Amphibious Encounters:
Coral and People in Conservation Outreach in Indonesia

A.P. Pauwelussen[1]
Leiden University

G.M. Verschoor[2]
Wageningen University

Abstract

Drawing on long-term ethnographic research in Indonesia, this article describes a conservation outreach project that attempts to educate and convert local people into coral protectors. Both coral and the sea-dwelling Bajau people appear to be amphibious beings, moving between a changeable land-water interface, and between different, fluidly interwoven ontological constellations. We show that the failure of conservation organizations to recognize the ontologically ambiguous nature of "coral" and "people" translates to a breakdown of outreach goals. Mobilizing the concept of amphibiousness to engage this ambiguity and fluidity, we describe the moving land-water interface as the actual living environment for both coral and people. The notion of amphibiousness, we suggest, has practical and political value, in particular for reconsidering outreach and how it may be reframed as a process involving ontological dialogue. For conservation outreach to become seaworthy, it needs to cultivate an amphibious capacity, capable of moving in-between and relating partly overflowing ways of knowing and being. Providing room for ambiguity, thinking with amphibiousness furthermore encourages suspension of the (Western) tendency to explain the Other, to fix what does not add up. As such, it is of heuristic relevance for the on-going discussions of ontological multiplicity that have proliferated at the intersection between STS and anthropology.

Keywords

---

[1] A. P. Pauwelussen, Email: a.p.pauwelussen@fsw@leidenuniv.nl

[2] G. M. Verschoor, Email: gerard.verschoor@wur.nl

The Nature of Coral and People in Conservation

The conservation officer of the regional fisheries department addresses the workshop participants, firmly stating: "The collection of coral for the construction of houses on Kangean Island is a criminal activity; this cannot be tolerated."

Police captain A (from Kangean Island) reacts: "You insinuate that on my island people mine coral? But that island is made of coral! People live on it!"

Village fisheries officer: "Eh, so it comes down to distinguishing between stone and coral, or... whether the stone was already dead or still living during extraction?"

Surveillance officer of the fisheries department: "Both are coral. But living coral we only find in the sea. And our national law forbids taking any living coral from the sea..."

Local facilitator Rifal[3]: "Sir, on my island Sarang all house foundations are made of coral, and it all comes from the reef. I'm Bajau; we live on coral!"

Police captain B [raising his voice]: "But what is coral anyway? If we don't know what coral is, how are we supposed to link it to these laws?"

Police captain B grabs the laptop and reads out: "Ah! Here we have the 2001 Decree of the Minister of the Environment about coral reefs ... People! Pay attention, this is our government speaking here! [Laughs from the audience]: 'Coral reefs are a set of rocks and/or an ecosystem built mainly by lime-producing marine organisms, together with the biota that live on the seabed as well as other organisms that live freely in the surrounding waters.'"

TNC (The Nature Conservancy)'s head of monitoring (a marine biologist) stands up, walks to the speaker position, and says: "Okay, people... I understand it is a bit confusing. Just think of it this way: If you look under the water surface and you see stones... if they have a clear color, then that is coral. In fact, corals are tiny animals that live in the coral stone. The coral stone itself is inanimate. It's a dead structure left after the animals have died. To be alive coral has to be colored. This coral is an endangered ecosystem that we need to protect."

Police captain B: "This is what we need, a general definition of coral reefs. Now... we go directly to the community to explain to them what coral reefs are. Make them understand that coral needs protection. It should not be destroyed just like that."

Conservation officer: "It is expedient to do two things: We have to demarcate zones for coral protection. This way, the coral and the fishes are left undisturbed and fish can multiply. Second, we need conservation outreach to educate the community." (Field notes, 8 February 2012)

---

[3] All names (including Sarang Island and Kangean Island) are pseudonyms.

The above discussion, which took place during a conservation workshop in the capital of Berau district, Tanjung Redeb, is not unique. For over 2000 years, coral has troubled attempts to catch its nature in unequivocal terms. In *The Coral Reef Era: From Discovery to Decline* (2015), James Bowen narrates a history of scientific investigation on coral, during which scholars struggled to unravel what coral "really is." For example, when Aristotle (384–322 BC) tried to fit coral into his "ladder of nature" (Lat. *scala naturae*) he wrote: "[I]t is impossible to draw a boundary and determine their category: stone, animal or plant" (Ibid: 4). Likewise, in the 16th century coral was indexed as being of a "third nature": "zoophyte" (from the Greek *zōon* (animal) and *phyton* (plant) (Ibid: 6). Whereas consensus was eventually reached that corals were living organisms, until the 18th century scholars debated whether they were aquatic plants or colonies of little insects (Ibid: 21-26). After the animal nature of coral was more or less settled, from 1900 onwards it dawned on coral researchers that this "animal that acts like a plant" was in fact more than one, and less than two different organisms. The riddle of coral's hybridity was further explored as an interdependent relationship between coral polyps and algae in the production of coral reef structures (Ibid: 85-86). So, in the early 20th century coral reefs became regarded as "complex ecological assemblages" (Ibid: 91-92), shifting the focus to interrelations between various elements (such as light, carbonic acid, water, algae). This also paved the way for seeing coral reefs as habitats that sustain diverse forms of marine life, or "biodiversity."

Bowen's fascinating book shows how coral—existing as in-between matter—has time and again slipped through established scientific categories. Although the book aims to narrate how the progressive accumulation of scientific knowledge has gradually brought the sciences closer to deciphering the "true nature" of coral, in effect its chapters portray coral as multiple—a fuzzy entity with many "true natures."

One of these natures—coral as an ecosystem endangered by human activity—has come to prevail in studies of marine conservation (Bryant et al. 1998). Towards the end of the 20th century, coral reefs came to be considered "under threat" from anthropogenic damage, such as pollution, mining and destructive fishing (Bowen 2015: 149-150). This has spurred a proliferation of conservation studies and policies discussing and outlining how coral reefs can and should be protected from human-induced degradation and destruction.

Conservation policies are often based on neo-Malthusian understandings of people as rapacious wrongdoers (Terborgh 1999) whose activities inevitably lead to Hardin's (1968) "tragedy of the commons." The typical reaction to the news that conservation of endangered coral is failing has been to demarcate "no-take zones" and impose fines on trespassers. In recent years, however, the idea that local users of endangered resources should be harnessed in coral conservation has taken hold in conservation arenas. Increasingly, "people" are seen not only as the source of, but also as the solution to the degradation of coral reefs (Glaser et al. 2010). Simultaneously "noble savages" and "environmental scoundrels," sea-people such as the Bajau of Southeast Asia fulfill ambiguous roles in coral conservation plans that attempt to restrict their activities and recruit them as the natural guardians of their environment (Clifton and Majors 2012; Djohani 1996; Afiff and Lowe 2007). This is primarily done through "outreach"—whereby

conservation projects attempt to educate "local" people and convert them to enlightened conservationists.

In this article we describe an outreach project in Indonesia where the multiple natures of coral and people meet. Taking the workshop in Tanjung Redeb (Berau, East Kalimantan) as a starting point, we describe how the idea of endangered coral travelled seawards to the amphibious world of the Bajau people, for whom coral is of a very different nature. In particular, we follow the work of a Bajau man recruited by TNC, who moved between worlds to translate and bring together the different natures of coral and people. Drawing from this ethnographic case, we focus on the ontological ambiguity of both coral and people.

We describe the hybrid land-water interface as the amphibious living environment for both coral and people. We mobilize the concept of amphibiousness to engage the manifold natures of coral and the hybrid land-sea linkages of those who relate to the coral multiple (after Mol 2002). Amphibiousness refers to the ability to move in and relate different worlds that do not add up, yet partly flow into each other. In this sense, amphibiousness is of practical and political relevance for conservation outreach as it creates room for collaboration without requiring or imposing consensus about the "true nature" of coral, people, or reality.

Amphibiousness is good to think with, we argue, because it entails viewing ambiguity as a positive, productive capacity. It allows for thinking and writing of ambiguity as a "useful complication"[4] of thinking along different currents. For this reason it is relevant to the on-going discussions on ontological multiplicity that have proliferated at the intersection between STS and anthropology (e.g. Bonelli 2015; Jensen and Morita 2015; Mol 2002; Verran 2001). While these studies generally describe reality as fluid and multiple, as Marisol de la Cadena (de la Cadena et al. 2015: 462-466) recently pointed out, the turn to ontology can paradoxically evoke new reifications of worlds and realities as given and coherent.[5] The notion of amphibiousness offers a distinct take on these discussions, because it makes it possible to "capture" flows and movements between worlds, ontologies or natures, without "distorting" these into coherence (see Law 2004: 2).

Engaging with the practices and narratives of TNC onshore as well as with the Bajau people offshore, the first author's own ethnographic practice was in fact also amphibious, flowing between these worlds. Often, it was not clear where one world ended and another began, a situation that repeatedly led to confusion and challenged the attempt to find coherence. This situation not only spurred reflection but also called for the repeated explanation and discussion of her intentions, assumptions and loyalties in the field.

In the following section, we elaborate on amphibiousness, describing it as a condition to live with, and a concept to think with, and relating the concept to the discussion of ontological multiplicity. Subsequently, we follow how "endangered coral" travelled seawards from TNC to the Bajau, where it was resisted. We then examine Bajau discussions about blast fishing, revealing a relational cosmology where coral embodies ambiguous, different natures, before turning to a

---

[4] We thank one of the anonymous reviewers for suggesting this term.
[5] Marilyn Strathern has made a similar point in her critique of Actor Network Theory (Strathern 1999, chapter 6). See also Gad and Jensen (2010) for a discussion of this issue.

community facilitator's attempt to translate the different natures of coral and people in the outreach program. We conclude by considering our ethnographic case as illustrative of a practice and politics of ontological translation in amphibious encounters.

Ebb and Flow

Coral reefs are generally considered a quintessential marine life form, yet their land-building ability (producing limestone structures) inspired Charles Darwin to think up his "coral theory" on the formation of atolls and reefs as emerging or submerging land forms (Bowen 2015: 40-41). Coral reefs are thus part of, and productive of, amphibious environments in which land overgrows sea while sea overflows land.

Contrary to coral, people are generally assumed to be terrestrial beings (Smitt 2015 [1942]; Ten Bos 2009). This usually implicit but common assumption has perhaps more to do with a certain land bias in Western science (including maritime studies) than with the human condition as such (Pauwelussen 2017; St. Martin and Hall-Arber 2008; Steinberg 2013). Particularly in Southeast Asia, with its many archipelagic regions, many people live in changing land-water environments (Chou 2006). For example, the Bajau have been described as inherently amphibious (Downey 2011), moving in and between aquatic and terrestrial environments. Bajau families alternate boat dwelling with periods of sedentary life in coastal and offshore (stilt house) villages above water, often near, or on, coral reefs (Nolde 2009; Sather 1997). With no common ancestral ties to land, the Bajau commonly identify by kinship, a shared Sama-Bajau language, and spiritual cosmology (Bottignolo 1995; Nimmo 1990). However, their ethnolinguistic boundaries are fluid, mixing and merging with other languages, ethnicities and religious practices (Gaynor 2010). "Bajauness" is importantly bound up with a mobile and sea-based lifestyle, and the association of living on the margins of terrestrial societies (Lowe 2003; Stacey 2007).

Both coral and the Bajau can thus be characterized as amphibious beings. The notion of amphibiousness helps to consider how things, materials, beings and practices are part of, and productive of, land-sea interfaces, worlds that flow into one another (Morita and Jensen 2017), while also undoing the separation of land and water in modern thinking. Amphibious environments are thus simultaneously abstractions to think with, and things in the world to live with (after Helmreich 2011: 138).

The conservation of coastal and offshore areas, including coral reefs, is conventionally managed through what Jensen in the introduction to this thematic collection refers to as "terrestrial responses" (also Bear 2012; Bear and Eden 2008; Visser and Adhuri 2010). Models and policies that were originally designed for terrestrial conservation (nature parks) have been extended to coastal and marine environments. Nowadays, marine conservation programs are effectuated primarily by the creation of marine protected areas, and similar spatial forms of demarcation. Yet, the emphasis on demarcation in terrestrial conservation is at odds with the openness and dynamic connectivity of marine environments (Carr et al. 2003). The material fluidity of the sea complicates the spatial control schemes of land-based policies, since fences and

marks do not hold their ground in the flows of marine and intertidal life (Bear and Eden 2008; Steinberg and Peters 2015).

This also applies to the disparity between protected areas and the mobility and fluidity of human associations in marine environments (Gunawan and Visser 2012; Pauwelussen 2015). To make marine conservation more seaworthy, conservation organizations have placed increasing emphasis on outreach programs that involve "local"[6] people in marine conservation plans and practices. "Outreach" refers to the activity of "reaching out" by an organization to a group of people, providing them with services (training, education, skills) that they are assumed to lack. In conservation policies, outreach is described as a transfer of (science-based) knowledge, in order to make people receptive to conservation interventions (IUCN-WCPA 2008). Undergirding outreach policies is thus a "deficit model" (Wynne 1991) that assumes that people's failure to support and participate in a proposed intervention, is due to a lack of knowledge or environmental ethics, which will be provided by the conservation program.

Yet these marine conservation outreach programs often fail (Christie 2004; Glaser et al. 2010; Walley 2004). Clifton and Majors (2012) relate the failure to involve the Bajau in conservation projects to their fundamentally different worldview, including concepts of time and causality that are at odds with conservation values and practices. Recognition of these differences is necessary to identify a common ground for collaboration (Ibid: 723). Their argument bears similarity to recent anthropological studies describing ontological disjunctures between development and conservation programs and local lifeworlds (Blaser 2014; Howit and Suchet-Pearson 2003). These studies argue that the world-making practices and narratives of local or indigenous peoples are often radically different from Euro-American knowledge traditions. Indigenous ontologies, for example, have been described as relational theories of existence that start from interconnectedness and in which agency is extended to non-human actors such as spirits, animals, things (Blaser 2009; Kohn 2013; Viveiros de Castro 1998). When ontologies or worlds meet, their differences and mutual interactions may lead to ontological disjunctures or disorders (Bonelli 2013), or to the transformation of the political arena, as exemplified by the arrival of Tirakuna "earth beings" on the scene of Peruvian politics (de la Cadena 2010). The political argument is that social justice requires ontological difference to be taken seriously, instead of being explained away as lesser versions of science's authoritative insight in what is "really real."

The notion of ontological multiplicity is thus important because it provides an effective stimulant for openness to what differs, a commitment to take seriously the theories of existence of Others, and to learn from these forms of world making. In effect, at issue is provincializing western science by showing that it is one of more possible ways to understand and enact the world.

Even so, understanding ontology as different theories of existence carries a certain risk of essentialism (Venkatesan 2010). Importantly, defining "indigenous" peoples as belonging to a

---

[6] The common use of the adjective "local" in outreach policy actually indicates a land bias, as seafaring people are often no more local than those who organize the outreach.

certain geographical place can lead to a reification of land-based and spatially defined ways of being, thus downplaying others that are more mobile, dispersed and amphibious. People may indeed experience and sustain strong communal relations to land or language. However, linking indigeneity to a people's right to determine and sustain its own terms and theories of existence—Viveiros de Castro's (2003) notion of ontological self-determination—becomes problematic in a context of ethnic fluidity and invention, as is the case in the maelstrom of different languages and ethnicities of maritime worlds in Indonesia (Nolde 2009; Pauwelussen 2016; Tagliacozzo 2009). Indeed, as the case of the Bajau will exemplify, shared worlds are not necessarily place-, or land-based at all.

Moreover, as Jensen (2014) has pointed out, conservationists, CEO's of mining companies, and governmental departments have ontologies too (for varied cases of ontological otherness close to home see Law and Lien 2013; Mol 2002; Thompson 2002). Rather than emphasizing fundamental differences in the ways in which worlds are understood, ontology can thus also be mobilized as a heuristic tool for studying how "reality" is continuously enacted and transformed in practice. How this is done is an empirical question that, due to the open-endedness of enactment, can never be settled definitively. To stay with this ambiguity and incoherence, without "fixing it" is a challenge for both conceptual work and for ethnographic practice (Law 2004).

In the following, we use the concept of amphibiousness to keep the ambiguity of ontological multiplicity alive and productive. Amphibiousness tags notions of ambiguity, the capacity to go with different flows, living on both sides of a difference, and enacting mixed or multiple ways of being. In the case of the Bajau and coral conservation, we show that thinking with amphibiousness is less about moving between two different worlds than about navigating the shifting interface through which these worlds partly flow into one another.

In the next section, we describe one such flow. We trace how "endangered coral," provisionally settled in the conservation workshop, spilled out of the workshop and moved seawards in the attempt to convert blast fishing Bajau into coral conservationists.

"Endangered Coral" Travels Seawards

The conservation workshop organized by TNC Berau in 2012 was part of a reorientation within TNC's Indonesian branch to increase the involvement of local people in their regional conservation practices. The Berau coastal area has been one of the target areas to make this happen. It encloses the delta of the Berau River, with its mangrove forests and coastal villages as well as several islands, reefs and atolls further offshore. Berau's coastal waters have attracted international interest as a site in need of protection, because it is situated in the middle of what is known as the Coral Triangle; a marine space of exceptional coral biodiversity (Hoeksema 2004; Wilson et al. 2010). Of major concern for TNC Berau has been the continuing practice of blast fishing: fishers throw homemade bombs on coral reefs, so they can catch a lot of fish in a relatively short time. The practice is banned in Indonesia for its destructive effect on the coral reef structure.

TNC Indonesia had been involved with the protection of the Berau Delta since at least 2003, initially in a partnership with WWF (World Wide Fund for Nature)-Indonesia. Their conservation plans, such as the designation of a marine protected area, banning the collection of coral and turtle eggs, and setting up marine patrolling units, were met with considerable resistance. Particularly the Bajau, who form a major part of Berau's coastal and island population, have at times stalled conservation initiatives by protest and non-compliance.

With TNC's reorientation to community-based conservation, the idea was that a more participatory approach would enable local people in the coastal area to become the guardians of their own marine environment. Ideally, resistance would thereby be turned into collaboration (Kusumawati and Visser 2014; Soekirman et al. 2009). Importantly, local people would not be forced but *attracted* to participate in conservation practices. TNC Berau's outreach was set up around the idea that, by educating and training local people, they would come to understand the value and necessity of protecting coral reefs. Going beyond making them receptive to conservation, the project would make local people *want* to protect coral amongst themselves, in a way similar to the "regulation from the inside" described by Arun Agrawal (2005).[7] In this outreach process the role of TNC was that of "facilitator," as explained by the head of monitoring:

> If we jump in to make the organization [for conservation], and start with throwing in money and facilities, then the organization won't last long. Instead, *they* should start it. Our job is to plant the seeds of conservation. And then we come in as trainers. We facilitate the process. We give them information, which allows them to think in terms of conservation. (TNC Berau head of monitoring, 30 January 2012)

This quote illustrates TNC's idea of outreach as a way to support villagers in turning themselves into conservation-minded people. In order to participate, a transfer of knowledge and skills was considered necessary. As noted, this approach is based on the assumption that local people, like the Bajau, lack things (knowledge, skills, awareness), and that their misbehavior (blast fishing, coral mining) is mainly caused by this ignorance.[8] Local government staff was often quite explicit in linking the resistance of Bajau to conservation plans to their lack of education.[9] As a (non-Bajau) secretary of a predominantly Bajau village put it:

> It all comes down to increasing the understanding of the local people here. If you don't, conservation is bound to fail. TNC and the government have to intervene here to raise

---

[7] Which, in turn, is based on Foucault's notion of "governmentality" and the "conduct of conduct" (Foucault 1994 [1982]).

[8] Here we primarily allude to how this "deficit model" is reflected in organizational policies rather than in the opinions of individual staff members. We do not doubt the sincerity and dedication of the individual TNC outreach staff in their attempts to improve the local situation for as many people as possible, and also the high regard they often expressed for particular local/Bajau individuals.

[9] The Bajau have often been portrayed in Indonesian society as marginal and uneducated people, who resort to destructive fishing out of poverty and ignorance (Clifton and Mayors 2012).

people's awareness of the positive aspects of taking care of their environment, so their
catch increases in a sustainable way. (Village secretary, 19 January 2012)

TNC Berau's outreach program was indeed set up to provide local people with the
knowledge and skills needed to understand and accept the notion of "endangered coral" as a
matter of fact, and adjust their practices accordingly. Also, this understanding was needed to
solicit local feedback on the practicalities of creating no-take zones for coral protection.

In several villages, TNC recruited local facilitators (*fasilitator lokal*, or "FASLOK") as on-
site extensions of TNC's outreach. These local facilitators were trained and mobilized as
mediators between the local population and TNC staff. Their main task was to disseminate
conservation plans among the village population and to organize community-based conservation
groups. As one of TNC's outreach staff indicated, community facilitators were essential for
translating conservation to the village setting, and to do so in a locally appropriate way.

One of the community facilitators, Rifal, was recruited from Sarang Island, known as a
Bajau enclave and a blast fishing stronghold. Rifal, an ex-blastfisher, was offered the job in 2010,
when TNC's outreach team had visited Sarang Island. It was a "good match," he said:

> In 2010, the conservation people noticed me. Whenever they visited the island, I facilitated
> their stay as much as I could. I thought: they have a similar goal [of stopping blast
> fishing]. They asked: "Rifal, do you want to become a FASLOK?" I had no idea what that
> was, a "FASLOK," but I thought if it is about assisting them, I will do it. So there was a
> match, I was recruited. They invited me to come to Tanjung [Redeb]. I received training
> there, they taught me about conservation, coral, protected areas. And from that moment, I
> became truly at *war* with illegal fishing. (Rifal, 23 February 2012)

On Sarang Island, Rifal subsequently engaged in "outreach": translating what he had
learnt to the community. One of his primary tasks was to create support for a planned no-
take zone on an adjacent coral reef:

> TNC determines a no-take zone by detecting the right part of the reef to close off—one
> that meets their requirements of a good and healthy reef. It has to be a place where lots of
> fish reproduce. But they also think that the people here should have a say in this,
> otherwise they won't accept it. So that's where *I* come in: I consult with the people here
> what is a good piece of coral according to *them*. (Rifal, 20 September 2012)

To consult his fellow Bajau about what a "good piece of coral" consisted of, Rifal had to
generate support for the idea of creating no-take zones in the first place. And to generate such
support, he first had to provide community members with information to understand what this
was all about. According to Rifal, it was difficult to convince people about the nature of coral—
that is, the version he had learned from TNC:

> I explain that those colors are tiny animals living in the coral structure. But I don't have tools to prove it to them. I would need a microscope... They just don't accept it. They see stones in different colors, not animals. (Rifal, 29 February 2012)

At other times, Rifal said it was difficult to make his fellow Bajau *believe* in conservation, or to even generate interest in it. "The Bajau are hard-headed people," he once said, illustrating this with his repeated attempts to convert Zamhudi, a blast fisher and village elder:

> I explain [to him]: "If you destroy the coral, the fishes will go. It's their homes you destroy." He really wants to believe that it [coral] grows back. He believes what he is used to and calls it culture. He says it is up to God and goes on bombing the coral all over. I said: "Isn't it true that you now have to go further to find fish? We all experience this. Will there still be fish for our children?" I can explain things, but it doesn't reach his head. (Rifal, 21 February 2012)

Reflecting on his outreach work, Rifal also mentioned how he had to proceed tactfully in his village:

> My approach has to be informal and relaxed. I just can't call meetings and transfer the knowledge just like that. I have to go slowly, step by step. I walk past [someone], sit and talk, and if I feel he/she is open to it, I explain some things about coral and why we need conservation. The people here are easily bored with the conservation issue. They are suspicious. When they hear a word like "zoning" they think of prohibitions forced upon them. I have to move slowly and choose my words carefully to not scare them away. So, for example, I tell them conservation is about taking care of the coral. (Rifal, 29 February 2012)

In the course of 2012, Rifal encountered increasing Bajau resistance. At the same time, support from TNC dwindled. Although Rifal had managed to gather a modest following (mostly family), who openly supported his efforts, many people on Sarang Island expressed suspicion or even outright hostility. During the research, many people (informally) expressed their concern that Rifal supported foreign conservationists' interests at the expense of theirs. Interestingly, resistance came not only from blast fishers, but also from Bajau people who wanted blast fishing to stop. As we show next, blast fishing was disputed, but not in conservationist terms.

Amphibious Coral in a Relational World

During fieldwork on Sarang Island, the practice of blast fishing was frequently debated, though in informal settings only. Those in favor referred to the practice as generating wealth and distributive capacity in the Bajau community. Opponents regarded the practice as too violent, causing disorder in the relations between people, spirits, coral and fish; causing the latter to disappear and spirits to become vengeful. According to Umar, a spirit medium and fisherman, the practice was so greedy and violent that its destabilizing effects were beyond mediation:

> The practice of blast fishing is out of balance. Too much is taken by force. As a consequence, the spirits are affecting the Bajau more, making them sick, possessed. This cannot be settled with a ritual. (Umar, 20 February 2013)

Similar to what is described in other Bajau studies (Bottignolo 1995; Sather 1997), the Bajau on Sarang Island acknowledge various beings (such as spirits, fish, ancestors, currents and the moon) as actively participating in producing the world and affecting the course of events in life.[10] Any thing, place, or flow can be animated, and certain objects or places (such as large or odd-shaped coral formations or the collision of different water flows) are known as homes of particularly forceful spiritual presences. These are referred to as *penjaga* (caretaker), *penhuni* (inhabitant) or with the more general notion of *hantu laut* (sea spirit).

It is generally agreed on Sarang Island that one should behave well when fishing on coral reefs. According to Umar, it is very important to acknowledge the presence of spirits and to behave respectfully when fishing in their "home"—which he thought to be incompatible with blast fishing. Blast fisher Zamhudi (who worked as a blast fisher but was also a village elder and spirit medium on Sarang Island) however claimed blast fishing is not a problem, as long as the practice is conducted respectfully and in line with community values:

> Blast fishing is not a problem as long as we ask for permission from the *penjaga* (guardians, caretakers). Yes, we have to acknowledge them. The important thing is that [fishers] go fishing in agreement. They have to conduct their fishing in line with the community. [One should] behave well: announce oneself, say a prayer, work together, and proceed with respect for those being(s) there. (Zamhudi, 20 February 2012)

A central issue in discussions of blast fishing is the trope of giving and taking, associated with greed (bad) or generosity (good). A woman who regularly collected shellfish on coral reefs at low tide pointed out:

> If we are lucky we catch a lot of fish in one place, but if we are greedy and take all, then another time something is taken back. If we return to that place, or a friend or kin… we can get into trouble; [there will be] no fish, bad weather, or worse: sometimes boats capsize, or people disappear. The *penghuni* (inhabitant) is behind that. (Alisha, 14 January 2013)

This was echoed by Umar, who said:

> If one sees a school of fish encircling one, then this is the fishes' guardian (*penjaga*). Watch out then! Don't make loud noises! Don't throw bombs! Don't take the fish! The fish become one as they are mastered by the guardian. As soon as the guardian gives in and disappears in the crowd, the fish is given. We may take it then. If not, don't bother the fish

---

[10] This Bajau understanding shows parallels with the work of Bennett (2010) and Kohn (2013)—among others—on how non-humans affect the world.

> while under the guardian's influence. This brings forth disease, or disappearance. If people take from the sea what isn't given, they can be pulled to the sea. (Umar, 20 February 2013)

Greedy conduct on the reef can thus be dangerous, as spirits can "take back": pull people into the sea, withhold fish, or possess people. When such misfortune strikes, relational balance is restored by mediation (e.g. attending to the spirit's wish and arranging an offering or ceremony). Umar was one of the few "smart persons" (*orang pintar*) on the island skilled in translating the wishes of different kinds of spirits:

> If someone falls ill on the coral, or after fishing, it's my job to find out who is affecting him. Is it a displeased guardian? Or is an ancestor asking for attention? I closely observe the person. His body is affected by the spirit. I ask what must be settled or what he or she wants in order to leave the body. (Umar, 20 February 2013)

Whereas Umar linked blast fishing to greedy conduct, others explained this differently. According to Zamhudi, blast fishing was not a matter of greed but instead a matter of "taking what was given" as it was always done after acknowledging and offering to the spirits. It would be disrespectful not to take what was given in return. A fish trader involved in trading blasted fish further emphasized this line of argument by linking blast fishing to tradition and the distribution of wealth (being generous):

> This blast fishing is a traditional fishing method of the Bajau. They are very skilled in this. It's their livelihood. My father worked as a blast fisher for a long time, and he always encountered fish. The Bajau in this area have been blast fishing for over 50 years now, and still there is so much fish! For the people here this is proof that blast fishing is only destructive in the short term. As long as you keep to your social duties and distribute your wealth, fish will not disappear. (Langkah, 17 June 2012)

The trader's mention of "social duties" refers to the partial distribution of the blasted fish among the fishers and the fishers' families. Blast fishing was considered acceptable as long as relations of reciprocity and redistribution with spiritual *and* human beings were respected. The trader emphasized her own role in the Bajau community as a well-doer as she enabled people to work, redistributed part of her profit among the community's poor (for example by handing out cash), and was actively involved (also by donation) with the yearly ceremonial festivities to honor the ancestors. Instead of a greedy practice blast fishing could thus also be considered a generous practice, a positive influence that generates abundance to be distributed within the community (cf. Clifton and Majors 2012).

It should be mentioned that blast fishers in Berau are usually involved in a patron-client relationship,[11] which limits their ability to change their practice or speak up against it. In

---

[11] Operational costs are extracted from the fishers' profit, as are the costs of anything bought on credit. The patron also ensures the security of his or her fishermen paying off security forces in case of arrest.

discussions of the "goods" and "bads" of blast fishing, however, these patron-client relationships are also linked to discussions of respectful, greedy, or generous behavior in relation to people, coral, and spirits. A "greedy" boss was associated with exploitation (of both people and coral), thus turning blast fishing into a violent, greedy and dangerous practice. A "good" patron however was considered someone who redistributes his or her profit in cash or kind among the fishers, the wider community, and the ancestral and spiritual relations. When linked to the generation of distributed wealth, blast fishing was portrayed as productive.

In addition, some Bajau were of the opinion that as long as social duties and balances were taken care of, the momentary disappearance of coral and fish meant that they were simply elsewhere. As Zamhudi explained:

> Coral is an intersection where people and fish come together. People travel, and so do fish. We depend on God to bring them [fish] towards us. It's a matter of fate/luck (*rejeki*) if we meet. There's continuous increase and decrease, coming and going with the tides and the moon. The coral and the fish, they are like us. We are all children of God. We die, but also revive through offspring. (Zamhudi, 20 February 2012)

Here Zamhudi situated the effects of blast fishing on fish and coral in a thoroughly relational and intertidal world in which fish, coral, people and spirits move, meet and reproduce life. The quote shows the hybridity of coral as well as the land-sea interface in which the Bajau (and corals) live. It also presents an inherently amphibious world, in which ambiguous objects or beings move, meet or merge. In Bajau understandings of human-environment relations, people do not manage the sea but can affect relational balances through reciprocal exchanges with people and spirits in order to increase (or decrease) chances of temporary (fishing) advantage (e.g. through blast fishing). As examples of relational practices people mentioned working together, praying, behaving respectfully towards spirits, sharing fish, giving away profit and offering ritual food to ancestors.

Whereas Bajau ontology can be described, as some have done (Bottignolo 1995; Nimmo 1990), as a coherent cosmological framework, it is by no means a closed system (cf. Jensen 2015) in which controversies are settled. On the contrary, discussion with Bajau about coral, spirits, people and blast fishing appeared rife with ambiguity.[12] Although it was agreed that there were spirits who had to be respected there was no closure on how exactly the spirits should be respected—including, as we have seen, whether blast fishing was compatible with this obligation or not. Also, it was generally assumed that the world was relational and required constant balancing by reciprocal exchanges; however, the disturbance of these relations—a dangerous condition—could be linked either to the greediness of blast fishers who "took by force" or to blast fishers insulting spirits by *not* taking from the coral what was given in agreement.

---

[12] During fieldwork such ambiguity never seemed to trouble the Bajau. Moreover, the researcher's expression of confusion, and attempts to find closure in conversations, was frequently met with amusement and the expression of: "Confused? That's just how it is" (*Bingung kah? Begitu saja*).

Furthermore, it is significant that, among the Bajau in Sarang, coral (*karang*) did not acquire a definitive form. During fieldwork, coral was commonly referred to as "home" or "dwelling place" for the Bajau, but also for fish and spirits. At other times the coral reef was a "garden" that Bajau women tend to when reef gleaning or setting lobster traps. Coral was also an "intersection" of the trails of different moving agencies such as seafaring people, currents, pelagic fish, and roaming spirits. In all these discussions, no one showed interest in settling what coral "really is"—leaving it an amphibious convergence of worlds of spirits, people and fish. When Rifal explained that coral were tiny animals making up an ecosystem many people simply added this to their flexible repertoire of talking about coral. So what happened with his task to plug in "endangered coral" in this relational world of the Bajau?

Amphibious Translation

Considering the difference between Bajau and conservationist notions of coral, Rifal's receptiveness to conservation ideas may appear peculiar. Especially because he had been practicing blast fishing for years. How come this ex-blast fishing Bajau man was so swiftly recruited and trained as a translator of "endangered coral"? When asked this question, Rifal narrated how he had stopped blast fishing, even before he was recruited as community facilitator by TNC.

> The last time I used fish bombs was in the beginning of 2009. I had been blast fishing with my brother, since… 2001. Yes, that long! And the result was pretty good. After a year of practice, I became good at my job. In a couple of days, I could earn up to 5 million [IDR].[13] That was a lot of money! But the fish became fewer. In the last year, we had to make a great effort to find fish. Sometimes we stayed at the coral for three days and still our catch was insufficient. The fish didn't come. At the end, the most we got in a week was 1 million. So I started thinking: how can this be? Normally, when I look around the coral, there are many fish.
>
> I stopped using bombs and started collecting sea cucumbers. I earned less, yet enough to buy food, and to save some. In my heart I was happy. I had work that didn't require big capital investment. I just bought kerosene for the light and cigarettes to accompany me to sea. I can buy this [points to his smartphone], I can travel, visit my family in Malaysia… How come that when I used bombs, I had so much fish, but I was never able to save money for my family? It only made me indebted! One is drawn towards blast fishing because of the big catches. But after years of blast fishing, I was still living in a shack.
>
> I addressed other people and said: It's like this. If we continue like this [using bombs], no matter how much money the practice generates… it runs itself down. One cannot save that kind of money. It disappears without evidence. This Friday we get our money for the fish, next Friday the money is gone. Among the Bajau here we say it is "hot money" (*uang panas*), because it was taken by force. If we take a lot of fish like that we do

---

[13] At the time, 1 USD was worth (more or less) 9,400 Indonesian Rupiah (IDR), so this amount is around $532.

not receive a lot of money. That's because the fish, their spirit, is aggrieved. The money disappears, like a ghost. That's what I think. I tell them [that]. I warn them. Some people believe me, some don't. (Rifal, 23 February 2012)

Although skilled in blast fishing, Rifal had become critical of the practice. In this conversation, he linked blast fishing to relational imbalance, which aggrieved spirits and increased debt. As a result, profit evaporated as ghostlike "hot money" because it had been acquired the wrong way.

One could argue that Rifal already was a man of two worlds, amphibiously moving between. On the one hand, he saw himself as "typically Bajau." He took part in ceremonies, spoke the language, and was aware of the importance of balanced relations between humans and spirits, and had been blast fishing with kin. On the other hand he had received formal schooling in Malaysia, spoke fluent Indonesian/Malay, and had years of experience working as a clerk for the Malaysian government. This made his recruitment by TNC a "good match," as he said, as he was able to engage with both Bajau and conservationist understandings of coral reefs and how people should relate to them.

His smart and witty character appeared additionally advantageous, making him skilled in building relations for the benefit of himself and his family. While his commitment to stop blast fishing and his interest in advancing coral protection seemed genuine, it was no secret that the FASLOK job provided him with a monthly salary of one million IDR, as well as with openings to contacts in business and government in town.

Nevertheless, in 2012 TNC's outreach staff—ordered by their headquarters to cut expenses—decided to let go of Rifal as local facilitator. Progress in outreach on Sarang Island was perceived as slow, and TNC's remaining resources would be refocused to coastal villages on the mainland. Rifal reflected on this decision:

> TNC told me that there wasn't enough progress here. *I* wasn't making enough progress. In a way I can understand that. Resistance is high here. But I also feel we haven't discussed enough yet. We just started! (Rifal, 20 September 2012)

Because of his amphibious capacity to move in between, it initially appeared that Rifal would be an "ideal candidate" for translating conservation ideas to his Bajau community, and for creating a dialogue between TNC's and the Bajau's incongruent versions of human-coral relations. Rifal had hoped that TNC's support could help "make a fist" against blast fishing. However, as he pointed out, "powerful forces" kept the status quo. As Rifal tried to turn people into conservationists, his attempts were stalled by the resistance of people, spirits and patron-client relations.

As many fishers and traders on Sarang were involved in fishing practices that were officially banned, they had no interest in an increased interference from conservationists and government officials. This resistance was not, as was believed in policy circles, a simple matter of wanting to continue blast fishing, as those opposed to this practice also resisted Rifal's conservationist overtures. Reflecting on this resistance Rifal once pointed out that the problem

lay not in the transfer of *knowledge*—the Bajau on Sarang welcomed coral as tiny animals in their repertoire—but in a *logical disparity*. While the Bajau were open to accept different explanations of what coral is, creating a no-take zone was not logical, and potentially dangerous as it would stand in the way of the relational work needed to take care of human-coral-spirit relations. It might lead to misfortune or even disaster.

Moreover, the idea of managing or even dominating coral and restricting access to others was incompatible with the Bajau notion of a relational world in which the power of people is distributed and subject to fate or "up to God" (Bottignolo 1995; Clifton and Majors 2012). In this world, taking care of coral instead translates as tending relations: the continuous performance of reciprocal exchanges between people and spirits, which includes giving and taking on and from the reef.

Given Rifal's difficulty (and ultimate failure) to enroll the Bajau in conservation, it is interesting to note that both Bajau and conservationists, in their different ways, saw coral reefs as animated dwelling places for life. Actually, Rifal pointed this out during an informal conversation. Here we may be witness to a conceptual convergence of two different ontological currents, or flows, and their associated coral care practices. Even if the commonalities in coral as dwelling place of life are significant, they were neither made explicit nor further reflected upon in the outreach process. The translation of this outreach process did not become sufficiently amphibious; an amphibious translation requires moving and thinking along with different ontological currents—without an *a priori* fixation of what is real. Yet, the translation became a unidirectional transfer of knowledge geared to overcome an incongruity in different understandings of a previously existing, single reality.

As illustrated in the following excerpt from an interview with a non-Bajau outreach specialist, this insight is not necessarily alien to TNC staff:

> I have grown skeptical of all this marine protected area talk. It looks so nice from the outside, but it is just maps and drawings and reports. It is an outer shell. Nothing changes within. Protected areas are of no real significance for the people living there. They don't care about zones and borders. After endless talking and planning, when we enter the implementation phase, that's where it gets stuck. The planners forget that reality is very different here. If we wish to do something real, our work should directly concern fishers. (TNC outreach specialist, 15 February 2012)

Here we see that ambiguity was not alien to TNC staff, who also moved in different worlds. Given this outreach specialist's experience in different marine conservation projects in Indonesia, his ambiguity might have opened up for a discussion on how to "do something real" when "realities" are different. However, he thought the organization would not be receptive to such internal reflection. Soon after the interview, he embarked on another career path.

Discussion and Conclusion

We started with a conservation workshop in Berau that brought together conservation officers from the regional fisheries and forestry department, police captains, TNC staffers and village representatives from coastal and island villages to discuss strategies to jointly protect the Berau Delta (including its coral reefs).

Discussing coral conservation appeared complex because the nature of coral turned out to be not only amphibious but also ambiguous. Different versions of coral did not add up. TNC's marine biologist provided an authoritative, scientific explanation of what coral is, and how it can be known, using his expertise. This definition of coral's nature as endangered ecosystem was accepted as a basis to inform—educate—other people (the Bajau, those who damage or live on coral) who were assumed to lack this knowledge. Such outreach was considered expedient to convert "ransacking bandits" into coral protectors.

As the workshop showed, coral conservation outreach entails not just a movement of knowledge about coral (how to recognize it) but also the dissemination of a particular version or nature of coral (the endangered ecosystem). The move thus concerns an ontological transfer, and translation, as it attempts to disseminate a particular notion of what coral is, its condition of being, and the practical reproduction of this condition. The workshop discussion illustrates attempts to turn ambiguous and amphibious corals—shifting between different natures and environments—into a single object. In the synchronizing practice of the workshop coral's multiple natures were rendered as a coherent object that can be acted upon. As we have shown however the fixation of coral as endangered ecosystem is temporary and situational. It is temporary because the scientific version of coral, mobilized to bring closure, is itself contingent on a particular history of knowledge practices that place coral and people on either side of the nature/culture divide characteristic of modern thinking. It is situational since outside the workshop coral still flows into different natures and practices.

Outside the workshop setting, in Bajau practices, corals are dwelling places, gardens, construction material, and hotspots of spiritual and piscine agency. Even so, the insistence of Rifal, the community facilitator, that on his island people *live on* coral was not taken up in the discussion of what coral "really is." Indeed, despite the rhetoric of a "bottom up" approach, conservation outreach in Berau was organized as a one-way translation process. After all, Rifal's task was to convince the Bajau of the need for no-take zones to protect endangered coral. It was not complemented by any attempt to convince TNC of the presence, and importance, of spirits in these no-take zones. That coral is a different "animal" altogether for the Bajau was thus an insight that did not meaningfully affect TNC's outreach policy. Nevertheless, these "other corals" are as consequential as scientific ones. They inform decisions such as: "do we throw a bomb at it?" And, if yes, on what conditions? The radical differences in human-coral relations are bound to trouble attempts to move "endangered coral" seawards by substituting this *one coral* for all the other coral natures and practices—which is the very purpose of the outreach intervention.

Our case thus demonstrates that conservation outreach involves much more than a transferral of knowledge of what coral "really is." Whereas outreach attempts to enact a singular reality, in practice it deals with different realities that partially flow into one another, generating

and generated by different kinds of human-coral relations. Both coral and (Bajau) people are amphibious beings moving in, and between, changeable land-water interfaces and fluid ontological constellations. Yet, so far, conservation programs cultivate approaches that cannot effectively cope with the multiplicity and fluidity of everyday practice and relations in environments that are inherently amphibious. The Berau case indicates that the failure of conservation organizations to reflect on ontological ambiguity concerning the nature of "coral" and "people" translates into a breakdown of outreach goals.

To end on a more positive note, we would like to point to the productive possibilities inherent to our case. One reading of it is that conservation outreach involves continuous negotiations between different "worlds" or ontological constellations over what is and what matters, and how it can be known. As they engage with one another, the world of TNC and the world of the Bajau become willingly or unwillingly sensitive to ontological differences. In this process difference appears as much within worlds as between them, as people and things are on the move, multiple and amphibiously in/between.

We maintain that a minimum requirement for successful conservation outreach is engaging with these differences explicitly and reflexively. Indeed, one may say that for conservation outreach to become seaworthy, it needs to cultivate an amphibious capacity, and engage with and relate ways of knowing and being that partly overflow one another, yet without *a-priori* assuming one to be superior. This is what we refer to as the amphibious translation practice of moving in and between different, yet dynamically interconnected worlds. Amphibious translation is thus akin to the method of "controlled equivocation" that Viveiros de Castro (2004) has proposed as a means to reconceptualize comparison—anthropology's primary analytic tool. Making room for amphibious translation requires a new way of dealing with ambiguity and fluidity—one that does not assume a single, coherent reality but instead explores how realities are differently enacted, understood, and negotiated in ways incoherent. Instead of problematic, such incoherence provides scope for creativity, learning and dialogue as, in practice, realities are fluid and can therefore affect one another.

In our case, the concept of amphibiousness draws attention to the shifting interface between land and sea while at the same time scrutinizing the ways in which people and coral—as amphibious beings—move and enact this very interface. More generally, the notion of amphibiousness is a useful tool to help undo geographical biases (whether land-based or otherwise) and redress dichotomies. Moreover, as a condition to live with and a concept to think with, amphibiousness refers to moving and thinking along ontological difference without requiring coherence.[14] It is a deliberate movement between different worlds, which aims to generate partial fusion—to come to grips with the "in between," so to speak.

We therefore wish to stress ambiguity as a "useful complication" that stimulates thinking and reflection. Amphibiousness helps sustain this ambiguity, and renders it productive. It does so not only as a conceptual tool but also as a methodological disposition. Indeed, if objects and

---

[14] In this line of thinking, Helen Verran (2001) has similarly argued for the possibility of ontological translation between what she refers to as "micro worlds."

realities are not clear-cut a new kind of sensitivity is required to engage with and sustain ambiguity. This also applies to the practice of anthropological research, as "the field" constantly demands attention to different, moving and interacting realities. Paying due attention to ambiguity is a crucial skill—not only for anthropologists but for all those who engage with difference through dialogue and diplomacy.

Being diplomatic, being open to the possibility to be "moved over" (Kohn 2013) or, in our terms, being open to amphibiousness thus has practical and political value beyond the case of conservation, as it allows for the (cosmo)political task of recomposing socio-ecologies of all kind through ontological exposure and dialogue.

Author Biography

Annet Pauwelussen is currently a lecturer at the Institute of Cultural Anthropology and Development Sociology of Leiden University. She holds a PhD in Anthropology of Development from Wageningen University and has conducted research on maritime societies, fishing and marine conservation practices in Southeast Asia. Her dissertation "Amphibious anthropology: engaging with maritime worlds in Indonesia" explores the human capacity to live in and move between different worlds in terms of living in a hybrid land-sea environment and in terms of moving along with different understandings of reality. Central to her current work are the political and methodological challenges involved in dialogues between science-based and indigenous understandings of human-environment relations.

Author Biography

Gerard Verschoor grew up in Mexico. He has a MSc and PhD in Development Sociology (Wageningen University), and has conducted research in Burkina Faso (land-use patterns), Colombia (climate change, territoriality, food chains), Costa Rica (local knowledge and natural resources), and Mexico (migration, agricultural intervention, GM-corn, small-scale enterprise). Key parts of his work presently concentrate on trying to understand how socio-ecological controversies are underpinned by conceptual disjunctures—most notably between global forms of governance and indigenous peoples. In terms of geographical focus, these play out in Mexico and Colombia in particular.

Acknowledgements

References

Afiff, S. and C. Lowe. 2007. "Claiming indigenous community: political discourse and natural resource management in Indonesia." *Alternatives: Global, Local, Political* 32: 73-97.

Agrawal, A. 2005. "Environmentality: community, intimate government, and the making of environmental subjects in Kumaon, India." *Current Anthropology* 46 (2): 161-190.

Bear, C. 2012. "Assembling the sea: materiality, movement and regulatory practices in the Cardigan Bay scallop fishery." *Cultural Geographies* 20(1): 21-41.

Bear, C. and S. Eden. 2008. Making space for fish: the regional, network and fluid spaces of fisheries certification. *Social and Cultural Geography* 9(5): 487-504. DOI 10.1080/14649360802224358

Bennett, J. 2010. *Vibrant Matter. A Political Ecology of Things*. Durham and London: Duke University Press.

Blaser, M. 2009. "The threat of the Yrmo: the political ontology of a sustainable hunting program." *American Anthropologist* 11 (1): 10-20. DOI 10.1111/j.1548-1433.2009.01073.x

Blaser, M. 2014. "Ontology and indigeneity: on the political ontology of heterogeneous assemblages." *Cultural Geographies* 21 (1): 49-58. DOI 10.1177/1474474012462534

Bonelli, C. 2013. "Ontological disorders: nightmares, psychotropic drugs and evil spirits in southern Chile." *Anthropological Theory*, 12 (4), 407-426. DOI 10.1080/08941920.2011.618487

Bonelli, C. 2015. "To see that which cannot be seen: ontological differences and public health policies in Southern Chile." *Journal of the Royal Anthropological Institute* 21: 1-20.

Bowen, J. 2015. *The Coral Reef Era: From Discovery to decline. A History of Scientific Investigation from 1600 to the Anthropocene Epoch.* Dordrecht: Springer.

Bottignolo, B. 1995. *Celebrations with the Sun: An Overview of Religious Phenomena among the Bajaos.* Manila: Ateneo de Manila University Press.

Bryant, D., L Burke, J. McManus and M. Spalding. 1998. *Reefs at Risk: A Map-Based Indicator of the Threats to the World's Coral Reefs*. Washington, DC: World Resources Institute.

Carr, M. H., J. E. Neigel, J. A. Estes, S. Andelman, R. Warner and J. L. Largier. 2003. "Comparing marine and terrestrial ecosystems: implications for the design of coastal marine reserves." *Ecological Applications* 13 (1): S90-S107.

Chou, C. 2006. "Research trends on Southeast Asian sea nomads." *Kyoto Review of Southeast Asia* 7: 1-11.

Clifton, J. and C. Majors. 2012. "Culture, conservation and conflict: perspectives on marine protection among the Bajau of Southeast Asia." *Society and Natural Resources* 25 (7): 716-725. DOI 10.1080/08941920.2011.618487

Christie, P. 2004. "Marine protected areas as biological successes and social failures in Southeast Asia." *American Fisheries Societies Symposium* 42: 155-164.

de la Cadena, M. 2010. "Indigenous cosmopolitics in the Andes: conceptual reflections beyond 'politics'." *Cultural Anthropology* 25 (2): 334-370. DOI 10.1111/j.1548-1360.2010.01061.x

de la Cadena, M., M. E. Lien, M. Blaser, C. B. Jensen, T. Lea, H. Swanson, G. B. Ween, P. West, M. Wiener. 2015. "Anthropology and STS. Generative interfaces, multiple locations." *HAU: Journal of Ethnographic Theory* 5(1): 437-475. DOI 10.14318/hau5.1.020

Djohani, R.H. 1996. "The Bajau: future marine park managers in Indonesia?" In *Environmental Change in Southeast Asia: People, Politics and Sustainable Development*, edited by M. J. G. Parnwell and R. L. Bryant, 260-267. London: Routledge.

Downey, G. 2011. "Human (amphibious model): living in and on the water." *Plos Neuroanthropology*. Accessed December 10, 2015. http://blogs.plos.org/neuroanthropology/2011/02/03/human-amphibious-model-living-in-and-on-the-water/

Foucault, M. 1994[1982]. "The subject and power." In *Power: Essential Works of Foucault 1954–1984*, edited by J. D. Faubion, 326-348. New York: The New Press.

Gad, C. and C. B. Jensen. 2010. "On the consequences of post-ANT." *Science, Technology, & Human Values* 35(1): 55-80. DOI 10.1177/0162243908329567

Gaynor, J. L. 2010. "Flexible fishing: gender and the new spatial division of labor in Eastern Indonesia's rural littoral." *Radical History Review* 107: 74-100.

Glaser, M., W. Baitoningsih, S. Ferse, M. Neil and R. Deswandi. 2012. "Whose sustainability? Top–down participation and emergent rules in marine protected area management in Indonesia." *Marine Policy* 34 (2010): 1215-1225. DOI 10.1016/j.marpol.2010.04.006

Gunawan, B. I. and L. E. Visser. 2012. "Permeable boundaries: outsiders and access to fishing grounds in the Berau Marine Protected Area." *Anthropological Forum* 22 (2): 187-207. DOI 10.1080/00664677.2012.694173

Hardin, G. 1968. "The tragedy of the commons." *Science* 162(3859): 1243-1248.

Helmreich, S. 2011. "Nature/culture/seawater." *American Anthropologist* 113(1): 132-144. DOI 10.1111/j.1548-1433.2010.01311.x

Hoeksema, B. W. 2004. "Biodiversity and the natural resource management of coral reefs in Southeast Asia." In *Challenging Coasts: Transdisciplinary Excursions into Integrated Coastal Zone Development*, edited by L. E. Visser, 49-71. Amsterdam: Amsterdam University Press.

Howitt, R. and S. Suchet-Pearson. 2003. "Ontological pluralism in contested cultural landscapes." In *Handbook of Cultural Geography*, edited by K. Anderson, M. Domosh, S. Pile and N. Thrift, 557-569. London: Sage.

IUCN World Commission on Protected Areas (IUCN-WCPA). 2008. *Establishing Marine Protected Area Networks—Making It Happen*. Washington, D.C.: IUCN-WCPA.

Jensen, C. B. 2014. "Practical ontologies." *Cultural Anthropology* website. http://www.culanth.org/fieldsights/466-practical-ontologies (accessed June 2016)

Jensen, C. B. 2015. "Experimenting with political Materials: environmental infrastructures and ontological transformations." *Distinktion* 16 (1): 17-30. DOI 10.1080/1600910X.2015.1019533

Jensen, C. B. and A. Morita. 2015. "Infrastructures as ontological experiments." *Engaging Science, Technology and Society* 1: 81-87. DOI 10.1080/00141844.2015.1107607

Kohn, E. 2013. *How Forests Think: Towards an Anthropology beyond the Human*. Berkeley: University of California Press.

Kusumawati, R. and L. E. Visser. 2014. "Collaboration or contention? Decentralised marine governance in Berau." *Anthropological Forum* 24 (1): 21-46. DOI 10.1080/00664677.2014.868783

Law, J. 2004. *After Method. Mess in Social Science Research*. New York: Routledge.

Law, J. and M.E. Lien. "Slippery: field notes in empirical ontology." *Social Studies of Science* 43: 363-378.

Lowe, C. 2003. "The magic of place: Sama at sea and on land in Sulawesi, Indonesia." *Bijdragen tot de Taal-, Land-, and Volkenkunde* 159(1): 109-133.

Mol, A. 2002. *The Body Multiple: Ontology in Medical Practice.* Durham: Duke University Press.

Morita, A. and C. B. Jensen. 2017. "Delta ontologies: infrastructural transformations in the Chao Phraya Delta, Thailand." *Social Analysis* 61(2): 118-133.

Nimmo, H. A. 1990. "Religious beliefs of the Tawi-Tawi Bajau." *Philippine Studies* 38(1): 2-27.

Nolde, L. 2009. "'Great is our relationship with the sea.' Charting the maritime realm of the Sama of Southeast Sulawesi, Indonesia." *Explorations* 9: 15-33.

Pauwelussen, A. P. 2015. "The moves of a Bajau middlewomen: understanding the disparity between trade networks and marine conservation." *Anthropological Forum* 25(4): 329-349. DOI 10.1080/00664677.2015.1054343

Pauwelussen, A. P. 2016. "Community as network: exploring a relational approach to social resilience in coastal Indonesia." *Maritime Studies* 15: 2 [online]. DOI 10.1186/s40152-016-0041-5

Pauwelussen, A. P. 2017. *Amphibious Anthropology: Engaging with Maritime Worlds in Indonesia*. PhD Thesis, Wageningen University.

Sather, C. 1997. *The Bajau Laut: Adaptation, History and Fate in a Maritime Fishing Society of Southeastern Sabah*. Kuala Lumpur: Oxford University Press.

Soekirman, T., E. Carter, H. Widodo and M. Scherl. 2009. *Community Development and Alternative Livelihood Initiatives at TNC-Coral Triangle Centre Related Sites*. Denpasar: TNC.

Smitt, C. 2015[1942]. *Land and Sea. A World Historical Meditation*. Translated by S. G. Zeitlin. New York: Telos Press.

Stacey, N. 2007. *Boats to Burn: Bajo Fishing Activity in the Australian Fishing Zone*. Canberra: ANU E-Press.

Steinberg, P. E. 2013. "Of other seas: metaphors and materialities in maritime regions." *Atlantic Studies* 10(2): 156-169.

Steinberg, P. E. and K. Peters. 2015. "Wet ontologies, fluid spaces: giving depth to volume through oceanic thinking." *Environment and Planning D: Society and Space* 33: 247-264. DOI 10.1068/d14148p

St. Martin, K. and M. Hall-Arber 2008. "Creating a place for "community" in New England fisheries." *Human Ecology Review* 15(2): 161-170.

Strathern, M. 1999. *Property, Substance and Effect. Anthropological Essays on Persons and Things*. London: The Athlone Press.

Tagliacozzo, E. 2009. "Navigating communities: race, place and travel in the history of maritime Southeast Asia." *Asian Ethnicity* 10(2): 97-120.

Ten Bos, R. 2009. "Towards and amphibious anthropology: aater and Peter Sloterdijk." *Environment and Planning D: Society and Space* 27: 73-86. DOI 10.1068/d13607

Terborgh, J. 1999. *Requiem for Nature*. Washington D.C.: Island Press/Shearwater Books.

Thompson, C. 2002. "When elephants stand for competing philosophies of nature: Amboseli National Park, Kenya." In *Complexities: Social Studies of Knowledge Practices*, edited by J. Law and A. Mol, 166-190. Durham: Duke University Press.

Venkatesan, S. (ed). 2010. "Ontology is just another word for culture: motion tabled at the 2008 meeting of the Group for Debates in Anthropological Theory, University of Manchester." *Critique of Anthropology* 30: 152. DOI 10.1177/0308275X09364070

Verran, H. 2001. *Science and an African Logic*. Chicago: University of Chicago Press.

Visser, L. E. and D. S. Adhuri. 2010. "Territorialization re-examined: transborder marine resources exploitation in Southeast Asia and Australia." In *Transborder Governance of Forests, Rivers and Seas,* edited by W. de Jong, D. Snelder and N. Ishikawa, 83-98. London/Washington: Earthscan.

Viveiros de Castro, E. 1998. "Les pronoms cosmologiques et le perspectivisme Amérindien." In *Gilles Deleuze: Une Vie Philosophique*, edited by E. Alliez, 429-462. Paris: Les Empêcheurs de penser en rond.

Viveiros de Castro, E. 2003. "After-dinner speech at 'Anthropology and Science', the 5th Decennial Conference of the Association of Social Anthropologists of Great Britain and Commonwealth, 14 July 2003." *Manchester Papers in Social Anthropology*, 7, 2003.

Viveiros de Castro, E. 2004. "Perspectival anthropology and the method of controlled equivocation." *Tipití* 2(1): 3-22.

Walley, C. 2004. *Rough Waters. Nature and Development in an East African Marine Park*. Princeton: Princeton University Press.

Wilson, J., P. J. Mous, B. Wirjawan, and L. M. DeVantier. 2010. *Report on a Rapid Ecological Assessment of the Derawan Islands, Berau District, East Kalimantan, october 2003*. Denpasar: The Nature Conservancy.

Wynne, B. 1991. "Knowledges in context." *Science, Technology & Human Values* 16: 111-121.