Drawing from the “politics of scale” and political ecology literatures, we examine the construction of a new scalar narrative, that of EBM, as a potential successor to pre-existing community-based and ecoregional approaches and associated narratives. We argue that community, ecoregional, and ecosystem scales are not just descriptors of spatial extent and/or location, but also tools of a scalar politics invoked in negotiations over what marine management should be. We develop the concept of the “scalar narrative” to shed light on how management scales are established and contested in Fiji. Our analysis of scalar narratives as tools for the conduct of scalar politics reveals that the struggle to define the scale at which marine management should be planned and

implemented is inseparable from the struggle over who should define, inform, and conduct the governance process. We show that debates over marine management approaches in Fiji are not expressed in terms of pro-people versus pro-nature, a general dichotomy noted in the literature (Redford et al., 2006), but rather in terms of preferences over the appropriate scale at which to plan and implement management.

2. Methods

This study is part of a larger research project that is examining how EBM transitions from theory to practice, in Fiji as well as five other sites in different parts of the world. Data for this paper were collected by Sievanen and Gruby through semi-structured interviews with key informants, and direct observation of planning meetings during one month of fieldwork in Fiji in February 2010, and through additional document analysis. Each component was intended to elicit an understanding of how key actors associated with three high-profile initiatives – the community-based FLMMA initiative, the ecoregional initiative, and the EBM initiative – and formulated positions regarding these approaches. We conducted 25 interviews, ranging from 45 min to 2 h and sometimes spanning several meetings, with scientists and practitioners. A total of 3 academic affiliates, 5 government (fisheries, forestry, and environment) employees, and 17 NGO (conservation and development) employees were interviewed.

We complemented these interviews with direct observations of five meetings related to the implementation of marine management in Fiji. Observation provided the opportunity to view how alternative scalar narratives interacted during negotiations over practice. We also obtained documents related to environmental planning policy in Fiji during the 1990s and 2000s. Key sources were donor documents, reports, and other materials produced by project implementers. The purpose of this research component was to develop a contextual understanding of contemporary debates pertaining to scale in marine management.

3. Political ecology of scale

A “political ecology of scale” has not yet been well theorized (though see Neumann, 2009). However, political ecology work on scale has engaged with debates in human geography on the ontological existence of scale (see Marston, 2000 for an overview of the scale debates), to argue that scale is co-produced by social and biophysical processes (Sneddon, 2003; Swyngedouw and Heynen, 2003; Brown and Purcell, 2005; McCarthy, 2005). Thus, while human geographers treat scale as a sociopolitical construct that must be “understood in the context of the processes and power relations that create it” (Silver, 2008, p. 925), political ecology scholarship calls for a “symmetrical approach” (Sneddon, 2003, p. 2245) that takes seriously the role of social and biophysical forces in the “socioecological process” through which scales are constituted (Swyngedouw and Heynen, 2003).

More recently, Campbell and Godfrey (2010) and Campbell (2007) have problematized our understanding of ecological scale and shown how scales defined using natural criteria can be constructed in support of scalar politics (Campbell and Godfrey, 2010). Building on Campbell and Godfrey (2010), we undertake a political ecology approach to scale that recognizes that the identification and depiction of human and non-human activities is an inherently political process (Forsyth, 2003). In so doing, we direct attention to the “scalar practices of social actors” (Moore, 2008, p. 212) in the sociopolitical process of rescaling, i.e., the politics around competing representations of the scale of human and nonhuman activities and their interactions. Associated with the idea of rescaling is that of a “scalar fix” (Smith, 1995; Brenner,

1998), which McCann (2003, p. 162) describes as having two meanings: (1) fix in terms of relative permanence rather than change and (2) fix in terms of solutions. The literature on scale draws attention “to the ways in which particular scalar fixes and configurations are discursively and materially constructed in order to strengthen the power and control of some while disempowering others” (Swyngedouw, 2000, p. 71; see also Bulkeley, 2005).

As we explain, the scales invoked in marine management debates in Fiji are not one-dimensional. They are complex, with social, political, and biophysical dimensions, and they are expressed as community, ecoregional, and ecosystem scales. Part of our project of a political ecology of scale thus involves focusing on discursive strategies within scalar politics (e.g., Sneddon, 2003; González, 2006) by analyzing the scalar narratives that are constructed and drawn upon by actors in natural resource management and conservation communities in Fiji in support of particular environmental management approaches. While narratives have been broached in the “politics of scale” literature (e.g., Swyngedouw, 1997; McCann, 2003), scalar narratives have only been assigned explicit attention in one study of urban economic policy (González, 2006). We draw from Roe (1991), Swyngedouw (1997), and González (2006), to define a scalar narrative as a story about the relationships among processes, scale, and outcomes. Scalar narratives associate places, spaces, and processes at particular social, institutional, and geographical scales to explain events, attract attention and funding, and in the process, shift social relations by enrolling and excluding different forms of knowledge, spaces, and groups of people.

The following section describes the logic, practices, and politics underlying the scalar narratives supporting community, ecoregional, and ecosystem-based approaches as their proponents negotiate changes in the formulation and implementation of new management planning scales and implementation policies in Fiji. While we characterize the three approaches as community-based, ecoregional, and ecosystem-based, it is important to note that these approaches do not correspond to distinct homogeneous groups or organizations. They coexist within organizations and sometimes within a single individual; and they coexist sometimes well and sometimes uneasily in Fiji within the FLMMA network. They are even funded in part by the same donor (the David and Lucile Packard Foundation). One practitioner explained, “FLMMA is a big house, but it holds lots of families.” In other words, within a single institution multiple narratives co-exist (Campbell, 2002; Jeanrenaud, 2002). Even though these three approaches are not associated with distinct groups, in general ecoregional and ecosystem-based approaches are being promoted by international conservation NGOs who are also current FLMMA members. However, within the now broadened FLMMA network, there is also a subset of people who previously worked to institutionalize the community-based approach, focused on marine management and community development, as the official FLMMA model. Both of these groups are composed of a mixture of foreign and national actors. National fisheries officers are largely absent from the debates discussed in this paper.

4. Marine management background in Fiji

Fiji is an archipelago comprising 332 islands, of which slightly over 100 are inhabited. The population is approximately 944,720 (CIA, 2010), distributed over a total land area of 18,333 km², and mostly dwelling on or near the coast (Lane, 2008). Along this coast exists a well-established system of legally recognized customary fishing rights areas (iqoliqoli). Altogether, Fiji has 410 iqoliqoli, which the Fijian national government mapped and bound by survey lines in a process completed in 1994 (Veitayaki, 1998). Although clans and tribes own customary fishing rights in their iqoliqoli, the state owns the waters and marine resources between

the high watermark and the Exclusive Economic Zone (Calamia, 2003). The Fijian government is geographically and administratively centralized and plays a very limited role in managing inshore reef fisheries (Teh et al., 2009). NGOs and other non-state organizations play a large role in inshore marine management in Fiji, both in collaboration with government agencies and alone (Evans, 2006; Lane, 2006), and for this reason they are our focus of analysis. Due to the dominance of conservation NGOs in particular, management in Fiji is particularly open to the influence of the global conservation agenda.

Customary marine tenure, as formalized in Fiji through the iqoliqoli, is the norm in most of Oceania (Ruddle et al., 1992; Johannes, 2002; Govan et al., 2009a; Govan, 2009). Some of the most common management techniques employed under customary arrangements include restrictions on gear, effort, the number of fishes harvested, and the types of species that can be harvested, as well as spatial and temporal access (Cinner and Aswani, 2007). The latter, known as tabus, are perhaps most common in Fiji and generally include restrictions on specific marine resources or specific technologies in certain areas for specific periods (Govan et al., 2009a). Traditionally, tabus were established based on cultural criteria, for example, after the death of a chief. This gesture of respect served to stockpile easily harvestable fish for the community and their visitors for a feast at the end of the mourning period (Govan et al., 2009a).

Despite customary tenure and management arrangements, reef fish catches in Fiji are believed to have decreased, and at least 70 of the 410 iqoliqoli are considered over-exploited (Hand et al., 2005). Reef fisheries are critical subsistence resources, accounting for 50% of Fiji's fishery production (Gillett and Lightfoot, 2002). The percentage of catch sold is increasing (IAS, 2009), providing cash incomes for villagers. Recent estimates suggest that, together, subsistence and artisanal fisheries make up 60% to 85% of the catch in Fiji (Teh et al., 2009). In response to perceived declines in biodiversity and coastal fisheries there has been a movement, mainly by NGOs and donors but also sometimes initiated by villages (Teh et al., 2009), to increase the amount of marine area under some form of protection.

Marine protected areas (MPAs) are increasingly promoted by the global marine conservation community, to achieve both biodiversity conservation and livelihoods goals (Gray, 2010). Although some argue that most benefits arise through strictly protected “no-take” MPAs (Lubchenco et al., 2003), there are debates about whether only no-take MPAs can confer conservation benefits and many argue that sustainable use is a more just option for conservation (Agardy et al., 2003). This debate is important in Fiji because traditional management techniques do not produce permanent no-take areas, but rather tabu areas that are intended to be harvested periodically depending on the needs of the community. Although the words MPAs and tabus are often used interchangeably by NGOs, Govan et al. (2009a, p. 32) elaborate on the differences between local and global understandings of managed areas and we use these definitions in the paper:

MPAs tend to be of permanent duration, established for either biodiversity conservation or multiple objectives; technical design considerations; their analogy being an ‘investment generating bank account’. Tabus tend to be periodically opened, small in size, established for either resource management or food security, locally enforced, and established using social and cultural criteria.

Govan et al. (2009a) write that one of the biggest challenges in the Pacific Islands will be reconciling indigenous understanding and definitions of conservation with those adopted by interna-

tional conservation institutions and actors, specifically whether the definition of conservation to be applied includes sustainable use. If MPAs must be permanent and no-take to work, then they will likely conflict with traditional management practices (i.e., tabus) that rely on a mix of temporary harvest rules. It is in this context of traditional resource rights and management practices and concerns for the status of Fiji's reefs and reef fisheries that we turn to community scale and ecoregional scale narratives in Fiji.

5. The community scale in contemporary marine management: communities defining problems and solutions in Fiji's locally managed marine area network

The narrative underlying the FLMMA approach echoes that of CBM (Adams and Hulme, 2001; Campbell, 2002). While a full review of the emergence of this narrative is beyond the scope of this paper, we provide some brief context for its emergence, and then demonstrate how this narrative is articulated within the contemporary FLMMA network.

Before the 1900s, widespread customary tenure and traditional resource management practices existed in Fiji. However, by the time that Fiji gained independence in 1970, conservation strategies were largely dominated by “fortress conservation,” in which humans are considered to be separate from nature (Adams and Hulme, 2001). In 1978, Johannes was one of the first to connect the demise of customary tenure institutions in Oceania to marine resource degradation and fisheries crises. Johannes (1978) attributed the decline in customary tenure institutions to Westernization – primarily colonial practices of centralized fisheries institutions, cash economies, new technologies, and export markets. Throughout the 1980s, scientists argued for the usefulness of indigenous systems in addressing contemporary fisheries management problems (Ruddle and Johannes, 1985; Hviding, 1992). By the 1990s, the fortress conservation approach had been challenged and a community-based management approach became dominant in Fiji. This timing corresponded with a global shift away from centralized natural resource management models and toward narratives that stressed the need to include local people in management processes (Western et al., 1994; Christie and White, 1997; Adams and Hulme, 2001).

In 2000, the World Resources Institute, Packard Foundation, MacArthur Foundation, and Foundations of Success facilitated a regional gathering of small-scale South Pacific-based marine projects to create a “learning network” of NGOs and government organizations and facilitate co-management of locally managed marine areas (LMMAs) (Parks and Salafsky, 2001). An LMA is defined as “an area of nearshore waters being actively managed by local communities or resource-owning groups, or being collaboratively managed by resident communities with local government and/or partner organizations and/or collaborative government representatives who reside or are based in the immediate area” (Govan et al., 2008, p. 2). Within an LMA, there may be a number of management strategies, such as permanent or temporary closures, gear restrictions, catch size limits, or seasonal bans.

The LMA process relies on community-based adaptive management (Govan et al., 2009a,b). The philosophy of the LMA is management by communities for communities, according to their goals. The approach used in LMA sites substantially involves communities and/or local governments in all aspects of decision-making and implementation, including site selection. In a survey of 170 LMA sites, 44% of site managers stated that the primary goal was fisheries management, 14% conservation, and 42% both fisheries management and conservation (Govan et al., 2009b). Fiji-LMMA (FLMMA) interviewees stressed the importance

of the sustainable use aspect of LMMAs as well as local ownership. One interviewee explained, “It's communities managing their own resources for themselves, using their own tools, using their own traditional knowledge with very little outside assistance.” Although community-based approaches are sometimes described as an alternative to government control, LMMAs do not replace government control with community control, but often rather facilitate collaborative management between the government and the community (Govan et al., 2008; Govan, 2009).

Govan (2009, p. 19) explains that social and institutional factors, not ecological, have guided the site selection of LMMAs and argues that allowing local priorities to guide site selection for community conservation has been key in the rapid spread of LMMAs. Accordingly, local knowledge leads the LMA process. If scientific knowledge is included, it enters later. One FLMA partner explained, “It's always the community making the decisions... If we think scientific principles may not be optimal, we will suggest that to them... But it's their ownership and we feel that's probably as important, if not more important, than being ecologically correct – if anyone is omniscient enough to know what that might be.”

Central to the LMA's community-based approach is the idea that the scale of governance should be based on social organization in accordance with marine tenure regimes, i.e., the community scale. Institutional fit and institutionalization are key sources of power for the approach. The geographical boundaries of the LMA correspond with the institutional boundaries of marine tenure that communities and government alike have formally sanctioned through mapped and legally recognized *iqoliqoli*. Another source of FLMA's power is state backing. Those demonstrating the FLMA approach presented evidence of its success to government policy makers in 2001 and shortly afterwards the national government formally adopted the LMA approach and has designated a division of the Fisheries Department to promote inshore management and to work with FLMA (Veitayaki et al., 2003; Techera, 2010). FLMA has also been recognized regionally and internationally with awards such as the Equator Initiative from the United Nations Development Programme and the Whitley Fund for Nature. Finally, FLMA also serves a gatekeeper role for organizations engaging in marine conservation in Fiji. Most, if not all, organizations doing marine management in Fiji are FLMA members and have committed to contribute to learning processes and follow the LMA approach using community-based adaptive management in a learning network approach (Govan et al., 2008).

To sum, the narrative underlying the FLMA approach is distinctly scalar, linking process and outcome to scale. The problem is defined as the introduction of Western-style approaches to management, which led to the demise of community-led management at the local scale. This was linked to a decline in local management practices and associated decline of fisheries and threats to food security. The solution was to reinvigorate traditional institutions by empowering local communities to manage their own marine resources. This is consistent with customary marine tenure and national Fijian law allowing for rights-holding units to regulate control over inshore marine resources. Local knowledge is critical to selection, establishment, and management of sites. This is not to suggest that FLMA proponents think that management should ultimately be implemented at a small spatial scale. Their approach is to initiate sustainable use at community scales and work up to larger spatial scales through networks of community scale projects. As one FLMA leader explained “we are trying to go from a collection of local systems to a connected system.” However, this connected system would begin with a successful small-scale initiative and address concerns identified by communities themselves.

6. Constructing the ecoregional scale in Fiji: scientists defining the Fiji Islands Marine Ecoregion

As with the community-based approach, ecoregional conservation is concerned with the scale at which management is conducted. Unlike community-based management, the focus is on the conservation of species, habitats, and ecological processes within a geographical space defined by natural characteristics. Like other conservation narratives that have emerged in the last decade (e.g., transboundary protected areas, see Brosius and Russell, 2003), ecoregional conservation is associated with the ‘scaling up’ of conservation interventions.

Following an international trend to define marine management boundaries based on ecological criteria (e.g., Olson and Dinerstein, 1998; Spalding et al., 2007), the World Wide Fund for Nature (WWF) developed the concept of the “ecoregion” to map and prioritize conservation sites around the world. WWF has defined ecoregional conservation as “a process that supports conservation planning and action at an ecological region-wide scale.” The overarching goal is to “conserve and restore the fullest possible range of biodiversity over large spatial and temporal scales” (WWF, 2004, p. 7). The NGO and its partners have divided global marine space into 42 ecoregions as part of a project known as the Global 200 (Spalding et al., 2007). This process defined the “Fiji Islands Marine Ecoregion” (FIME), an area covering approximately 1.3 million km², as one of these spaces.

While a WWF document describing the development of the ecoregional approach in Fiji claims that the FIME is a “natural and human mosaic” (WWF, 2004, p. 2), the ecoregion was selected on the basis of its natural features. Criteria for selection included its ecological uniqueness, endemism, and high levels of biodiversity (WWF, 2004). In 2003, WWF-Fiji began to implement their ecoregional approach by convening a “biodiversity vision workshop” of 80 representatives and experts that further divided the FIME into 35 priority conservation areas (Grieve and Short, 2007; Tabunakawai and Areki, n.d.). Of these priority conservation areas identified, five were deemed globally important (Grieve and Short, 2007).

In contrast to the community-based approach, natural scientific knowledge leads the ecoregional process, and ecoregions are delineated by natural scientists; it is “a methodology designed to bring a larger-scale, multi-stakeholder and science-based approach to conservation” (Grieve and Short, 2007, p. 3). Olson and Dinerstein (1998) state that in the implementation process, “non-biological” factors also need to be considered. In Fiji, Tabunakawai and Areki (n.d., p. 3) clarify that first a biological assessment is done to choose areas of biological significance within the ecoregion and is afterwards integrated with a parallel socio-economic assessment. Non-scientists simultaneously enter these processes as “stakeholders” and beneficiaries of the science-led process.

In Fiji, ecoregional conservation is described as a process that will focus on biodiversity and ensure both conservation and sustainable development in Fiji’s marine areas (WWF, 2004, p. 2) through the establishment of networks of marine protected areas (Grieve and Short, 2007, p. 4). Unlike the community-based approach, this biodiversity vision begins with a large-scale plan. Biodiversity in the marine environment is seen as in need of protection for both intrinsic value as well the role it plays in sustaining local livelihoods (WWF, 2004, p. 6). WWF (2004) cites mutual threats to these livelihoods and environments such as climate change, cyclones, and tidal waves as well as rapid population growth, fishing pressure, and lack of knowledge available to address these problems. With the problems defined this broadly, the solution becomes planning for conservation objectives over a large, biologically defined area.

In Fiji, the scalar narrative underlying the ecoregional approach is one of large-scale marine crisis. The governance problem is that community scales are too small to conserve biodiversity and so interventions must be planned at the scale at which ecosystems operate. The solution implied becomes planning for conservation through the geographic unit of the ecoregion via a science-led process. As a healthy marine environment is seen as essential for sustaining the culture and livelihoods of human communities, this approach is depicted as benefiting everyone.

To sum, the narratives supporting community-based and ecoregional approaches are both inherently scalar. However, the former prioritizes relatively small ‘human’ scales, community-based approaches, and locally defined management objectives. The latter emphasizes relatively large ‘natural’ scales, science-based approaches, and conservation objectives. In the next section, we illustrate how ecosystem-based management partners attempt to reconcile these two seemingly conflicting scalar approaches.

7. EBM as a scalar fix? Blending community-based and ecoregional narratives and practices

A third approach – ecosystem-based management or EBM – is attempting to make large-scale marine management more palatable in Fiji, where a community-based approach is dominant. Before describing how EBM is playing out in Fiji, we provide some background on the concept to demonstrate that its lack of a single scalar association lends the approach a scalar malleability that allows for adaptation.

EBM is fast becoming a popular management approach in developed countries (Ruckelshaus et al., 2008; McLeod and Leslie, 2009) and experiments with this approach are underway in developing countries (Christie et al., 2009; Tallis et al., 2010; Sievanen et al., 2012). EBM is an umbrella term for an approach that many governments, organizations and communities are grappling with in its many forms, from fisheries-centric (e.g., ecosystem-based fisheries management) to marine ecosystem-centric approaches (Christie et al., 2007; McLeod and Leslie, 2009). Over 200 scientists and policy makers signed a consensus statement in 2005 that defined EBM for the oceans as “an integrated approach to management that considers the entire ecosystem, including humans. The goal... is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need” (McLeod et al., 2005, p. 1). However, despite frequent appeals for the world’s biodiversity to be conserved at an ecosystem scale (e.g., Myers et al., 2000), people define this scale in different ways (Yaffee, 1999; Christie et al., 2007). McLeod and Leslie (2009, p. 14) note that EBM can occur at any scale and they stress that any system must be analyzed simultaneously at different scales. Rather than stressing any particular management scale, the focus of EBM is on managing across spatial and temporal scales.

How then does EBM as it has taken shape in Fiji differ from WWF’s ecoregions and ecoregional planning? Grieve and Short (2007) describe that the concepts of ecoregion and EBM arose around the same time, but suggest they are distinct. The ecoregion provides the spatial focus, while EBM mandates that everyone in the region share in developing and achieving goals and objectives (Grieve and Short, 2007, p. 7). In other words, the ecoregional planning approach identifies where conservation should happen (planning) while EBM addresses how it should happen (implementation).

In Fiji, the EBM approach is led by three international NGOs: WWF, the Wildlife Conservation Society, and Wetlands International. The goals of EBM in Fiji are to produce scientific knowledge that can be applied to develop managed area networks within a nested national institutional framework and to manage species

and preserve habitat quality to maintain “ecosystem services” (Clarke and Jupiter, 2010a), defined as the benefits provided to people by nature (Daily et al., 2009). In Fiji, food fish is key among these benefits (Clarke and Jupiter, 2010a). The combination of a marine and terrestrial managed area network that considers runoff from land, and in a nested framework, is expected to result in both fisheries benefits for local marine-resource dependent populations as well as biodiversity conservation.

The first phase of EBM began in 2003 with a vision to establish an ecologically functional marine and terrestrial managed area network at the ecoregional scale – that is, as a means to implement ecoregional conservation planning. Project leadership changed during the second phase of EBM. In the second phase, partly because of the earlier failure to build from existing community management and the linked impracticality of implementing large scale projects in Fiji, a new group of people significantly reimagined EBM to better articulate with FLMMA and its community scale narrative. In practice, this has meant that the current iteration of the EBM project retained the ecoregional scale for planning purposes but implementation has taken place on the scale of the *iqoliqoli*. The project has implemented marine and terrestrial managed area networks in two community *iqoliqolis* and associated upland areas, Kubulau and Macuata, considered to be ecologically representative of this larger scale (Fig. 1).

While EBM is primarily spatial in Fiji, it does include other elements, such as generating science to inform and establish marine and terrestrial managed area networks, forming new institutions like management committees to promote and support resource management activities, and a lobbying effort to create national legislation and policy within which to nest new local institutions. However, there have been no direct management interventions outside of defined spatial areas. EBM is integrated in the sense that it is undertaking a ‘ridge-to-reef’ approach to marine management; while it is marine-focused, it includes understanding and managing marine, freshwater, and terrestrial systems, implementing forest protected areas to address land-based runoff, promoting communication between upland and lowland communities, and integrating social and natural science. In comparison, CBM mainly focuses on local marine management at the *iqoliqoli* scale, so is potentially vulnerable to negative externalities emanating from areas outside of community control. Below, we explore more fully how the current iteration of EBM endeavors to make large-scale conservation palatable in Fiji by blending

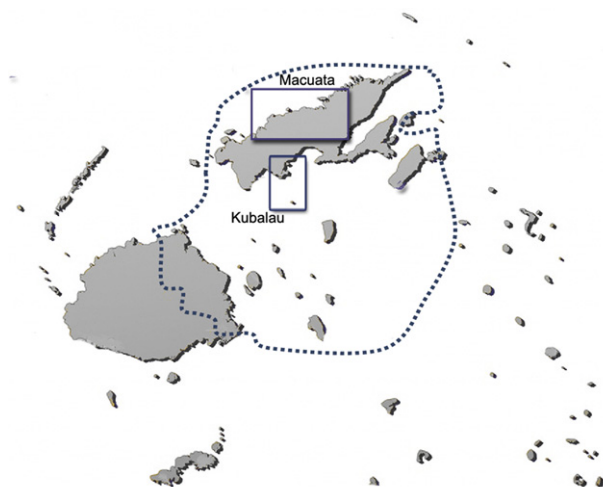


Fig. 1. The original scale of intervention for the ecosystem-based management project in Fiji is depicted by the dashed line (personal communication). The boxes depict EBM implementation sites.

elements of both ecoregional and community scale narratives and distinguishing between planning and implementation practices.

7.1. Planning through the ecoregional scale

The original “ecosystem scale” in EBM in Fiji was the ecoregion and three of the FIME’s five globally significant areas identified in the biodiversity workshop were represented in the original EBM planning scale. However, attempts to rescale governance can be hampered by traditional structures of power (Swyngedouw and Heynen, 2003; see also Bulkeley, 2005 and McCann, 2003). As we explain later, the Fiji case provides further evidence for this as EBM partners realized that actually managing at the ecoregional scale was not only practically but also culturally and politically impractical in the context of a dominant community scale, backed by the Fijian government, NGOs, and some communities through FLMMA.

Since the biodiversity workshop, the ecoregion has become a planning tool. It is a spatial scale to strive for in the future, guiding prioritized actions step by step. One respondent explained:

There was initially a sort of grand vision for implementing EBM all across the Vitu-i-Ra passage – working with communities on both sides of the passage and setting up MPAs all throughout. I think that’s a great idea and it’s something we would like to work toward in the next 10 years...

Some justify EBM and its adoption of the ecoregional scale in Fiji by arguing that the community scale is too small to adequately address threats facing marine resources and associated communities. For example, some interviewees suggested that the community-based approach was “pigeon-holed by its own nature to marine systems [as opposed to marine and terrestrial systems]” or pointed out scalar mismatches between small, near-shore management and larger-scale processes such as land-based run-off and climate change. The logic was that EBM’s ridge-to-reef approach would lead to healthier marine systems that would be more resilient to climate change impacts (Clarke and Jupiter, 2010b). Some pointed to community-based management’s success up to this point but worried that it would not be able to handle future threats; “traditional management isn’t going to work over time... We should be promoting new management regimes to meet the threats.”

Despite perceived shortcomings of community-based approaches, no interviewees said that EBM should replace them. Most EBM promoters argued that it would strengthen the community-based approach by situating it within an ecosystem-scale in an integrated science-based approach.

One respondent articulated the logic for conservation at larger scales in the following way:

Given that there’s a high rate of environmental change and that the government has looked more at economic development than environmental conservation, we need to think beyond the scale of local management – and ask, ‘what are the ecosystem processes that provide ecosystem services?’

But what does scaling up mean? One respondent clarified that scaling up means planning, not implementation:

Scaling up for us is about planning. Scaling up, for me, is not scaling up the number of protected areas you’ve set up. Scaling up is facilitating the planning for setting up these MPAs.

Another respondent clarified:

FLMMA was looking at it from the bottom-up... I think there was a need for a top-down approach as well... so we are

complementing what the LMMA was already doing, but taking it a step bigger.

7.2. Implementation through the community scale

The ecoregional planning scale is much larger than the scale of EBM implementation, i.e., 81 km² in Kubalau and 175 km² in Macuata. In demonstrating EBM at these two sites, WWF and WCS describe their implementation approach as community-based. For example, the goal of EBM in Kubalau is “preservation of the functional integrity of Kubalau’s ecosystems, from the ridge to reef, through community-based management” (Clarke and Jupiter, 2010a, p. 46). Like FLMMAs, in the EBM projects, the community scale refers to the iqoliquoli. However, the iqoliquolis selected to demonstrate the EBM approach are larger than many iqoliquolis in Fiji and it is not a single community that uses them. Fishing rights are shared by 10 villages in the Kubulau iqoliquoli and by 37 in Macuata, where four iqoliquolis have been combined and managed jointly since 1966 (Fong, 1994). These sites allowed EBM implementers to build on pre-existing and formalized community-based governance, but where community itself was already somewhat ‘scaled-up’.

In part, the community scale was selected as an implementation scale because the ecoregion was too large to be practical in Fiji. One respondent said:

The original plan was just way too ambitious. It was planning at a large spatial scale. Then, finally realizing that we can only work at a [community] scale, the project was scaled down to managing reefs.

Additional reasons for the selection of the community scale for implementation in Fiji include the dominance of the pre-existing community-based approach and the power of its proponents. Clarke and Jupiter (2010a, p. 73) acknowledge that “community-based management is the most widely accepted approach to natural resource management and biodiversity conservation in Fiji” and, arguably, there is value in taking advantage of existing momentum and pre-empting backlash by adapting EBM accordingly. Also, WCS and WWF and the communities with whom they work are members of FLMMAs, and have committed to contribute to learning processes and follow the LMMA approach using community-based adaptive management and that communities are involved in a learning network (Govan et al., 2008).

Upon recommendations from EBM partners, as of 2010, communities in Kubulau had declared three large ‘no-take’ marine protected areas, 17 tabus, and one forest conservation lease. In Macuata, communities agreed to expand their network to include a total of 25 coastal and marine protected areas and two terrestrial forest protected areas (Clarke and Jupiter, 2010b), at least 9 of which were pre-existing tabus. In other words, there are a mix of no-take protected areas and other spatially delineated management strategies (again, some tabus are temporarily closed to fishing and others only include gear restrictions) in the EBM network design. As we mentioned earlier, in addition to these managed area networks, other new institutional and organizational arrangements include the establishment of resource management committees (previous committees focused on fisheries) to promote integrated management and new management plans. These committees are made up of village representatives and make decisions about the iqoliquoli; village chiefs decide gear restrictions and when to lift temporary closures in village tabu areas (Clarke and Jupiter, 2010b).

7.3. The fix?

Has EBM fixed the tensions between ecoregional and community scalar narratives in Fiji? EBM can be considered a partial fix in

a few different senses. By distinguishing between planning at the ecoregional scale and implementing at the community scale, EBM fixes some of the tensions between large-scale and small-scale marine management. It allows for the ecoregional scale to exist as a goal to strive toward in the future, without altogether undermining the community scale in the present. However, EBM has also had to fix itself in order to exist in Fiji. It was originally envisioned at one scale – the ecoregion – and through a process of negotiation with the pre-existing and powerful FLMMAs network, it was reimagined. The fix at its current scale emerged over time, and is tenuous. As one FLMMAs member put it, “like anyone with a new idea, they need to show that it is an improvement over what’s being done.” Another was skeptical that this had been accomplished: “how the EBM project fits in Fiji is questionable.”

EBM partners justify the need for this approach in terms of both improving fisheries outcomes and conserving biodiversity. During interviews, EBM partners stressed these dual project goals, although to varying degrees, and recognized that increasing food fish biomass and abundance was the primary goal for participating communities. They tested whether LMMA and tabus can meet fisheries goals, and whether large, permanent MPAs (key to the global marine conservation agenda, Gray, 2010) are better able to meet these goals. They also conducted household surveys to identify the most important species for household subsistence, and measured community perceptions of management techniques and effectiveness. They found that, in some cases, even small areas closed to fishing can have positive effects in terms of increased food fish biomass, however these benefits are quickly depleted after a harvesting event (Clements et al., 2012; Jupiter et al., 2012). The highest increase in food fish biomass was found inside the largest MPA that has been closed to fishing for 15 years (Jupiter and Egli, 2011). EBM partners have relayed this information to participating communities so that they can take this into consideration when deciding when to open a managed area for fishing.

EBM differs from past management approaches in Kubulau and Macuata with its addition of forest and marine conservation sites identified through a scientific process that communities then had the option to modify and implement. One interviewee explained:

Through the FLMMAs, a lot of marine managed areas were established based on what communities thought was important for them. The new approach we’ve been using is introducing the science – not just for fisheries, but also biodiversity conservation as a key point in establishing marine managed areas.

One practitioner identified the difference in the role of science and local knowledge as a key distinguishing feature: “LMMA went in its less science direction and EBM went in its more science direction, and the two haven’t come back together yet.” However, this difference is not so pronounced in practice. Although the initial site selection for MPAs and tabus in Kubulau was based on biological information, community members continually modify site placement. In Macuata, local knowledge entered the process at an earlier stage than in Kubulau; in Macuata, community members initially selected the location of tabus. EBM implementers stressed that there was no difference between tabu placement based on traditional knowledge versus those which scientists later selected. One implementer explained regarding the managed area network in Macuata:

There was a marine survey of the community-selected set of [tabus]... All nine of the [tabus] selected by the community using traditional knowledge were high bioactive areas. The traditional knowledge used to set up [tabus] was good enough in the first place...

To sum, in the emerging EBM narrative, the governance problem is environmental planning at small community scales. It maintains that planning at a large ecosystem scale defined by scientific criteria will not only better protect biodiversity, but also improve fisheries. Implementation, however, occurs at the community scale, which is both culturally and politically feasible. By nesting community-based approaches within a large planning framework, EBM can be scaled up to the ecoregion. In this way, the EBM narrative tenuously merges the top-down planning logic of ecoregional approaches with the implementation logic of community-based approaches.

Although the EBM fix may reconcile scalar tensions for some conservationists in Fiji, FLMMA supporters had mixed views about whether EBM was a valuable approach for Fiji. Many believed that there was a need to address larger scale problems and that EBM's focus on both land and sea better conformed to traditional Fijian practices. However, they disagreed about whether EBM could achieve FLMMA's original goals. Some pointed out that a science-based approach was incompatible with FLMMA's focus on empowerment through CBM. One FLMMA proponent described the EBM project thus: "It's not really community-based management. It's partner-based management with a little bit of community input." One FLMMA member explained that newer FLMMA facilitators placed less importance on empowerment; "There is a big difference between the initial FLMMA team and third generation facilitators. It's not clear they have a great understanding of the need to empower." Even FLMMA members most skeptical of EBM were interested in seeing its results, including those related to value for money spent:

There were good aspects [of the EBM project] – they were doing a lot of research and learning things. But I say, 'let's take a network of yours that costs a million dollars to develop and let's take similar FLMMA sites which costs 5,000 dollars to develop, and let's see if you get 5,000 times better'...

Despite the fix that EBM attempts, there remain tensions between EBM and community-based approaches, and resistance to the fix by some FLMMA supporters. However, the tensions are not about scale per se. FLMMA projects cover a large area in Fiji and FLMMA promoters are not against large-scale approaches. Rather, tension is about the movement between small and large scales during planning and implementation, which is related to control over particular areas of social activity. Ecoregional and EBM approaches in Fiji assume planning at a large scale based on ecological priorities and move downwards to enlist communities to participate and work back up to the planned scale. Community-based planning, on the other hand, implies starting at a smaller-scale based on community priorities and working up to larger scales, configured through networks of community scale projects. The latter approach implies decision-making by communities at all stages, with associated gains in empowerment, social justice, ownership, and support for conservation, tenants central to ideas of participatory development and community-based management (Campbell and Vainio-Mattila, 2003).

Another difference between EBM and community-based approaches in Fiji revolves around the role of science. EBM leans heavily on the language of the community narrative, but many of the practices associated with the ecoregional narrative. The main strategy for EBM implementation in Fiji involves scientists collecting biological and social data and using that information to craft recommendations to communities about managed area configuration and management; local knowledge does not enter until the implementation stages. EBM partners are testing whether scientifically designed managed area networks are also more likely

to better deliver what communities want vis-a-vis increases in fish catch.

The idea underlying the EBM project is that by informing community natural resource management committees about these scientific results that they will take these into consideration when siting MPAs and tabus, and when deciding whether to harvest an area or wait. Science is thus seen as the means to meet both biodiversity conservation and fisheries goals. In practice, it is difficult to reconcile fisheries benefits and biodiversity goals as objectives can differ between groups and it is important to carefully consider trade-offs (Suman et al., 1999; Christie, 2004). In contrast, under community-based management, decisions to both create and open the reserve are based on social criteria and often focus more on fisheries goals rather than biodiversity goals, per se. Local knowledge drives planning, implementation, and management.

In sum, the tension between these narratives is about control over the starting point, the vision of planning that will dictate everything that comes after. It is about defining the appropriate role of science, traditional knowledge, scientists, local people and the point at which each should enter the management process. While communities can modify scientific visions in the EBM process, they do not lead the process. In other words, people are enrolled and excluded at different points in the distinct processes dictated by EBM and by CBM. When management is scaled up in Fiji, local people are moved to a later point in the process. The ideal of social justice includes full participation, self-representation, and self-determination (Brechtin et al., 2002). In EBM, NGOs and science play a greater role in early stages of the process than in CBM. We did not observe interactions between implementers and communities, so we cannot evaluate the claim by some that EBM is "partner-based management with a little bit of community input." However, we do recognize and highlight the potential for power imbalances in interactions among scientists, NGOs, and local peoples (Brechtin et al., 2002; Hastings et al., 2012). At the time of research, communities in EBM projects make final decisions on the placement and management of MPAs and tabus. They have modified scientists' recommendations on the size and placement of these areas and are in charge of enforcing rules. Thus, whether increased involvement from NGOs and scientists and the combination of traditional and scientific knowledge is socially just ultimately depends on communities' abilities to fully participate and represent themselves in managing tradeoffs between fisheries and biodiversity objectives and achieving their own desires for the area.

8. Conclusions

The scaling up of conservation has been explored by other scholars (Wilshusen et al., 2002; Brosius and Russell, 2003; World Bank, 2006) and Brosius and Russell (2003, p. 40) suggest that the "rise of regional approaches has resulted in part out of a loss of faith in the idea of community-based conservation" (p. 41). Even though there is currently a trend to scale up marine conservation and management globally, these general trends do not simply arrive and transform conservation scales in particular places. The emergence of large-scale conservation in Fiji suggests a more complex story than large-scale displacing small-scale, or even pro-nature displacing pro-people approaches. Rather than seeing local and regional scales for management as pre-given, we see conservation practice as grounded upon a series of chronically unstable scalar fixes. Community, ecoregional, and ecosystem scales are socially constructed, provisionally stabilized outcomes of scaling and rescaling processes. Processes of rescaling do not entail the simple replacement of one scalar configuration with another fully formed one. A "politics of scale" reflects how scales

and scalar relations are shaped through struggle; the scalar organization of a particular process may become an object of contestation and then refashioned.

Brenner (2004, p.11) writes that “rescaling processes generally occur through a path-dependent interaction of inherited scalar arrangements with emergent, often highly experimental strategies to transform the latter.” In other words, old scales shape and constrain new ones, often through a process of political struggle. As we described, EBM develops specific scalar dimensions as it comes into contact with inherited scalar structures. Drawing on post-structural themes in political ecology, we add to the “politics of scale” literature through an analysis of scalar narratives that emphasizes the role of discursive and material fixes in the construction of emergent scalar projects. A political ecology of scale focuses attention on the strategic deployment of scale by various actors, organizations and movements in order to make the scaling of particular projects seem natural and legitimate. As EBM entered Fiji in the context of a pre-existing and powerful network that had worked to institutionalize community-based management, new narratives and the policies they support were not imposed on a blank slate, displacing the old narratives, but rather were informed, shaped by, and driven by what came before as much as anything else. In Fiji, the narratives and practices of ecosystem-based management are outcomes of a rescaling process that involved integration of elements from two pre-existing scalar narratives. EBM was implemented at a much smaller scale than originally planned and its underlying narrative draws from some elements of the community-based approach including food security and development objectives, not only a concern for biodiversity conservation. Though Roe (1991) suggests that narratives become embedded in institutions, narratives are not static or monolithic and “constantly overlap and redefine each other” (Adger et al., 2001, p.705), even within a single institution (Campbell, 2002; Jeanrenaud, 2002).

We argue that scalar narratives are powerful tools for discursively sidelining and even masking contentious issues. They do so by framing the debate around scale – a technical, sometimes naturalized, and usually less politically imbued point of departure. For example, the emerging ecosystem scale narrative excludes the account of politics and history that motivated the return to the community-scale. In so doing, it evokes a sort of anti-politics (Ferguson, 1990), directing attention away from struggles for empowerment and the reassertion of a non-Western approach to management and toward the seemingly technical project of zoning for an ecologically relevant network. However, given the cultural and political realities of management in Fiji, communities still retain ultimate control over whether they will implement and comply with these external visions.

Drawing attention to the different scalar narratives associated with the community-based, ecoregional, and ecosystem-based approaches highlight the political dimensions of planning questions such as, who decides the starting point? Whose knowledge is drawn upon for planning purposes? Whose priorities dictate the process? Is it possible to plan at large scales using community priorities? What happens to community support for conservation, critical to the material practices of conservation, when community input is moved to a later stage in conservation planning? What are the ecological outcomes that result as structures of governance shift? Political ecologists have demonstrated that the material outcomes of conservation are tightly coupled with the structures of governance (Zimmerer, 2009). One of the most critical but as yet unpredictable issues in marine conservation planning is what happens to social justice and sustainability when issues are rescaled at progressively higher, regional levels (Brosius and Russell, 2003; Brosius, 2006; Campbell, 2007). McCann (2003) shows that the results of rescaling governance may be significant yet are often unpredictable.

In Fiji, the ultimate test of new conservation approaches may lie several years in the future when material outcomes under different marine management regimes can be compared and contrasted. While the EBM project has researched some initial impacts and results of these networks (e.g., Clarke and Jupiter, 2010b; Jupiter and Egli, 2011), it is unclear what the future will hold. Will no-take MPAs better contribute to both fisheries outcomes and biodiversity conservation than tabus that are periodically harvested? Will communities continue to support scientifically defined networks? Will skeptics within FLMMMA accept the EBM fix? Although we have identified several tensions within the EBM ‘fix’, EBM in Fiji has shifted and adapted in response to social and political realities and may continue to do so. This flexibility, if sustained, may allow people to debate conservation approaches without becoming entrapped in a usually unproductive pro-people versus pro-nature dichotomy (Redford et al., 2006). Whether EBM becomes a fix in practice, however, will likely depend on how well it is able to address both community needs and biodiversity conservation, in material as well as discursive terms.

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