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RESEARCH

Operationalizing participatory governance in small-scale fisheries: Researcher-practitioner reflections from the Lakshadweep Islands, India

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Abstract
In this paper, drawing from our dual positionality as researchers and practitioners, we discuss the insights and learnings from our decade-long engagement with fisheries in the Lakshadweep Islands, India. Using a case study of Lakshadweep's live-bait pole and line tuna fishery, we describe how dominant developmental thinking manifests at local scales and trickles down to highly remote regions and induces vulnerability in small-scale fisheries. We also discuss our attempts to address unsustainable transitions in this fishery through interventions aimed at instituting participatory governance regimes. Reflecting on our work in this space, we highlight the setbacks and challenges of operationalizing such frameworks on the ground, the important processual lessons that have emerged from our engagement with a fishery in constant flux, and their implications for the theory and practice of participatory governance. We also underscore the need for theorists and practitioners to work more closely and learn from each other's experiences to develop effective knowledge-practice frameworks for small-scale fisheries.

Keywords Small-scale Fisheries · Participatory Governance · Co-management · Theory and Practice · Lakshadweep Islands · India

Introduction

The commercialization of fisheries worldwide has led to their emergence as a sector with great promise for economic growth. Fisheries in the industrial world have largely been perceived as a revenue-generating activity by nation-states and private players alike (Rabo et al. 2014). Such a perspective has led to fisheries development thinking being shaped and dominated by extractivist, production-centric approaches, where growth is equated with development (Platteau 1989; Bailey and Jentoft 1990). Consequently, these approaches are characterized by a strong focus on modernization and advanced technology. Such a view reduces fisheries to an extractive, revenue-generating enterprise while blinding one to the diverse values associated with fishing historically, especially with small-scale fisheries (Johnson 2018).

The world's fisheries crisis is a well-studied story, albeit an ongoing one in which new events and conflicts keep unfolding (McGoodwin 1991; Spijkers et al. 2019). It is now well-established that fisheries development programs and the broader policy environment within which such programs are envisaged, tend to favor and incentivize capital-intensive, large-scale fisheries, almost always to the detriment of small-scale fisheries (SSF) (Chuenpagdee and Jentoft 2015; Cohen et al. 2019). Such dominant paradigmatic thinking is often mirrored in national policies and eventually trickles down to local scales through centralized, top-down approaches to fisheries development and management.

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In the twenty-first century, the global development discourse around the oceans has moved to newer paradigms such as Blue Economy and Blue Growth that view oceans as the new frontier for economic development, with fisheries being one among many maritime sectors that can help accrue revenue from the oceans while, ostensibly, achieving sustainable development (Silver et al. 2015; Bennett et al. 2020a, b). However, many scholars remain skeptical about this. Cohen et al. (2019) discuss how SSF are largely overlooked in the dialogues around the Blue Economy and how Blue Economy thinking can negatively impact the contributions of SSF to livelihoods as well as the food and nutritional security for millions of people across the globe. Farmery et al. (2021) echo a similar sentiment and point out how "blind spots" in the vision of the Blue Economy can severely affect the ability of the oceans and SSF to address hunger and malnutrition. Given that the concerns around access, equity, and justice for SSF still persist, it appears that the essence of these new developmental paradigms has remained the same over the decades with only the packaging changing to more compelling, all-encompassing narratives of growth and sustainable development. *Old wine in a new bottle*, as the expression goes.

Thus, the political economy of fisheries or, more broadly, of maritime development has largely proved to be unfavorable for SSF, rendering them vulnerable in various ways. Among others, these include transforming or degrading the ecosystems on which SSF depend, undermining the sustainability of SSF by favoring unsustainable and/or incompatible development models, excluding SSF from the dialogue and considerations around the use of coastal and marine spaces, or pushing SSF out altogether by promoting other maritime sectors such as shipping or tourism (Chuenpagdee and Jentoft 2015; Bavinck 2010).

Many scholars have opined that a possible way to make fisheries, especially SSF, more resilient to externally induced vulnerability is to explore alternative, decentralized, participatory governance pathways that have greater involvement of fishing communities and their direct participation in the dialogue and decision-making related to fisheries (Berkes et al. 2001; Chuenpagdee and Jentoft 2015; Symes 2006). Here, we use participatory governance as an encompassing term to cover the spectrum of approaches ranging from the more resource- and sustainability-oriented ones such as community-based management and co-managed fisheries, to more explicitly political ones that lean towards community governance and collective action. However, such approaches, while laudable in their spirit and intent, are often difficult to implement on the ground and their success or failure is subject to a wide range of social, ecological, economic, political, and cultural variables. Oftentimes, attempts at participatory governance find themselves at loggerheads with conventional, centralized models of fisheries management and development. Despite having been in discussion for several decades, successful and persistent examples of participatory governance in fisheries tend to be exceptions rather than the norm (Pomeroy et al. 2001; Jentoft et al. 2009; Linke and Bruckmeier 2015). One of the potential reasons for this could be the gulf between the theory and practice of participatory governance. Historically, practice and theory have always been pitted against each other with several, fundamental, and often opposing tensions between the two (Bartunek and Rynes 2014). We believe that a richer dialogue between the two is both possible and necessary, such that the implementation challenges faced by practitioners working on the ground are discussed and taken into consideration within academic domains, where theorizing around participatory governance takes place. Notable examples that take such an approach include, inter alia, the works by Pomeroy et al. (2001) and Chuenpagdee and Jentoft (2007).

In this paper, located at the interface of theory and practice, we seek to further the dialogue among fisheries researchers and practitioners on operationalizing participatory governance in SSF. We do this using a case study of our own long-term work on participatory fisheries management in the Lakshadweep Islands, India. This paper is a retrospective reflection on our work in Lakshadweep and an attempt to learn from practice. Drawing from our dual positionality as researchers and practitioners, we interpret our firsthand experiences and observations from this work in the broader context of fisheries governance. The paper is structured as follows. We begin with a brief background to Lakshadweep and its pole and line tuna fishery. We then describe some of the key developments in the fishery in recent years and our contemporaneous efforts, as practitioners, to buffer unsustainable transitions in it through participatory interventions. We discuss the setbacks and challenges of operationalizing such frameworks on the ground, the interplay of complex local and extralocal factors, and the important processual lessons that have emerged from our decade-long engagement with Lakshadweep's pole and line tuna fishery. We have tried to distill these insights and learnings into four themes: First, we describe how dominant developmental thinking can manifest at local scales, trickle down to highly remote regions such as the Lakshadweep Islands, and set off social-ecological transitions. Second, we underscore that while participatory interventions have a lot of potential, they can also be highly volatile and easily disrupted by larger social, economic, and political factors. Third, we discuss the hurdles to implementing participatory governance arising due to an unfavorable policy environment and missing capacities among fisheries stakeholders. Finally, we emphasize the need for adaptability, stock-taking, and course-correction measures among fisheries practitioners in order to design effective interventions for SSF.

Lakshadweep's sustainable pole and line tuna fishery

The Lakshadweep Islands, India's only coral atolls, are a small archipelago off the west coast of India and north of the Maldives. These atolls are located at the northern end of the Chagos-Laccadive Ridge in the Indian Ocean. Administratively, these islands have been classified as a Union Territory and come under the direct jurisdiction of India's central government, as opposed to states which have more autonomy and their own elected governments. Fishing is one of the main sources of livelihood for the islanders, alongside tourism, coconut farming, and government service. While a diversity of fishing practices exists in the Lakshadweep, the main fishery practiced here is the small-scale 'live-bait pole and line tuna fishery', a low-impact, labor-intensive, and inherently sustainable method of fishing (Aneesh Kumar et al. 2017; Jaini et al. 2018). 'Live-bait' refers to the use of live baitfish to lure and catch tuna. In the Lakshadweep context, baitfish or *chaala* is a collective term that includes small fish belonging to different families found in the lagoons and reefs around the islands (Gawde and Raj 2022). The steady availability of baitfish is one of the most important limiting factors to pole and line fishing as well as one of the primary resource inputs in the fishery (Aneesh Kumar et al. 2017). Historically, pole and line fishing is said to have come to Lakshadweep from the Maldives via Minicoy Island, the southernmost island of the Lakshadweep archipelago, which also shares ethnic ties with the Maldives (Hoon 2003; Jaini et al. 2018). In the 1960s, the Lakshadweep Department of Fisheries successfully introduced the pole and line fishing method to the rest of the Lakshadweep Islands with the help of expert fishers from Minicoy with the goal of harvesting the *untapped* tuna resources of the Lakshadweep waters (Varghese 1991; emphasis added).

Before the 1960s, only subsistence forms of fishing existed on islands other than Minicoy. After the introduction of the pole and line method along with mechanization, following some initial resistance, it was accepted by fishers on most inhabited islands (Varghese 1991). One issue with the transfer, as is commonly acknowledged by Lakshadweep fishers, was that while the fishing technique from Minicoy was transferred to other islands, the traditional ecological knowledge (TEK) associated with the fishery, especially concerning the sustainable management of baitfish resources, was not transferred. This could be a reflection of the lack of acknowledgment and recognition of fishers' TEK in centralized fisheries development approaches. On the whole, though, this phase of development was small-scale and contextualized, considering that fisheries in the islands were being developed based on the traditional form of pole and line fishing that already existed in the region. This development was helpful to the island community, leading to socio-economic upliftment and increased fish landings (Varghese 1991). Being an offshore fishery targeting the pelagic skipjack tuna (*Katsuwonus pelamis*), this fishery also helped keep the fishing pressure off the more sensitive coral reefs that constitute these atolls (Arthur 2008; Karkarey et al. 2014; Yadav et al. 2020). Thus, when compared with many of the fisheries on the Indian mainland, here was a rare example of a fishery that was environmentally sustainable, relatively more equitable in terms of resource distribution, and also ensured the food and livelihood security of the local community.

A fishery in flux: Transitions and interventions

Our interest in the pole and line fishery stemmed from it being an outlier among most other fisheries in India, for the reasons mentioned above. Given this, we were interested in understanding the challenges that it was facing and in trying to address local fishery issues to help maintain its sustainability. We were particularly keen on exploring the potential of participatory governance approaches here. Initial, exploratory conversations with pole and line fishers in 2012 revealed some difficulties that fishers were facing in catching adequate amounts of baitfish for tuna fishing as well as limited market linkages for Lakshadweep's tuna products. Given the criticality of baitfish resources for the smooth functioning of this fishery, much of our work over the years has revolved around baitfish, starting with participatory resource monitoring which in turn became an entry point to initiate larger dialogues around sustainable management of the pole and line fishery. We detail below, the developments in this fishery over the course of our engagement with it and our responses as researcher-practitioners working in this space.

Community-based fisheries monitoring

Small-scale fisheries, especially in developing countries, are often characterized by a paucity of adequate data that can inform sustainable fisheries management (Agapito et al. 2019; Salas et al. 2007). In Lakshadweep, like in many other parts of India, data on fish landings is collected by concerned government agencies such as the Fisheries Department. However, in the diverse fisheries of the developing tropics, centralized monitoring systems often tend to be constrained by logistical factors such as funding and human resources and also leave fisher communities out of the loop (Sridhar and Namboothri 2012). Therefore, we sensed the

need for a holistic and contextualized monitoring process that could generate a long-term dataset on island fisheries and initiated a community-based fisheries monitoring program in 2014. The rationale for such a participatory monitoring initiative as opposed to researcher-led monitoring was fairly straightforward. From a data and logistical standpoint, fisher communities are best placed to collect data on day-to-day fishery dynamics given their daily interface with the ocean and fishery resources. Such an approach can also help generate data on a much wider spatial and temporal scale as opposed to conventional monitoring led by researchers or institutions. More importantly, this was an attempt to decentralize knowledge generation by directly involving fishers in monitoring, thereby seeking to reduce their reliance on external agencies.

The program received a very good response in its initial years and, during the period from 2014–17, led to the creation of a community-generated dataset comprising over 4000 fishing records from 50 fishing boats from 4 islands of the Lakshadweep archipelago, amounting to approximately 18% of the active fishing boats on these islands at the time. The monitoring logbooks were co-created through elaborate consultations with active pole and line fishers and the program generated data on several important aspects of island fisheries such as trends in tuna catch, patterns of fuel consumption, the different species of baitfish used, etc. It's important to note here that participation in the program was entirely voluntary, without any monetary incentives attached. It is also important to acknowledge Lakshadweep's high literacy levels as one of the factors that contributed to the success of a community-based monitoring initiative. Over the years, however, this participation dipped, as the issues on the ground changed and fishers found it difficult to make time to regularly log data in their monitoring logbooks. Consequently, this intervention took a backseat in light of other, more pressing issues.

The unfolding of a baitfish crisis

As described earlier, fisheries development imaginaries tend to be parochial, prioritizing capital-intensive and production-oriented approaches. In India, this dominant trend in development thinking manifests in the policies and subsidies concerning fisheries and trickles down from central to local scales of government, where increases in fishing capacity are encouraged, often without attention to local resource-use dynamics. In Lakshadweep, for instance, around 2015–16, encouraged by the subsidies on boat hulls and engines, there was an upsurge in the construction of bigger boats (Raj 2020). In the next 3–4 years, several boat owners took on loans to build bigger boats, capable of multi-day fishing, equipped with wheelhouses and cold storage facilities. This was most evident on the major tuna fishing islands such as Agatti and Minicoy, and to a smaller extent, Kavaratti. While, on the whole, the pole and line fishery can still be considered a small-scale fishery, a gradual scale difference emerged with the construction of the bigger boats in what had hitherto been a largely homogenous fishery. For context, the earlier model of smaller boats ranged between 25–35 feet in average length while the average length of the larger wheelhouse boats is more than 50 feet.

A direct consequence of this was the rise of unsustainable practices for catching baitfish which, in turn, led to a baitfish crisis and differences within the fishing community. With the advent of the big boats, fishers started resorting to light-fishing using LED lights to attract baitfish in large volumes, similar to what is practiced in the Maldives. LED light-fishing involves anchoring in deeper parts of the lagoons and reefs at night and works well for the bigger boats, given their deeper hulls which make it difficult to maneuver in shallow waters in search of baitfish schools (like the smaller boats do). Given their ability to store larger tuna catches, their requirement for baitfish is also higher than that of smaller boats. The impacts of LED light-based fishing to attract fish haven't been adequately studied in the Indian context and fisheries scientists recommend a precautionary approach, especially in coastal waters (Mohamed 2016). It is also a controversial practice that has led to conflict between large-scale and traditional fishers in many instances (Mohamed 2016). Albeit at a much more localized scale, similar impacts were felt on some of the islands in Lakshadweep where this practice was in vogue.

By the summer of 2018, fishers started reporting severe declines in baitfish catches and drastic increases in the fishing effort for baitfish. Smaller boat owners held the light-fishing practices of bigger boats as the main reason for this decline. According to them, light-fishing for baitfish, particularly *Spratelloides delicatulus* (locally known as *Hondeli*), the most preferred species for catching tuna, led to a decline in stocks of the species, by catching the fish before they had a chance to spawn (Gawde and Raj 2022). Several big boat owners also shared this concern and agreed that the practice was not sustainable in the long run, but said that they had no choice but to engage in these practices in order to keep up with the others. Yet other big boat users disagreed that the practice had any negative impacts on baitfish stocks. While the exact impacts of light-fishing on baitfish stocks will have to be assessed through focused studies, it is certain that this development led to an open-access scenario with differential fishing powers and caused discord between the big boats and the small boats over the issue.

Like other small island systems, fragile social-ecological systems such as the Lakshadweep, despite their high social cohesion, are extremely vulnerable to external pressures. If the developmental visions for such systems are not in sync with local realities, they will invariably push these systems

down unsustainable pathways with ecological and social consequences. The baitfish crisis of 2018–19, precipitated by the intensification of fisheries rooted in a production-centric vision of development, and without putting adequate safeguards in place, is an example of this (Raj 2020).

Co-management consultations

As researcher-practitioners working in Lakshadweep, we were witness to the transitions unfolding in the fishery. Given our long-term presence in the islands, our networks with the community and the local administration, and familiarity with Lakshadweep's social-ecological context, we felt that a co-management approach might work well here. This was primarily due to factors such as strong social cohesion, smaller administrative units, and significant levels of dependence on the government. To begin the process, during the period of 2018–19, we interviewed active fishers and boat owners on Agatti, Kavaratti, and Minicoy, and held meetings with senior officials of the Fisheries Department. This work looked at understanding aspects such as the key stakeholders in the fishery and their dynamics, as well as the power centers within the community, at fine-grained, local scales. It also gave us a nuanced understanding of the baitfish crisis and helped gauge the willingness of the community and the Fisheries Department to participate in a co-management intervention in the near future.

Given the urgency of the baitfish crisis, the prevailing discontent amongst fishers, and the lack of alternative, locally relevant and contextualized solutions in the centralized management repertoire, an outsider agency coming up with a potential solution was considered welcome at the time by fishers as well as the Fisheries Department. Both these stakeholders suggested that large-scale consultation meetings be conducted on the major pole and line fishing islands to discuss and address the baitfish crisis. It is important to note here that everyone favored the meetings because they saw it as an opportunity to address the light-fishing issue and not necessarily because they had internalized the ethos of participatory management. While the Fisheries Department was concerned about the practice and the issues that it was causing on the ground, small boat owners sought to actively ban the practice. The big boat owners, on the other hand, were divided, with some wanting to retain it and others in favor of curtailing it. As practitioners, given that our long-term goal was to work towards participatory fisheries governance in Lakshadweep, the immediacy of the baitfish crisis provided an entry point to initiate a dialogue on co-management among the key stakeholders.

In May and June 2019, we conducted 3 island-wide stakeholder consultation meetings on Kavaratti, Agatti, and Minicoy, in collaboration with the Lakshadweep Fisheries Department. The meetings saw the active participation of pole and line fishers, representatives of concerned government agencies, and elected members of the local-level governing body – the Panchayat. In keeping with the spirit of co-management, the meetings provided a platform for fishers and other stakeholders to discuss issues pertaining to baitfish declines such as light-fishing as well as other potentially unsustainable practices that were prevalent at the time. The meetings were a resounding success and culminated in the adoption of community resolutions to ban light-fishing as well as curtail other practices like using small-meshed nets to catch baitfish and dumping fish waste in the island lagoons.

As per the plans at the time, the next steps included securing a government order to formalize the aforementioned community resolutions and conducting follow-up meetings to explore potential next steps such as spatial management strategies for baitfish and the creation of co-management institutions. Unfortunately, in the aftermath of the 2019 meetings, the momentum that had been generated by our sustained community engagement was impacted due to a variety of reasons. Formalizing the community resolutions proved to be an uphill task exacerbated by administrative delays and procedural constraints. Being a small Union Territory, the Lakshadweep Islands have a high reliance on the government. Perhaps as a consequence of this, there has been a dearth of strong community institutions at the local level. The absence of a formal government order, coupled with the absence of appropriate community institutions meant that there were no viable platforms to anchor and implement the co-management plans. As a result, things went back to the way they were before, with several fishers resuming light-fishing practices. In an ideal scenario, practitioners might be better off creating or working with local institutions before launching co-management interventions. However, more often than not, conditions in the field tend to be less than ideal, and, as in this case, practitioners may have to respond to local circumstances and focus on issues that demand urgent attention. It is also interesting to note here, how, in highly centralized resource management regimes, government directives become necessary for community-adopted resolutions to be perceived as legitimate and binding. While we were navigating the ups and downs of operationalizing co-management on the ground, larger external perturbations and developments made their impacts felt and had severe consequences for this work. This led to major disruptions on the ground and the prioritizing of other immediate crises over baitfish resource management.

Covid-19 and external perturbations

In 2020, the Covid-19 pandemic hit, leading to lockdowns, disruptions in fisheries supply chains, and severe economic losses for fishers, especially SSF, across the world (Bassett

et al. 2021; Bennett et al. 2020a, b). The effects of the pandemic were felt on Lakshadweep's fisheries as well. The pandemic also severely affected our work, restricting us from accessing the islands and following up with the community and the Fisheries Department on the previously initiated co-management interventions. Economic losses arising due to the disruption of fisheries also meant that fishers' priorities on the ground had changed.

In addition to Covid-19, another external stressor that has been at odds with fisheries in the islands in recent times is the top-down push for developing high-end, infrastructure-intensive tourism models for Lakshadweep, along similar lines as the Maldives. While said plans haven't been implemented yet, there have been significant concerns among the fishing community about losing their access to coastal commons and the potential negative impacts on their livelihood. Researchers working in the Lakshadweep have also advised a precautionary approach and the need to explore alternative, community-based models of tourism development that may be more compatible with the ecological fragility and socio-cultural fabric of the islands (The Lakshadweep Research Collective 2021). Again, this is an example of contradicting aspirations between the central government and local communities, and visions of maritime development that do not take local social-ecological contexts into consideration. Owing to the unrest and existential pressures arising from the proposed plans, the nature of issues on the ground and fishers' priorities changed again. As a result, issues like the baitfish crisis that were highly pressing in 2019 became less relevant in the face of larger, extrinsic challenges.

Given these transitions, we felt the need to realign our priorities in response to the changing situation and requirements on the ground. Therefore, we shifted our focus from the co-management of baitfish resources and began to explore alternative avenues to work with the community on local fisheries issues. As discussed earlier, the dearth of effective fisher institutions has been a significant hurdle for participatory fisheries governance in Lakshadweep. However, a consequence of the growing livelihood-related concerns among fishers was that they started feeling the need for strong local institutions to represent their interests. This was seen most prominently on Agatti Island where fishers decided to revive an existing fisheries co-operative society, which had, until then, been largely inactive and operating with limited roles and functionality. Fishers did not deem it feasible or necessary to create new institutions at the time and preferred to work within the framework of the preexisting institution. As practitioners, we sought ways to engage productively with the revived co-operative society and established a channel of communication with its elected representatives. We have, since then, shared an active collaboration with the society on projects and community-based initiatives on the island.

Discussion

Long-term engagement with a particular system and geography provides several opportunities to reflect on the events and developments unfolding there. Needless to say, the setbacks and challenges described above are disheartening to see. However, they also allow for fruitful contemplation, leading to inductive insights that may be significant for the theory and practice of participatory fisheries governance. The lessons from this ongoing engagement have been manifold. Drawing from Lakshadweep's specific context, we try to distill some of these learnings below in the hope that they might be relevant to other researchers and practitioners working in this sector.

Local manifestations of dominant developmental paradigms

Fisheries are highly dynamic and evolving systems embedded in larger political economies. Thus, the nature and sources of vulnerability and transitions within fisheries are diverse and also vary in the degree of their severity. Salagrama (2012) classifies the types of issues within fisheries as natural (or global, overarching phenomena like climate change), fisheries (intra-fisheries issues such as overfishing), and non-fisheries (external issues such as developmental pressures and conflicts). While we do not, in this paper, venture into factors such as climate change-induced vulnerability, we have highlighted examples of both intra- and extra-fisheries factors that significantly influence the functioning of the fishery. For example, the baitfish crisis of 2018-19 is an example of an intra-fisheries issue. It was brought upon by the intensification of fisheries through top-down, production-centric approaches which in turn led to a small-versus-big divide within the fishery, an increase in the fishing effort for baitfish, and a departure from the fishery's inherent sustainability. As practitioners, we tried to address the intra-fisheries issues through interventions such as community-based monitoring to co-create knowledge on fisheries and co-management consultations to phase out unsustainable practices. At the same time, extra-fisheries factors were also at play, in the form of disruptions due to the Covid-19 pandemic as well as existential concerns stemming from the proposed tourism-development plans. These external factors posed greater threats to the fishery, and, as a result, led to a shift in the priorities and needs on the ground, rendering previous interventions redundant.

This paper is not a critique of the fishers who built bigger boats in an attempt to improve their livelihood or the local fisheries department which facilitated this in response to top-down directives. As a fisher leader representing the big boat owners emphatically asked during one of our

co-management consultations, "We realize that light fishing is not sustainable but are left with no choice. Why were we encouraged to take loans and build bigger boats in the first place? We are now doing what we must to break even." This paper, then, is a critique of the dominant developmental paradigms, be it for fisheries or for other sectors such as tourism, that are often incongruous with local social-ecological contexts, drive undesirable transitions, and exacerbate the vulnerability of small-scale fisheries and coastal ecosystems. It is a reflection on how, in the field, practitioners need to focus not only on intra-fishery aspects and issues related to resources; They must also pay careful attention to the multiple (and often contradictory) interest groups, aspirations, and agendas that exist within or outside the system, and can have severe system-level impacts and disruptions. These findings and experience from Lakshadweep are consistent with the observations of large-scale analyses such as by Janssen and Ostrom (2006) which underscore the complex, dynamic, and non-linear nature of social-ecological systems and the varied impacts of internal fluctuations as well as external disturbances on their resilience and governance.

The potential as well as the volatility of participatory interventions

Our contextualized interventions in Lakshadweep helped us go beyond the theory and rhetoric surrounding participatory approaches to fisheries governance and observe firsthand their potential, limitations, and the conditions under which they can succeed. The community-based fisheries monitoring initiative that we ran in Lakshadweep and the community-generated dataset comprising over 4000 fishing records that arose from it is a testament to the role that fishing communities can play in fisheries management. In the same vein, the co-management consultations of 2019, conducted with the support of the Fisheries Department, represent a landmark moment in Lakshadweep's fisheries, where fishers and government officials came together to discuss and deliberate on the pertinent issues at the time and adopted resolutions to phase out unsustainable fishing practices such as light-fishing for baitfish. These experiences and successes say several things about the potential of participatory approaches:

- It is indeed possible for fishers and other stakeholders to work collaboratively to address local fishery issues if appropriate platforms to do so are created.
- More involvement of the community can lead to decisions in favor of sustainability even in the face of structures that may, intentionally or unintentionally, promote the opposite. For instance, during the aforementioned co-management consultations, it was possible to arrive at a consensus on phasing out light-fishing practices in a way that was acceptable to the small as well as big boat owners. Thus, consultative, transparent, and participatory interventions can go a long way in meaningfully managing local fisheries.
- While the above examples certainly inspired hope and reinforced the value of participatory approaches, these victories turned out to be bittersweet. The volatility of such interventions and of the system itself became apparent soon after. This is all the more relevant for the centrally-governed island system where top-down forces have a stronger influence. In the case of community-based fisheries monitoring, for instance, fishers reported that while they saw value in the initiative and had participated enthusiastically in the early years of the project, they found it difficult to make time from their busy schedules to log monitoring data on a regular basis. Understandably for the fishers, as baitfish catches declined and fishing effort increased, the importance of participating in a collective data-generation exercise waned in light of increased livelihood pressure.
- Similarly, in the case of the co-management consultations of 2019, the momentum and the spirit of community stewardship and multi-stakeholder collaboration declined in the aftermath of the intervention. This was due to various factors such as procedural constraints to formalizing the community-adopted resolutions and the lack of appropriate local community institutions as well as extra-fisheries disturbances such as Covid-19 and fishers' growing concerns around proposed tourism plans. Once again, this led to a shift in the nature of issues on the ground, with concerns around baitfish availability and management taking a backseat.

Thus, just like fisheries themselves, interventions aimed at sustaining fisheries and creating systems of participatory management are also highly volatile and susceptible to the larger, often extrinsic political and economic forces at play. Practitioners must factor in this volatility in the design of their interventions and pursue models that create more intrinsic resilience and reduce a community's dependence on external agencies.

The need for robust policy support to operationalize participatory fisheries governance

As practitioners who attempted to create participatory frameworks in a system that has always seen centralized management regimes, a significant hurdle that we came across was the absolute lack of policy support, in the Indian context, for any form of participatory governance. In particular, we observed the following major gaps –

- **Incompatibilities between top-down and participatory governance thinking:** Fundamental to any partici-

patory ideology is the belief that local communities are well-placed to participate in decision-making processes that impact their lives and livelihood. Such thinking, unfortunately, is largely missing from the repertoire of centralized forms of resource management. Top-down approaches to fisheries management and development typically tend to perceive fishing communities only as passive resource harvesters and the beneficiaries of schemes, subsidies, and development plans that have been chalked out for them by *experts* and do not allow them much agency over their livelihood. Thus, recognizing fishers' knowledge or soliciting their input on decisions relating to managing or developing fisheries seems like a far-fetched proposal in such management regimes. Due to this fundamental contradiction between the two approaches, implementers of top-down frameworks i.e. most fishery managers, often find it difficult to internalize and align with the ethos of participatory governance.

- **The unreadiness of contemporary fisheries management systems to change:** Over the years, we have encountered situations where the data generated from community-based fisheries monitoring is not regarded seriously because it has been collected by fishers and, therefore, is not *scientific* enough. Similarly, in the build-up to the co-management meetings that we conducted, the planned meetings were often perceived and described by government officials as "awareness programs" and not as consultations based on dialogue between stakeholders. The bureaucratic hurdles to securing formal recognition for the community-adopted resolutions is another example of how the broader policy environment in India is currently unfavorable for operationalizing participatory governance frameworks.
- **Missing capacities:** Often, the term 'capacity building' in the fisheries context refers to increasing fishing capacity or introducing new techniques/technologies to fishers; another major missing capacity is the capacity to engage in participatory processes. This is applicable to fishing communities as well as fishery managers and local government officials. Serious capacity-building efforts that help various stakeholders internalize the ethos of participatory governance and recognize the legitimacy of local decision-making are needed for successful and lasting participatory interventions in fisheries. This experience from the Indian fisheries policy context resonates strongly with the emphasis laid on capacity building by fisheries scholars in the literature on co-management (see Pomeroy et al. 2001; Jentoft 2005; Chuenpagdee and Jentoft 2007). Recent drafts of India's National Fisheries Policy have a few mentions of implementing co-management approaches and creating co-management institutions as well as securing small-scale fisheries. While this is a welcome development, these drafts are yet to be finalized and far more proactive measures need to be taken for these directives to translate into tangible structures that enable participatory governance at local and regional levels. Within the government, devolution of powers to local fisheries department units is crucial, especially in the case of Union Territories. The highly centralized nature of decision-making makes it very difficult to formulate and implement rules that might be relevant to the local context of a place. Thus, increased autonomy for local government bodies is an important capacity gap that needs to be addressed to enable participatory governance.

The need for adaptability and course correction among practitioners

While efforts to bring changes to larger imaginaries of the fisheries sector must continue to go on at higher levels through national and international advocacy, these efforts take time to translate meaningfully into on-ground results. Until then, in the absence of policy frameworks that explicitly enable participatory governance regimes and foreground SSF concerns, practitioners and civil society organizations have an important role to play, working with different stakeholders at local scales and creating proofs of concept. One of the most important learnings from our experience has been the need to be adaptive in our approach and goals. As described earlier, interventions in fisheries are volatile given that fisheries are systems in flux. Over the course of our decade-long engagement with Lakshadweep's pole and line fishery, we have observed various shocks, stressors, and drivers of transitions, and these have been detailed in this paper. The trajectory of our work has comprised periodic stock-taking, learning from practice, and recalibrating our goals based on the situation and the needs of the community on the ground. Equally important in this process has been our long-term presence in the region and the local networks and ties of trust that have been built over the years. The nature and scale of our interventions has evolved over time, from community-based fisheries monitoring to fisheries co-management to more recent collaborations with community institutions. Each step in this evolution has been influenced by the local social, ecological, economic, and political dynamics which are in turn influenced, and sometimes driven, by extrinsic factors.

Adaptiveness involves being sensitive to such changing dynamics and recognizing when to stop pushing certain interventions or initiatives that might have become irrelevant with changing system conditions. While some of these points seem to be obvious, we feel the need to explicitly articulate them for practitioners who might have had similar experiences in their work. We feel this needs to be explicitly articulated for theorists as well, so as to bridge the gulf

between theory and practice, and ensure that more attention is paid to dynamic systems, their limitations, and the boundary conditions under which different theories might work.

Additionally, there are important considerations for the viability of participatory governance interventions from the standpoint of funding and impact assessment. Practitioners, NGOs, or other organizations are often tied by their commitments to their funders in terms of the outcomes, impacts, and *deliverables* of their proposed work. Thus, in addition to having a supportive policy environment, it is also equally important that philanthropic organizations that fund grassroots interventions are understanding and supportive of the need to recalibrate stated goals from time to time. The focus, then, has to be on responding to the needs on the ground and not merely on implementing predetermined targets. Practitioners must communicate this inherent uncertainty and the need for flexibility to funders as well as to the communities they are working with and factor it into their project designs. The issues that we discuss here are prevalent across sectors and tie into some of the important ongoing debates in the broader social sector. Our recommendations based on this case study echo with scholarship from other fields calling for adaptive management approaches in dealing with uncertainty and the need for monitoring, evaluation, and learning (MEL) frameworks to be accommodative of changing goals and targets based on needs (Woodrow and Jean 2019). Similarly, our experience aligns with the recommendations by Ebrahim and Rangan (2014) for impact monitoring to happen during the design and implementation of programs (instead of only at the end) thereby enabling course correction, if necessary.

Our goal with this paper was to foster greater dialogue between the theory and practice of participatory fisheries governance. Our dual positionality as researchers and practitioners working on fisheries enabled us to reflect retrospectively on the particularities of our work and discuss their significance in a wider context. The act of such reflection is, in itself, also quite insightful, helping one think through the ups and downs of such processes from an analytical vantage point. Thus, in addition to communicating the key learnings arising from our work to colleagues working in this space, we also hope that this paper encourages more reflections from practitioners based on their on-ground experiences, successes, and failures. Such empirical perspectives will undoubtedly enrich the dialogue on operationalizing participatory governance and take us closer to realizing more equitable futures for SSF.

Conclusion

The present state of SSF evokes both hope and despair. The story of Lakshadweep's pole and line tuna fishery is a classic example of transitions and tribulations in SSF. It has its share of glimmers of hope, disappointments, as well as critical learnings. While the issues and challenges that we have detailed here are based on our long-term engagement with this geography and are specific to the Lakshadweep context, they illustrate and help understand the vulnerabilities that generally prevail in SSF and the factors that exacerbate them.

As we have described in this paper, small and remote systems such as the Lakshadweep Islands are not immune to the influence of the dominant, growth-oriented visions of development which trickle down to local scales and can cause unsustainable transitions in established patterns of resource use. At the same time, a lot can be done at local levels to buffer these impacts through the facilitation of bottom-up, community-based solutions. Thus, there is great value and promise in pursuing participatory frameworks which can help reduce vulnerability and build more resilience in small-scale fisheries. However, the creation of such frameworks is itself riddled with several challenges and the resultant interventions can be highly short-lived and susceptible to changing social, ecological, political, and economic factors. More often than not, there are major hurdles on the ground in terms of preparedness to accept and implement an effective participatory management regime. In order to create and sustain participatory governance frameworks, robust support and clear commitments are needed at the policy level along with capacity building that enables all fisheries stakeholders to engage meaningfully with participatory processes. In addition to higher-level advocacy efforts for policy shifts, it is also equally important to create demonstrable models and case studies of community-based governance in fisheries. Researchers, practitioners and civil society organizations working in this space have a major role to play here. Given the highly dynamic nature of fisheries, it is imperative that they are able to reflect on their work, adapt their approaches, and recalibrate their goals from time to time, in order to support fishing communities effectively.

We also highlight, in this paper, the need for theorists and practitioners to engage more closely with and learn from each other. A shift of this nature would require a more iterative approach that bridges the gap between theory and practice and develops effective knowledge-practice frameworks. Building lasting interventions and operationalizing participatory governance in fisheries is easier said than done. Nevertheless, it remains a worthwhile goal to aspire to.

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Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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