Uneven Development and Shifting Socioecological Rifts: Some Unintended Consequences of Dolphin Conservation in Cambodia

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Abstract
As sites of global environmental degradation continue to emerge and pose significant threats to life on the planet, the world’s natural resource managers persist in attempts to mitigate and reverse this degradation. However, these mitigation attempts often employ capitalist mechanisms as solutions to problems caused by capitalism. I used one-on-one in-depth interviews, focus group discussions, and participant observation to examine the socioenvironmental changes associated with an Irrawaddy dolphin conservation project in Cambodia from the perspectives and experiences of the people most affected by the project. I argue that the inability of capitalist mechanisms to address the interconnectedness of “social” and “environmental” problems resulting from capitalism, in this case, appear to have served to exacerbate social inequality and to shift the project’s targeted ecological rift from the rivers to the forests. I also introduce the term “Whack-A-Mole” conservation to refer to this tendency of neoliberal conservation to simply shift socioecological rifts.

Keywords
capitalism and conservation, uneven development, ecological rift, Cambodia, Irrawaddy dolphin, “Whack-A-Mole” conservation

The socioenvironmental costs of capitalism have been predicted and documented by eminent scholars around the world (see, e.g., Brockington, Duffy, and Igoe 2008; Foster, Clark, and York 2010; Harvey 1990; Marx 1977; Mészáros 2010; Polanyi 1957; Speth 2008; Sweezy 1972), and as capitalism continues to expand globally, it brings these socioenvironmental costs in tow (Brockington and Duffy 2011; Ekers and Prudham 2018). Conservationists of the world have come together to form various organizations, including nongovernmental organizations (NGOs), in an attempt to address the environmental crises precipitated by capitalism. However, the environmental (conservation) NGOs with the most funding—through courting government, corporations, and wealthy philanthropists with solutions to environmental crises that are compatible with capitalist goals (Brockington et al. 2008; Büscher and Arsel 2012)—have had the most influence on the political discourse of conservation (Corson 2010; Fisher 1997; Werker and Ahmed 2008). Consequently, the mainstream mode of conservation has relied on market integration of “nature” in order to “save” it and, therefore, attempted to parse out “natural” processes from “social” ones so that “nature” and its components become visible and

1As many scholars have argued, the boundary between “nature” and “society” is a hegemonic ontological product, and there have been recent attempts to refer to “socioenvironments” or “socioecologies” (Ekers and Prudham 2017; Moore 2000) to reflect the dialectic relationship of “nature” and “society.” Although binary language permeates the literature on capitalism and its effects on socioenvironments, I make an attempt to refer to “socioenvironments/ecologies” rather than “society and environment,” where appropriate, in an effort to begin moving away from that binary. I also enclose words related to this binary in quotation marks to emphasize their ontological origins where appropriate.

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their value quantifiable (Coffey 2016; Ekers and Prudham 2017; Sullivan 2017b). Thus, market-based “environmental” and conservation projects are necessarily ontological projects where “nature” is produced and capitalist socioenvironmental ontologies become cemented as this capitalist-conservation nexus informs worldwide conservation hegemony (Sullivan 2017a, 2017c), a process that has been termed “eco-governmentality” (Goldman 2001; Ulloa 2013).

Once institutionalized at the global level, international NGOs (INGOs) then become nonstate vectors through which this capitalist-conservation nexus is transferred internationally via NGO governability (Deutsch 2017) — where existing social relations are manipulated to regulate behaviors of individuals (Karim 2011). Even in cases in which activists attempt to resist this NGO governability, they are often overpowered and subsumed by the well-funded influence of INGOs (Corson 2017). Thus, as capitalist ideology moves globally with the assistance of eco-governmentality and INGOs, the socioenvironmental consequences of capitalism follow.

Although many proponents of ecological modernization theory (i.e., green capitalism) remain optimistic that the deleterious “environmental” effects of capitalism can be mitigated through technological advances and institutional adjustments within the current capitalist structure (Foster et al. 2010; Langhelle 2000; Mol and Sonnenfeld 2000), many argue that instead of capitalism becoming more environmentalist, environmentalism has become more capitalist. Indeed, Brockington et al. (2008) argue that conservation has opened a new frontier for capitalism as it is employed to fix the problems it has created. Büscher and Fletcher (2015) define this “mode of accumulation that takes the negative environmental contradictions of contemporary capitalism as its departure for a newfound ‘sustainable’ model of accumulation for the future” as “Accumulation by Conservation” (p. 273).

Neoliberal conservation attempts to offset the deleterious “environmental” effects of capitalism include technological solutions, privatization or enclosure of resources, and in situ commodification. Each approach has played its role in advancing capitalist modes of accumulation while simultaneously exacerbating its deleterious effects on socioenvironments. For example, fisheries managers have tried to offset the worldwide collapse in fisheries stocks through technological solutions such as privatized aquaculture (Clausen and Clark 2005). While this approach may sometimes help in meeting global demand for fisheries products, aquaculture has introduced a host of new socioenvironmental problems, including the accumulation of aquaculture waste; bioaccumulation of pollutants in farmed fish, shellfish, and mollusks; alteration of food webs and ecosystems; and the introduction of farmed and genetically modified fish into the natural environment (Eng, Paw, and Guarin 1989; Gowen et al. 1990; Myhr and Dalmo 2005; Naylor et al. 2000; Tovar et al. 2000).

Building on (or perhaps returning to) Marx’s theory of primitive accumulation, Harvey (2004) describes “accumulation by dispossession” as “the continuous role and persistence of the predatory practices of ‘primitive’ or ‘original’ accumulation within the long historical geography of capital accumulation” that accompanies “spatio-temporal fix’s” to crises of capitalist overaccumulation (p. 74). This “accumulation by dispossession” is embedded in neoliberal conservation and often manifests in the form of parks or protected areas where enclosures of natural resources secure those resources for private exploitation at the expense of smaller local resource users (Castree 2008; Heynen and Robbins 2005; Mansfield 2004). In Cambodia, the creation of protected areas has served to enclose natural resources to make them available for private resource exploitation through hydropower development projects and land concessions for commodity production (e.g., rubber and sugar), mining exploration, and commercial tourism development (Paley 2015).

As natural resources grow scarce, another approach used in capitalist conservation is the commodification of resources sans extraction, or in situ, in order to preserve them. This approach thus allows capitalism to delay “environmental” crises while simultaneously benefitting from those crises (Büscher and Fletcher 2015; Ekers and Prudham 2017; Fletcher 2011). Perhaps the most salient and pervasive form of in situ commodification is found in ecotourism. According to Fletcher and Neves (2012), ecotourism functions in employing capitalist mechanisms to address problems of capitalist development itself by attempting to resolve a series of contradictions intrinsic to the accumulation process, including: economic stagnation due to overaccumulation (time/space fix); growing inequality and social unrest (social fix); limitations on capital accumulation resulting from ecological degradation (environmental fix); a widespread sense of alienation between humans and nonhuman natures; and a loss of “enchantment” due to capitalist rationalization. (p. 60)

Ecotourism in the underdeveloped world is often marketed to the developed world as a means by which to participate in the preservation of “nature” while partaking in an enriching reciprocal cultural exchange (Munt 1994). However, these interactions usually take place in “tourism bubbles,” which obscure and misrepresent actual socioecological relations so that tourists can participate without being confronted by harsh socioenvironmental realities (Büscher and Fletcher 2017). And, as local participation in ecotourism is often restricted to those who are able to gain access, it often reinforces preexisting power dynamics and serves to widen the gaps between those who are able to participate and those who are not (Brockington and Duffy 2011; Cater 2006). Additionally, ecotourism fails to capture other socioenvironmental costs, such as waste, associated with international travel and consumption of other commodities, including souvenirs, at the in situ site (Brockington et al. 2008; Fletcher 2011; Gössling and Peeters 2007). Büscher and Fletcher (2017:651) argue that these socioenvironmental consequences (“systematic production of inequalities, waste, and ‘spaces of exception’”) are hallmarks of tourism in general and that they constitute a form of “structural violence.”
As consequences from “fixes” such as those discussed above continue to multiply with each socioenvironmental problem that is addressed without addressing the socioeconomic policies that precipitate and/or exacerbate the problem, the natural resource managers of the world are caught in a virtual “Whack-A-Mole” conservation game. That is, instead of diagnosing and addressing the underlying system from whence these “moles” emerge, conservationists instead seem intent on waiting for each mole to emerge and then attempting to “whack” it into submission without recognizing that this technique simply serves to scare the mole off until it emerges—through some unknown and unforeseen system of burrows—from another hole.

Marx (1981) got at the crux of this “Whack-A-Mole” conundrum when he theorized an “irreparable rift in the interdependent process of social metabolism” (p. 949) as part of his conception of ecological crises precipitated by capitalism. Expanding on this concept, now referred to as “metabolic rift,” Foster et al. (2010) identify a “global ecological rift,” which refers “to the overall break in the human relation to nature arising from an alienated system of capital accumulation without end” (p. 18). They argue that this ecological rift is the primary driving force behind global ecological crises as capitalism shifts to new areas once it has made a large enough rift where it has been collecting natural capital, usually at the expense of the disempowered.

Moore (2017) argues that, while the theory of ecological rift is an important contribution to environmental sociology, the “reading of social metabolism as a rift of ‘nature and society’—rather than society-in-nature” has caused “Marx’s ecological thinking … to be narrowly understood” (p. 286). Rather, he argues that moving away from a nature/society dichotomy and instead recognizing that society is both “producer and product of the web of life”—and socioecological metabolism is, therefore, “a process of life-making within the web of life”—allows for a deeper analysis of the coproductive relationship of capitalism and this web of life. Similarly, in their companion articles, Ekers and Prudham (2017, 2018) argue that socioecological fixes, particularly fixed capital projects, that employ the production of nature also necessarily require social reproduction. In other words, capitalist projects that seek to separate nature from society—in order to assign a value to nature and “save” it by incorporating it into the market—necessarily redefine nature and thus socioecological relationships. They conclude that such socioecological fixes are hegemonic projects that alter socioecological metabolic processes.

Thus, continued attempts to integrate capitalist ideology with conservation introduce and reinforce power dynamics as contestations over whose definitions of “sustainability” matter are ignored in favor of definitions that are compatible with a capitalist economy (Cavanagh and Benjaminsen 2017), and the adoption of these favored definitions lead to damaging socioecological consequences (Dressler 2014; Dressler et al. 2015; Dressler et al. 2017). Moreover, the myopic market-based approach to conservation obfuscates and “forecloses alternative and progressive possibilities capable of resisting status quo logics of accumulation” (Dempsey and Chiu Suarez 2016:653). Meanwhile, “social” problems such as uneven development continue to plague capitalist fixes to “environmental” problems. Through disproportionate participation in industries such as nature tourism and through enclosures of communal spaces for private extraction for profit, power relations are created and/or reinforced (Brockington and Duffy 2011; Büscher and Arsel 2006). For example, in postconflict Cambodia, the enclosure of natural resources for exploitation played a crucial role in the rise in power of the Cambodian People’s Party (Milne et al. 2015) “and those tied to the regime through familial, patrimonial or business relationships (Global Witness 2009)” (cited in Milne and Mahanty 2015:9) at the expense of those who locally rely on those resources (Springer 2009).

The problem of uneven development extends beyond the disproportionate allocation of resources and is often the catalyst to other severe social costs. For example, the polarization of communities in uneven development often leads to the loss of social cohesion.

Social cohesion refers to two broader, intertwined features of society, which may be described as: (1) the absence of latent social conflict—whether in the form of income/wealth inequality; racial/ethnic tensions; disparities in political participation; or other forms of polarization; and (2) the presence of strong social bonds—measured by levels of trust and norms of reciprocity (i.e. social capital); the abundance of associations that bridge social divisions (“civil society”); and the presence of institutions of conflict management (e.g., a responsive democracy, an independent judiciary, and so forth). (Kawachi and Berkman 2000:175, emphasis added)

As many scholars have noted, the loss of social cohesion then leads to additional social costs including increased violence, social deviance, and substance abuse (Duncan, Duncan, and Strycker 2002; Shaw and McKay 1942; Wilkinson and Marmot 2003).

This article adds to the growing body of literature that critically examines the relationship between conservation and capitalism, and the resultant shifts in socioecological metabolism, by providing a specific example of the inability of capitalist mechanisms to address the interconnectedness of social and environmental problems in a capitalist “Whack-A-Mole” conservation project.

The Case of Cambodia

As Cambodia’s government has shifted economic policy to encourage open markets in a bid to improve its competitive edge in a global capitalist economy, the privatization of resources has become part of the country’s agenda (Springer 2009). Simultaneously, local fishers in rural villages in Cambodia have seen a rapid decline in fisheries stocks in the past several years (Sneddon 2007). These declines have been
attributed to environmental degradation, the development of extensive water infrastructure, and overfishing, but are widely regarded as a result of the privatization of fisheries resources as “private fishing operators … encroach on community fishing grounds and use threats and violence to sustain their exploitative practices” (Sneddon 2007:167). The survival of the Irrawaddy dolphin in the Mekong River is directly linked to these practices as accidental capture in gillnets, and mortalities due to electric and explosive fishing techniques, have been identified as the most significant threats to the Irrawaddy dolphin in Cambodia (Beasley et al. 2013).

Comprehensive research efforts of the Irrawaddy dolphin in Cambodia began in 2001 with the Mekong Dolphin Conservation Project (MDCP), a researcher-led project. As research confirmed the critical status of the Irrawaddy dolphin in the Mekong, the World Wide Fund (WWF) for Nature Cambodia Program formally took over responsibility for the conservation of the Irrawaddy dolphin in collaboration with the Cambodian government. The policies established through this collaboration have been numerous, but the most significant were developed by the Dolphins for Development Integrated Conservation Development Project, which “aimed to provide tangible benefits to local communities in exchange for their cooperation with conservation efforts. Project components included (1) rural development and diversification of livelihoods; (2) management of the existing community-based ecotourism; (3) education and awareness raising; and (4) strengthening stakeholder relationships” (Beasley et al. 2009:378). Currently, it appears that conservation measures in Cambodia are failing to achieve recovery of the Irrawaddy dolphin; the most recent estimates indicate that the subpopulation in the Mekong is declining at a rate of roughly 7.3 percent per year, and biologists are predicting their impending extinction (Beasley et al. 2013).

The findings described in this article are part of a larger project to examine the socioenvironmental changes associated with MDCP as well as an Irrawaddy dolphin conservation project in Myanmar (Burma). In this article, I focus on findings in Cambodia and discuss the problem of uneven development as a consequence of capitalist approaches to the conservation of the Irrawaddy dolphin as well as the unintended effects of attempts to mitigate this uneven development through capitalist mechanisms. I argue that the uneven development in the study area appears to be a direct result of conservation efforts in the region and that attempts to alleviate this effect—and thus ensure the successful conservation of the dolphin—have employed capitalist fixes that have served to shift the socioecological rift from the rivers to the forests. As such, I will attempt to answer the following research questions: (1) How do participants describe benefits and costs due to conservation projects/tourism in their homes and villages, relative to surrounding homes and villages? and (2) Based on participants’ experiences, do there appear to be any “environmental” consequences of dolphin tourism and conservation?

### Methodology

#### Data Collection

A total of 123 people from nine villages participated as interviewees in this study conducted from March through April 2015 through 69 one-on-one in-depth interviews and/or 14 focus group discussions. All interviews and discussions were conducted by the researcher through interpreters. Data were supplemented with participant observation during interviews and throughout the researcher’s stay in Cambodia. The majority of participants were chosen randomly as the interpreter(s) and researcher walked through each village, although we occasionally used snowball sampling (Berg 2006). Participants were first asked to participate in a questionnaire (as part of a larger study) to develop trust and ascertain their willingness to participate as interviewees. Issues of power, privilege, and cultural/language barriers were addressed as outlined in the appendix. Participants ranged in age from 15 to 89 years with a mean age of 41 and included a total of 71 females and 52 males. The majority of participants were agricultural workers (41) or fishers (32), while other occupations included sellers, homemakers, manufacturers, government officials and law enforcers, boat drivers, service industry workers, tourism workers, public service workers, students, retirees, and business owners. To protect the identities of participants, I do not use their names and instead identify them by age, sex, and village. I also do not name the villages but instead refer to them as “target” (T)—villages specifically targeted by conservation projects—and “adjacent target” (AT)—villages nearby those specifically targeted by conservation projects, but not targeted themselves—and “nontarget”(NT)—villages not targeted by conservation projects and at least one hour by local transport from the nearest targeted village but not necessarily outside of identified critical habitat for Irrawaddy dolphins. Thus, the villages will be referred to by the following formula: T/AT/NT#, where # is the number of the village, in chronological order according to when the first interview occurred there. This study included participants from four T, three AT, and two NT villages.

All interviews and discussions were audio-recorded with participants’ permission following institutional protocol for the protection of human participants, and the Khmer portions of audio-recordings were transcribed verbatim. Each transcription was then translated into English and matched against the original audio recordings for accuracy (determined by matching the written translation to the in-field interpretation) and thoroughness (determined by matching the length of time the interpreter/participant spoke to the approximate number of words written down).

#### Data Analyses

Individual interviews and focus group discussions were analyzed using the grounded theory method in which themes are developed by examining interview data for recurring
Deutsch (2006). Concepts were coded line by line using Atlas.ti software (Muhr 2012) to help reveal patterns in the data (Glaser and Strauss 1967). When transcribing focus group discussions, transcribers were often unable or did not attempt to differentiate the voices of participants. Therefore, I cite participants in focus groups with as much information as available. For example, in a focus group of two male fishers aged 23 and 34 and one male farmer aged 28 from T2, I cite a single participant in the group using “(23M & 34M Fishers, 28M Farmer, T2).” Additionally, because voices of participants in focus groups were often not differentiated—and because it is possible that some answers may have been unintentionally missed for a particular code—when I state counts of participants whose responses agreed with a concept, I use the minimum number of counts (i.e., concepts coded in focus groups were counted once, regardless of how many times that concept was mentioned in a particular focus group). Thus, I use “at least,” “around,” or “approximately” to indicate that the number given is the minimum number of participants whose statements agreed with the concept being described.

**Findings and Discussion**

(1) **How do participants describe benefits and costs due to conservation projects/tourism in their homes and villages, relative to surrounding homes and villages?**

Participants in T and AT villages were asked if there were any changes in their homes and villages as a result of the conservation project and asked to elaborate if they answered in the affirmative. All participants were also asked what changes they had seen in the past 10 years, and changes due to tourism and/or the conservation project sometimes came up at this point. Although participants were not asked directly to relate the changes they observed to others’ homes/villages, they sometimes did so when discussing changes in their own homes/villages. Below, I use these descriptions to try to elucidate how benefits and costs of MDCP are distributed.

**Distribution of Benefits**

Participants discussed at least five benefits of the conservation project including (1) improved livelihoods/increased income (~29: 19 T, 10 AT), (2) fishing restrictions (~15: 9 T, 5 AT, 1 NT), (3) it is easier to find fish (~7: 3 T, 4 AT), (4) dolphins are protected (~2 T), and (5) material donations (~1 T).

At least 3 (AT) of the 29 participants who mentioned the benefit of improved livelihoods/increased income as well as an additional 9 participants (1 T, 7 AT, 1 NT), said there was no change in their own livelihoods or income because they lived too far away from the nearest dolphin tourism area. Thus, while the remaining 26 of 29 participants said their livelihood personally improved or personal income had increased, nearly half that number said that their livelihoods/income had not improved. As 1 participant in a group of 3 described, “for [the tourist village], they are making dolphins [sculpture]. Here, we just only do farming and sell cattle. [The tourist village’s] people were really poor in the past. Now, ever since they started making dolphins [sculpture], they are wealthier than this place here” (62M Farmer, 82M & 89M Retired, AT3).

According to Beasley et al. (2009) the monetary benefits of dolphin tourism were initially realized by a small segment of the community in the main dolphin tourism village, while many others were bearing the costs of conservation through the loss of fishing rights. While NGOs worked with the Cambodian government to sign an agreement to distribute the benefits of dolphin tourism more equally in 2004, the government later nullified that agreement in 2007, ensuring that distribution of benefits mainly went to those families directly involved in dolphin tourism (i.e., boat drivers and ticket sellers), with the rest going to the government. However, part of the initiative to diversify livelihoods included teaching locals how to carve and sell sculptures, particularly of dolphins, to tourists. According to one participant in the main tourist village, “around 70 … in this village, around 70 percent” of villagers make their living by carving and selling dolphin sculptures (39M Wood Carver, T2). While this seems to have helped to distribute the monetary benefits of conservation via tourism, at least 2 participants who live in the main dolphin tourism area said there was no change in their livelihoods because they did not make dolphin sculptures to sell. According to another participant in a group of three in a village adjacent to the main dolphin tourism area, “it is only around 70 percent [of the villagers]” who have become rich through the sale of dolphin sculptures (21M Fisher, 23M & 56F Farmer, AT3). Additionally, although the burgeoning business of dolphin sculptures has significantly bolstered the income of many participants in the short term, it may have severe long-term effects as discussed below.

When participants mentioned that one of the changes since the conservation project began was increased fishing restrictions, it was not always clear whether this was seen as a benefit. Thus, while at least 15 participants spoke of the benefits of fishing restrictions, approximately 9 other (5 T, 3 AT, 1 NT) participants mentioned fishing restrictions as a change, without offering an opinion about the change. For example, when 1 participant was asked what changes she had seen as a result of the conservation project, she replied, “change like there are less large pattern drag net and there are less electric shock” (25F Homemaker, T2). Additionally, at least 6 (4 T, 1 AT, 1 NT) of the 15 participants who referred to the benefits of fishing restrictions due to the conservation project also discussed costs of this change, although they didn’t always identify them as costs. As 1 participant explained, “the impact is that [we cannot] go fishing but [we are] able to fish on land [she is referring to the businesses with
the tourist on land]. There is no impact and the fishing on land is better than the fishing in water” (60F Farmer, AT1). Several other participants mentioned fishing restrictions strictly in terms of its costs, which I discuss below.

While at least 7 participants mentioned that they were more easily able to find fish since the conservation project began, none of these participants were full-time fishers. At least 1 (T) of the 7 fished for only a few hours at night, 2 (AT) stated that they no longer fished at all, 1 (T) said he seldom fished, and 3 (1 T, 2 AT) said they fished only in the dry season when they weren’t working in agriculture. Additionally, many other participants said that fishing had become harder since the conservation project began, which I discuss below.

Thus, it appears that the benefits of the conservation project are distributed unevenly, and benefit realization seems to be mostly determined by whether participants are involved in the dolphin tourism industry.

**Distribution of Costs**

Participants mentioned at least two costs associated with the conservation project, including (1) deteriorating livelihoods due to fishing restrictions (~20: 15 T, 4 AT, 1 NT) and (2) eviction from homes (~1 T). Many of the Cambodian fishers who participated in this study, including at least 4 from the main tourist village, described personal hardship because they were no longer able to fish or were no longer able to make a living from fishing due to loss of fishing rights. For example, as one former fisher described, “to be exact, there are still fishes, but it’s like it is difficult to fish because the places that we were able to catch, they do not allow us to fish there anymore. They are afraid that dolphins would get caught” (51M Seller, AT4). According to another fisher, “I want to say that there are only impacts for the fishermen like me. They prohibit us from using drag net. Prohibit; if you set it up, they would come to confiscate our drag net and burn it—they told us that. They prohibit us from using it” (36F, T6).

Some fishers seem to have been able to successfully shift to other forms of income as described by this participant: “Some people are happy as they depend on fish but they couldn’t catch more fish. Now, they change to grow vegetables or create new businesses which provide them better profits. So they are happy” (49M Farmer, T7). While some of the fishers affected by fishing restrictions are recovering income by growing vegetables for sale, others are doing so by participating in tourism. For example, as one former fisher said, “there are changes like they do not fish anymore. When they do not fish, [they] make dolphin [sculpture] and things like that. So, you can sell it or customers come to buy—they can earn a lot of profit” (59M Tourist Boat Driver, T2). Although this shift in income generation appears to be seen in a positive light by many participants, the long-term effects of wooden sculptures may be problematic as discussed below.

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**Other Social Costs**

As discussed previously, the loss of social cohesion, which operates through many mechanisms—including “income/wealth inequality” and “other forms of polarization”—leads to other social costs such as increased violence, social deviance, and substance abuse. Although more data are needed, it is nonetheless noteworthy that these forces also appear to be operating in the study area.

When discussing good and bad changes in their homes and communities in the past 10 years, participants often mentioned alcohol (~3), gangsters (~6), drugs (~3), thieves (~4), and violence (~2). These changes also appear to have arisen in recent years as this exchange between the interpreter and a participant demonstrates:

Interpreter (I): And, what about the bad things in the village? Are there any bad changes happening? The bad things in the village?
Participant (P): There are delinquents and stuffs.
I: And what about now?
P: Now, there still are. It is not gone yet. Delinquent, drugs and stuffs.
I: I want to say that it exists for a long time now or … before, it existed and now, it still exists or what?
P: Delinquents?
I: Yes
P: It just suddenly bursts out in the last few years. (33F Farmer, T2)

Thus, it appears that the uneven development has been accompanied by an increase in other social costs.

(2) Based on participants’ experiences, do there appear to be any “environmental” consequences of dolphin tourism and conservation in Cambodia?

Participants in this study were not directly asked to identify “environmental” consequences of dolphin tourism or conservation. However, they often spoke of “environmental” impacts that they did not directly link to the conservation projects or tourism but that appear to be relevant to the long-term success of such ventures.

As discussed previously, part of the effort to more evenly distribute the benefits of dolphin conservation has involved the introduction of local villagers to the handicap of carving wooden sculptures, particularly of dolphins, for sale to tourists. As one participant explained, “it is different. Before, we did not have dolphin sculpture, but when the organization came to protect the dolphin, we made dolphin sculpture [and] can sell it overseas [to foreigner]” (25F Homemaker, T2).

At least 13 (11 T, 2 AT) participants in this study engage in the dolphin sculpture business personally, and at least another 2 (T) have relatives who engage in it. One participant even mentioned that she leases rooms to at least seven people
who come to help her make sculptures. When we asked her where these workers come from, she told us, “they are from [a village 3 km away]. Cannot hire the villagers here. They are also making their [sculptures]” (55F Wood Carver, T2).

At least another 18 (9 T, 9 AT) participants, who are not personally involved in the dolphin sculpture business, also spoke of the value of dolphin sculptures in bringing monetary wealth to the area. As 1 of these participants described, the villagers, everyone loves them [dolphins] in this village, they [villagers] stay alive because they [tourists] come to see dolphins like that. They can produce some tools—make some souvenir, something like fish, dolphins. The tourists come in and buy them! So, give more income to the people. Who doesn’t like dolphins!? Everyone love them right. (35M Farmer, AT1)

Another participant in a group of 4 elaborated on the benefits to the community of dolphin sculptures:

It’s different in our village and community … who’s making dolphins, wooden dolphins for sale. They are getting richer. Everyone so successful—make fish, dolphins. They have motorbikes, cars. Before people live in [the dolphin tourism area] were poorer than people [here], now people in [the dolphin tourism area] they are more richer than people [here]. Because they live closer to the tourist center, they’re making these dolphins. They’re making fish, these dolphins. All of them are getting richer. (30F, 40F, & 50F Farmers & 32F Unknown, AT1)

It also seems, at least according to 1 participant, that the dolphin sculpture business has given many villagers more autonomy, as this participant described in a conversation with the interpreter:

Participant (P): I want to say that; let’s talk about the tourist area. I want to talk about the tourist area. In the last 10 years, the people did not have any business to do. They just worked as laborers and did farming a little bit. They were lacking this and that—even me. But now, the people have ideas. Let’s say in the last 4 to 5 years, they have ideas to make sculptures of fish, dolphin and all kind of animals.

Interpreter (I): They can earn money from it?

P: Yes, they earn money. Their livelihood is better. And another thing. I want to say that the villagers here do no work as laborer anymore. Like before, we worked for a day and got 15,000 to 20,000 KHR [US$3.70–4.90]. Earned a day and spent it all—it was up to 80 percent [of people who worked as laborer]. Now, there are only about 20 percent or 30 percent who work as laborers. And, the 70 percent they work at the village?

I: Work at the village?

P: All of them work in their village. (45M Fisher, T2)

The business of making and selling dolphin sculptures also appears to be booming and expanding. As one participant described when asked what changes she has seen since the conservation project came to the area, “it is good. There are only people crafting dolphin and put it on sale. They promote … if we have a lot of capital, we can do it. I see everyone is doing it [and] they all earn profit. That is all” (27F Farmer, AT1). As another participant described, “the order [of sculptures] is regular. It is daily and monthly. I always have customers. I have customers at every place/shop. How much my customers order, I send it to them, and then, I send [goods] to the next customer. I am busy every day—24 hours a day” (29F Wood Carver, T2). She later added that “in the past, the people did not have regular customers, but now there are many regular customers. It’s like their sale is better and better, so everyone starts expanding their businesses. They keep making orders and there are more customers. Each maker has their own regular customers.” Entire families are often involved in the production of sculptures. As another participant described, “now, the teenagers in a family, if there are a few teenagers in their family! They can help their parents. During their free time from school, they can help sculpt the dolphin” (25F Homemaker, T2). The business also seems to be expanding nationally, and many wood carvers in the area “provide wholesale to their customers in Phnom Penh [the capital city of Cambodia] and also sell locally” (27M Carpenter/Wood Carver, 53M & 55M Farmers, T2).

While wooden dolphin sculptures have provided significant income for many in the dolphin tourism area, the basic materials (wood) for this craft appear to be sourced locally and sometimes illegally. The lumber trade that provides wood for sculptures also appears to be growing, and at least 4 (2 T, 2 AT) participants in this study work in the lumber trade, 1 (T) participant’s spouse works in the trade, and another participant (T) gave up the trade to pursue sculpture carving. The participant whose spouse works in the lumber trade admitted that he worked illegally, and another participant (AT) appears to be doing so, based on the description of his work as occurring only at night (darkness provides cover for illegal activity). Another participant described in response to a follow-up question about why he thinks more people in the village have money, “now, [they] have jobs. It is like before we just only did farming and did not have anything else—just enough for living, but now, [people] have ideas [and] they buy car and work as a taxi. Other people, they transport lumbers” (38M Fisher, T2). When asked where this lumber is sold, he replied, it is in our village. Other people, they sell it from one person to the next. Some businessman they export it to other countries. But, for the villagers, they do not sell it to other countries—[they] just sell it in the village. They sculpt [the lumber] into souvenirs, something like that.

The income from dolphin sculptures also appears to be a primary source of the income used to construct bigger houses (a change mentioned by ~30 participants), which add to the stress on local timber resources. The participant above, who mentioned that local lumber was used for sculptures, also mentioned that it was used to build houses. In answer to the
question about what is done with locally harvested lumber, he also answered, “they sell it to us for building houses!” (38M Fisher, T2). The participant above who mentioned the wholesale of dolphin sculptures to customers in the capital city completed his statement by adding, “so, [we] see that over the last few years, people have built bigger houses which are a lot different from the past” (27M Carpenter/Wood Carver, 53M & 55M Farmers, T2). Another participant also seemed to insinuate that the money from the sculptures is used to build bigger houses when he said, “before, that area was poor with small houses. After the organization came, they started making dolphin and fish sculpture and then, they become really rich” (21M Fisher & 23M Farmer, AT3).

In response to a question about what future researchers should study in the area, at least 13 percent (11: 1 T, 10 AT) of participants requested forestry studies. Several of these participants seemed unsure of this request since they weren’t certain that anything could be done to save the forests. One participant answered in response to being asked what future researchers should study, “forests. The most important thing [I] would like to request is the forest but the forest is all gone so how can they … ?” (73M Farmer, AT1). As another participant explained, “there was much forest previously, but now it has been lost” (18F Homemaker, T7). When we asked one group of participants why they wanted research done on the forest, they answered with the following:

Participant 1: Because it’s the trees.
Participant 2: They clear too much [forest]!
Participant 3: Illegal logging.
Participant 1: Logging … overtime, all the value trees are gone. (45M Fisher, 56F, 61F, & 62M Farmers, AT1)

Still, several other participants specifically did not request forestry studies because there was no forest left to protect, as this exchange between the interpreter and a participant demonstrates:

Interpreter (I): She [the researcher] wants to ask that if another researcher like her comes in the future, what do you want them to research about? For example, other than dolphin, for example, like related to forestry, environment, road, school, and pagoda, something like that. So, which one do you want them to research about?
Participant (P): The … related to school is good. I: School, right?
P: Yes, for forestry, the forest is all gone. I: The forest is all gone, so no need to talk about that. P: Yes, no need to talk about that (59M Tour Boat Driver, T2)

As seen in Figure 1, which shows the rate of deforestation in Cambodia and the study area from 2000 to 2014, these participants’ accounts of forest loss appear to align with the deforestation mapped by scientists. Of particular note, one of the largest areas of forest loss is near the most developed tourist village where dolphin sculptures are a main source of income.
The booming lumber business, which appears to at least partly related to dolphin conservation through the manufacture and sale of dolphin sculptures and the resultant construction of larger (timber) houses, may have some additional costs. One participant in a group of four was asked what the rich people in the area do to get richer:

[They work in the] lumber business, [or as] loan sharks; they take money from the poor because the poor cannot do lumber business—only the rich can do it. We can only work as their laborer/slave. … If they don’t want to give, they would not give [salary]. They use our labor and if they want to cheat us, they would cheat us and nobody would say anything. (22F, 25F, & 37F Sellers, 52F Restaurant Owner, T5)

Thus, dolphin conservation in Cambodia—it seems—is becoming contingent on the continued development of the dolphin sculpture industry and, therefore, the continued exploitation of local timber. As 1 participant noted, “if it is like now, it will go forward little by little. It’s like what I have said. If there is no dolphin to see and no wood to make [sculpture], it would not … [it would] go down” (55F Wood Carver, T2).

**Conclusion**

In Cambodia, an attempt was made to capture the monetary value of the dolphin (i.e., commodify it) in order to preserve it through tourism. In this article, I argue that the benefits of this capitalist fix appear to have been considerably unevenly distributed, and uneven development appears to be a significant side effect of dolphin conservation in Cambodia. Although many participants have been able to realize improved livelihoods through income generated by dolphin tourism, many other participants have not been able to partake in this benefit. The conservation project has sought to distribute income from dolphin tourism more evenly, but government interference continues to deflect these efforts. The costs of the conservation project also appear to be disproportionately borne by local fishers, as many said they were struggling to survive. Other strategies by the conservation project to distribute benefits more evenly, such as diversification of livelihoods toward vegetable gardening and carving wooden sculptures to sell to tourists, have helped to mitigate these costs—although fishing restrictions continue to significantly affect the lives of fishers. It also seems that as the distribution of benefits and costs in Cambodia become more uneven within and among communities, additional costs may be manifesting in the form of increased substance abuse and violence.

Further, the strategy of introducing the carving and sale of wooden dolphin sculptures to address the uneven distribution of benefits seems to have unintended consequences. The sale of wooden dolphin sculptures to tourists has no doubt provided a significant source of income for local villagers and impacted local livelihoods in mostly positive ways, according to participants. However, since deforestation has become a crucial issue in Cambodia, particularly in areas surrounding the study area, such a practice seems to exacerbate this problem. It appears that the wood for these carvings, as well as for the bigger houses being built from the income made from these carvings, is sourced locally and often illegally. Thus, while the sale of dolphin wood carvings may be helping in the conservation of dolphins, it seems to be contributing significantly to the problem of deforestation. It also appears that the increase in lumber trade, which provides the necessary wood for a livelihood that now supports the majority of the community, may have some significant social impacts as those in the lumber trade become empowered to exploit local labor in the procurement of lumber.

Thus, this case study offers a specific example of the inability of capitalist fixes in conservation to address the interconnectedness of social and environmental consequences of capitalism. Instead, the capitalist fix approach to dolphin conservation in Cambodia seems to have altered local socioecological metabolisms. Moreover, the continued reliance on capitalist fixes to deal with each unintended consequence seems to have produced a chain reaction as attempts to separately address the resultant uneven development have initiated a shifting of the socioecological rift from the rivers to the forests in a virtual game of “Whack-A-Mole conservation,” where one “mole” is “whacked,” but several others appear in ways and numbers that are unpredictable. These manifestations of socioenvironmental consequences will likely inspire a whole new host of capitalist fixes, each with its own unpredictable numbers and manifestations of socioecological rifts and shifts, until the underlying system from whence these “moles” emerge is thoroughly and summarily addressed.

**Appendix**

**Issues and Barriers and Their Solutions**

Any research endeavor is prone to its unique issues and barriers, and this project was no exception. Many, if not most, of the issues I encountered were due to the multicultural and multilingual nature of such a project by an outsider. Interpreters and translators were an absolute necessity to the success of this project. In an attempt to avoid confusion, I use the word “interpreter” to refer to those who helped me communicate with participants in the field and “interpretation” to refer to in-field interactions with participants. I use the word “translator” to refer to those who translated the transcripts of the audio-recordings and “translation” to refer to the hard copies of translated transcripts. The following is a description of the most significant issues and barriers in this project, generally in the order that they presented themselves, and the solutions I used in an attempt to mitigate their influence on data, data collection, and analyses.
Power and Privilege in Intercultural Research. The “development” of countries through the globalization of a capitalist economy brings with it “a geopolitics that universalizes European thought as scientific truths, while subalternizing and invisibilizing other epistemes” (Walsh 2007:224). Through this universalization, a discourse of development arises “that sets the rules of the game: who can speak, from what point of view, with what authority, and according to what criteria of expertise” (Escobar 2002:83). These relations of power, then, are at play when a researcher born of European thought and systems of knowledge enters a community undergoing “development” through capitalist mechanisms. The very notion of objectivity becomes suspect. Regardless, many argue that to conduct truly objective research is entirely impossible, for as soon as we choose to do research in a specific area, as soon as we choose a question or problem worthy of study, we have already declared our biases (Collins 2013; Harding 1991; Solórzano and Yosso 2002). This is not to say that we should abandon all research entirely and admit defeat in the absence of clear objectivity (which many argue does not exist). Instead, acknowledging our lack of objectivity—through relativity or constant self-reflection—allows us to examine the role of our culturally-situated assumptions throughout the research process and, in doing so, our research ironically resembles more closely the objectivity to which positivists aspire (Burawoy 1998; Collins 2013; Harding 1991). Thus, instead of operating under the assumption that I was doing objective research, I endeavored to identify issues and areas where my subjectivity may have had more influence on methods and data and attempted to mitigate the effects of that subjectivity.

I strived to pay particular attention to the roles of power and privilege in this project and how they may affect the data and, most important, the participants. I fully acknowledge that the process of obtaining the data for this project, as well as my interpretations of these data, were and are affected by my perspectives, assumptions, and knowledge as determined by my social positioning—which in turn is affected by my race, gender, class, age, nationality, and other anthropocentric classifications (Collins 2013; Harcourt and Nelson 2015; Harding 1991). Throughout this project I actively and constantly reflected on how my social positioning (as well as those of my interpreter[s]) and cultural assumptions might be affecting the research (Naples 2003).

Gaining Access to Research Sites. By far the most significant hurdle encountered in this project was gaining access to research sites. This issue was twofold in that most research sites were both logistically and politically difficult to access. I discuss political difficulties first below, since logistical access could not be considered until the former was addressed.

Political access. Because Cambodia has been open to foreigners for travel for decades following the end of civil war (Winter 2007), political access was not a significant issue. Information about visas and travel throughout Cambodia is broadly available and less restricted than in other countries in the area, with visa extensions easily available. Additionally, I had travelled to and throughout Cambodia on two prior occasions as a tourist, so I was familiar and comfortable with travel in Cambodia. Corruption is still prevalent throughout the country, and stories thrive throughout the travel community about run-ins with local authorities that resulted in monetary losses, particularly at border crossings (Backpacker Lee 2016; Lockwood 2013; Morrison 2016). However, my prior experience in Cambodia made me feel more savvy about these potential issues and, therefore, more confident in my ability to both foresee and avoid them, as well as handle them should they arise.

Logistical access. Although travel was not restricted in Cambodia, it was necessary to conduct research on day trips so that I could maintain access to the Internet and so that my interpreter could work at her regular job when not assisting me in the field. Travel times to research sites in Cambodia averaged 45 minutes one-way by tuk-tuk (a sort of covered cart attached to a motorbike) on a dusty, pothole-filled road. Additionally, it was sometimes necessary to hire boat drivers to take us to villages on the opposite side of the river. Finally, several of the villages were located several hours away by tuk-tuk and boat, so we stayed at a guesthouse in one of these villages. The intention was to stay two nights, but the heat was so unbearable that it became necessary to head back after the first night to avoid heatstroke—although we made up for this by conducting research late into the evening and then very early the next morning until we headed back in the evening of the next day.

Earning Trust of Participants. At the outset of this project, I anticipated that earning trust would pose a particularly difficult problem, given my obvious outsider status. However, I believe the issue of earning trust was at least partially alleviated by my extensive experience in intercultural communication as well as my experience in earning trust in a marginalized community for a previous project. Adler and Adler (2001) suggest that one of the ways to establish rapport with a reluctant respondent is to earn his or her trust by disclosing personal information, even if it’s not related to the subject at hand. Although Adler and Adler are referring to reluctant respondents during an interview, I often found it useful in earning the trust of prospective interviewees. Rubin and Rubin (2005) add that prospective interviewees are more likely to talk to you if they know you. Therefore, I endeavored to be honest and upfront with prospective interviewees and practiced full disclosure of my life and background whenever asked. Although possibly obvious to most ethnographic researchers, I have also found it helpful to actively, consciously, and consistently practice respect and empathy toward participants and their culture.

Language and Cultural Barriers. In this project in Cambodia, as in any major cross-cultural, multilingual project, there
were steep learning curves—mostly on my part, but on the part of my interpreters as well. In the first few weeks there were often instances where the answers my interpreter was offering for questions I had asked didn’t match those questions. For example, I might ask, “What changes have you seen in the village in the last 10 years?” And the response might be something like, “Yes.” Therefore, much time in those first few weeks was spent clarifying questions until my interpreter and I got to know each other enough to anticipate the other’s meaning. It is also for this reason that I decided to remain with the same interpreter. Once we had established a rhythm, it seemed counterintuitive and inefficient to start over with a new interpreter. However, because my interpreter and I had some initial issues working out the kinks in the language barriers, I decided to hire a second interpreter for one field day. This proved helpful as it clarified where some of the language differences were occurring with the current interpreter. From that point onward, the original interpreter and I had few issues with language barriers.

The occasional cultural difference also would arise, at which point the interpreter would respond by giving me a brief and informative lesson in local culture, if deemed necessary. Although cultural differences are important to acknowledge and be aware of as different cultures may have different ways of understanding their world (Asante, Miike, and Yin 2014; Rubin and Rubin 2005), they didn’t seem to pose significant barriers during the fieldwork portion of my research, although I attempt to take the potential of the effects of cultural differences into consideration in the interpretation of the data.

**Question Leading/Prompting by the Interpreter.** While in the field, although I had little familiarity with the Khmer language, I was nonetheless able to pick up on potential issues. For example, I could tell when the interpreter offered optional answers to questions rather than asking a fully open-ended question. I addressed this with the interpreter immediately. However, although I had repeated conversations with the interpreter about the importance of not leading or prompting interviewees by giving them suggestions or offering answers, she seemed to occasionally continue to prompt and/or lead interviewees when she got frustrated with the amount of time they were taking to think of an answer. This was confirmed in the translations. Thus, I endeavored to separate these answers out in the coding process by coding them as “prompted” or “leading.” For example, the interpreter sometimes added, “Which kids are smarter? The ones today or the ones 10 years ago?” to the question. “What are the changes for children in the village today compared to 10 years ago?” Thus, these answers would receive a code of something like “children today smarter (prompted).” If she instead offered answers directly and participants simply repeated them, these answers were coded as “leading.” For example, if she asked, “Why is it important that tourists come to the village? For money, right?” and they answered, “Yes, for money,” this would be coded as something like “importance of tourists = money (leading).” These answers were then excluded from the original analyses and instead used to supplement concepts already well developed from the other (nonled/nonprompted) data. In this way, I attempted to mitigate biases arising from prompted and/or led answers.

**Issues with Transcriptions/Translations.** Within the first few days in the field, it became obvious that simply transcribing the English portions of the interviews would be insufficient at best and irresponsible at worst because they would be strongly lacking in thoroughness and accuracy (Rubin and Rubin 2005). Participants often spoke for up to a minute before my interpreter was able to interpret the answer for me and, by that time, it was logistically impossible for her to give a full direct translation of the participant’s words. So within the first few weeks in the field, I decided that it would be necessary to transcribe each interview in the original language and then have the transcripts translated into English to ensure greatest accuracy and thoroughness (Firebaugh 2008; Rubin and Rubin 2005; Singleton and Straits 2010). In order to save money and time, I immediately sought out transcribers in Cambodia and had all Khmer portions of all audio files transcribed before leaving the country.

Unfortunately, because Khmer characters are completely different from the Latin characters employed in English script, I had no way of verifying the accuracy and thoroughness of the transcripts before having them translated—something I was unable to do before leaving the field site. As a result, I eventually realized that many of the transcripts lacked in thoroughness and represented something close to the English summaries I was given by my interpreter(s) in the field.

In order to determine the accuracy and thoroughness of each translation, I painstakingly listened to each audio file while reading through the translations. It was necessary to listen to both languages in each audio file (Khmer and English) because each gave me different information about the transcripts/translations. Listening to the Khmer portions allowed me to verify the thoroughness of the transcripts/translations, while listening to the English portions allowed me to verify their accuracy. For example, if a participant spoke for 30 seconds and only a few words were written down, or if the interpreter and participant went back and forth several times for a particular question but only one exchange was written down, it was obvious that the transcript was not done thoroughly. Additionally, if the translation did not match the question and answer given in English, it was obvious that the transcript was not accurate.

Virtually none of the Khmer transcripts met these standards. So I spent the majority of the 18 months following my fieldwork seeking out transcribers and translators, as well as funding to pay them, until these standards were met and verified for each and every audio file.
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