



# Factors Influencing Community Fishers' Leadership Engagement in International Small-Scale Fisheries

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Local leadership is crucial to the functioning of local organizations in small-scale fishing (SSF) communities. By analyzing local leadership experiences of 54 international SSF researchers and practitioners, we aim in this paper to fill knowledge gaps that recent research has identified regarding our understanding of factors that influence the effectiveness of local leadership. Influencing factors are organized using modified versions of the Institutional Analysis and Development (IAD) framework, the Value-Belief-Norm (VBN) theory, and Schwartz's theory of cultural values. We identified factors that help shape leadership engagement and effectiveness at multiple levels, including: precursors to individual action that relate to potential SSF leaders' perceptions of threats and opportunities; institutional constraints at the individual level and community level; and high level governance issues. Precursors to individual action were numerous and multi-faceted, and individual behaviors were shaped by core values and attitudes, culture, experiences, and education. Motivation to participate in leadership can either be altruistic in nature or oriented toward self-enhancement. A lack of motivation for leadership could be attributed to the individualistic nature of many fishers. The availability of capital assets can facilitate or hinder participation in leadership. Individuals who may be willing to take on leadership roles were often hindered by lack of money and time, low educational attainment, or poor social cohesion among community members. The interactions between leaders and followers were crucial for effective leadership, especially a leader's perceived legitimacy and the ability of a community to groom appropriate successors. At the higher level, constant policy change and the resulting uncertainty were linked to decreasing motivation and apathy regarding SSF management at the local level, and disintegrating relationships between government level and local level actors. Our research highlights how local leadership and context are linked, and suggests potential researchable hypotheses that would in the future help further advance empirical and theoretical understanding of leadership influences in SSFs.

**Keywords:** small-scale fisheries, leadership, institutional analysis and development framework, value-belief-norm theory, community-based fisheries management

## INTRODUCTION

Uncertainty is pervasive in small-scale fisheries (SSFs) due to complex interactions within and between ecological and socio-political systems. SSFs are, as a result, often perceived to have low governability potential (Jentoft and Bavinck, 2014). This perception is exacerbated by a history of perceived failures by centralized, conventional fisheries management agencies (Imperial and Yandle, 2005; Pero and Smith, 2008). Consequently, decentralized or devolved fisheries management approaches (Rudd et al., 2003; Plummer and Fitzgibbon, 2004) have become increasingly popular since the 1980s (Jentoft, 1989; Pinkerton, 1989; Chuenpagdee et al., 2005). Decentralized governance systems transfer decision-making power to local government managers, while devolved governance involves the transfer of substantive decision-making power to local resource users (Rudd et al., 2003), often through community-based or co-management structures (Jentoft, 1989).

If the devolution of SSFs is to be more than a way for governments to simply download their own management costs on communities (Wiber et al., 2010), engagement of community actors becomes central for success as they are tasked with performing key management functions (Rudd et al., 2003; Armitage, 2005). This is especially the case for the local leaders, who are crucial for successful community-based fisheries management (CBFM) (Muehlig-Hofmann, 2007; Bodin and Crona, 2008; Gutierrez et al., 2011; Sutton and Rudd, 2014, 2015; Al Mamun, 2015; Evans et al., 2015). While SSF leadership characteristics and functions have been examined at a relatively coarse scale (Sutton and Rudd, 2014), advances in other fields (e.g., Küpers and Weibler, 2008) suggested that detailed sharper focus on leadership concepts and methods could provide valuable insights regarding the role that leaders play in SSF management. In particular, there is a compelling need to also identify the social conditions that influence SSF leaders and leadership capabilities (Sutton and Rudd, 2014; Al Mamun, 2015), as those help shape ecological and socio-economic outcomes.

Here we seek to strengthen our understanding about which conditions—at the level of individuals, communities, and higher-levels of governance—influence the capacity of local community members to successfully develop into leaders and engage in CBFM, thereby enhancing the delivery of positive ecological and socio-economic outcomes arising from the devolution of SSFs to their local communities. To do this, we conducted semi-structured interviews with 54 international SSF researchers and practitioners, focusing on the characteristics of leaders and the challenges that they face in SSF management. Our results thus provide broad insights into the influences and mechanisms affecting local leadership processes and outcomes in international SSFs.

## METHODS

### Theoretical Background

Local leadership in SSF is influenced by numerous conditions across socio-political scales, at the level of the leader's own household, their community, and the political context within

which their community is embedded. To help identify and organize our analysis, we drew on insights from the Institutional Analysis and Development (IAD) framework (Ostrom, 1990, 2005), Value-Belief-Norm (VBN) theory (Stern et al., 1999; Stern, 2000), and Schwartz's theory of cultural value (Schwartz, 1999, 2012). That combination helps to highlight conditions that influence the propensity of individuals to engage in SSF management leadership and to identify ways in which the broader social cultural and political environments might influence local leaders.

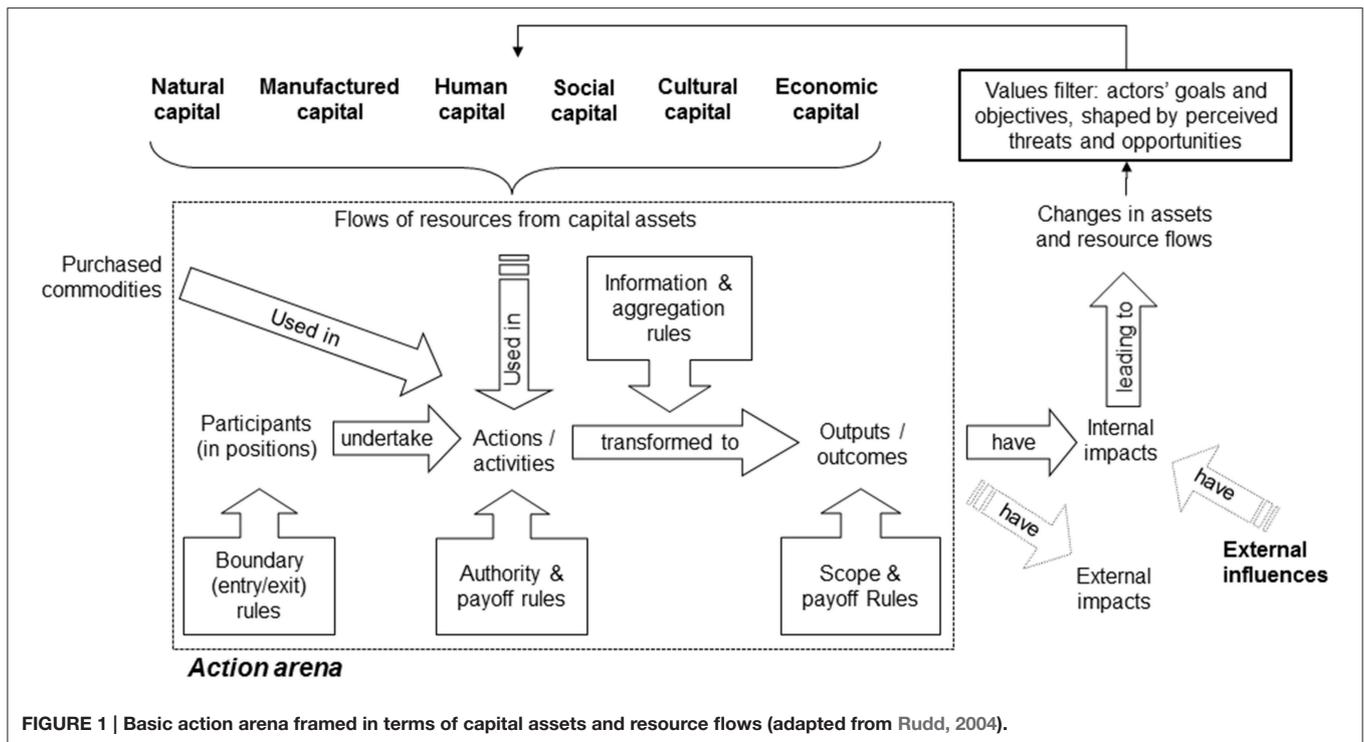
### Institutional Analysis Development (IAD) Framework

The IAD framework is a universal policy analysis framework that helps organize and facilitate analyses of how institutions operate and change over time, allowing for greater understanding of the logic, design, and performance of institutional arrangements in a wide variety of settings and scales (Ostrom, 1990, 2005). We use it to organize our analysis and help identify key characteristics of leadership at the individual level and the institutions that catalyze or hinder the development of leaders. When viewed from an IAD perspective, community fisheries become a collection of social actors within an "action arena," the space where individuals interact, exchange ideas and services, and engage in contestation. The framework lays out how behavior is shaped by various sanctions and rewards associated with particular types of rules or social norms (i.e., about what, where, when, and how activities can be undertaken; by whom; and about permitted, required, or prohibited outputs and outcomes).

In a capital asset-oriented IAD (Rudd, 2004, 2010), the state of the world is framed in terms of various capital assets (**Figure 1**), which can be accumulated or depleted. When valued assets and their resource flows are perceived to be threatened (hence linking to VBN theory, below), governments, communities, and leaders themselves have a range of options to alleviate adverse conditions that inhibit them achieving their objectives or adapting to changes in SSF context. Those investments can be in capital assets themselves (e.g., education and training to increase leadership capacity), in changing either the structure of the rules-in-use or their payoffs, and in implementing process-oriented (rather than structural) changes in the governance system (i.e., designing participatory processes that enhance efficiency, equity, legitimacy, participation, accountability, fiscal equivalence, alignment with moral values, adaptability, resilience, robustness or sustainability—see McGinnis, 2011).

Action arenas exist at multiple levels from a single household, to regional, national, or international governance organizations (Ostrom, 2005). The IAD framework can be used to structure the feedbacks between action arenas that are linked across different levels. Our primary focus is on the operational level, where individual SSF actors or organizations in their fishing communities make day-to-day decisions. However, outcomes from higher collective choice and political levels also affect them, creating facilitating or restrictive conditions that affect local leaders' capacity to engage and function in SSF leadership roles.

When extending the IAD framework to multiple levels (**Figure 2**) in our SSF context, the lowest level (and that with the quickest cycle time) is that of the individual leader, who makes



decisions that help him or her reach their personal objectives (e.g., earning a living and having enough money for educating children) or broader objectives regarding the state of capital assets in their community (e.g., infrastructure, social cohesion) or region (e.g., health of fish stocks). Individuals function within their community, and are influenced directly by actions of the community level (e.g., the aggregated outcomes of local fishers on fish stocks; social norms that influence where, when, and how an individual can fish). All actors at the operational level of households and communities are influenced by the actions and outcomes of higher level fisheries management and other organizations tasked with governing or supporting the operational level. For example, the formal rules that govern local fisheries are chosen at the higher level, as are choices about enforcement intensity and the allocation of resources to operational level activities like habitat restoration. At an even higher political level, activities and their outcomes shape general policy directions that reflect the desire of governments or other high-level organizations (e.g., donors). In our analysis, we found respondents who addressed issues at all levels and used the multi-level IAD framework to help organize and make sense of those comments.

### Value-Belief Norm (VBN) Theory

The VBN theory (Stern et al., 1999; Stern, 2000) seeks to explain environmentally-significant behaviors. While fisheries leadership may not entirely be an environmental behavior *per se*, we believe that a modified VBN—used as a framework to organize comments about threat perceptions, actor objectives, and propensity to act in certain ways—is useful for framing thinking about SSF fisheries leadership. A key insight from VBN

theory is that threat salience is influenced by a number of factors (i.e., cultural context, prior experiences, core values, access to information, and an actor's capabilities—**Figure 3**) that will affect the propensity of that actor to take action and influence the intensity of engagement, subject to institutional constraints. In theory, the more deeply rooted an individual's beliefs are, the more likely an individual is to be aware of the consequences of their behavior (López-Mosquera and Sánchez, 2012). Beyond environmental threat salience research, we believe that the theory can also be applied to perceptions of new opportunities that affect an individual's propensity to engage in behaviors that advance personal goals or become engaged with higher level entities or organizations that have goals reflecting the core values of that individual. For example, an individual fisher would be more likely to engage in a local SSF management if government organizations enforced rules against poaching by community outsiders.

In the context of SSF leadership, individual leaders play a dual role: they act as individuals, making choices about personal actions that fulfill their objectives at the household level; and they also make decisions regarding community-level leadership actions. It is important to distinguish between the two because taking on a leadership role actually means that an individual also formally or informally fills a position at a level higher than the household level. Thus, attention needs to be paid to untangling the actions of individuals and to whether they are acting on behalf of their own household or as an actor with a particular SSF management role to fulfill.

An individual's experience of working in a certain management or leadership context can shape their motivations to participate in future projects. Experiences with successful projects build reputation and credibility that can encourage

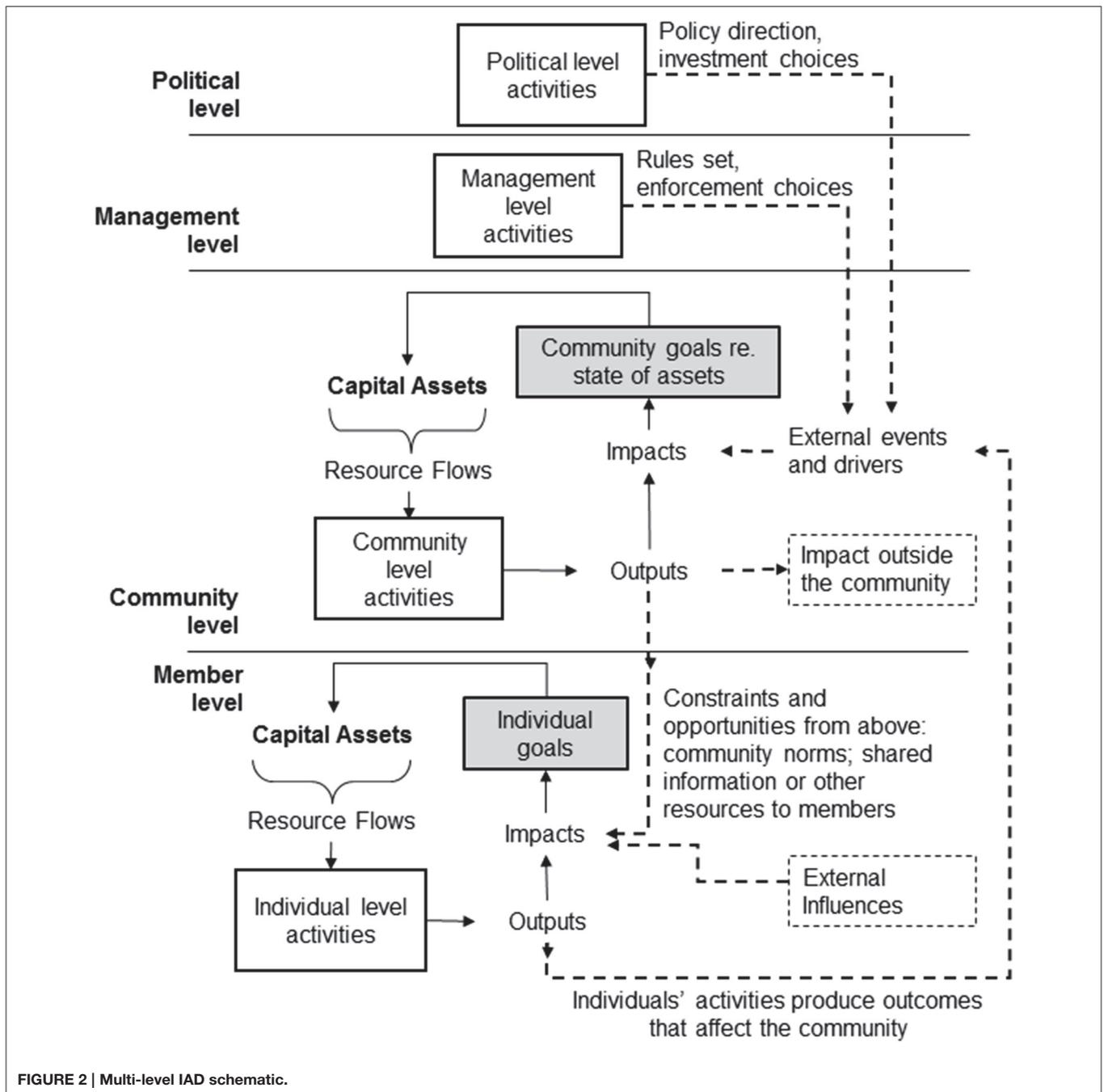


FIGURE 2 | Multi-level IAD schematic.

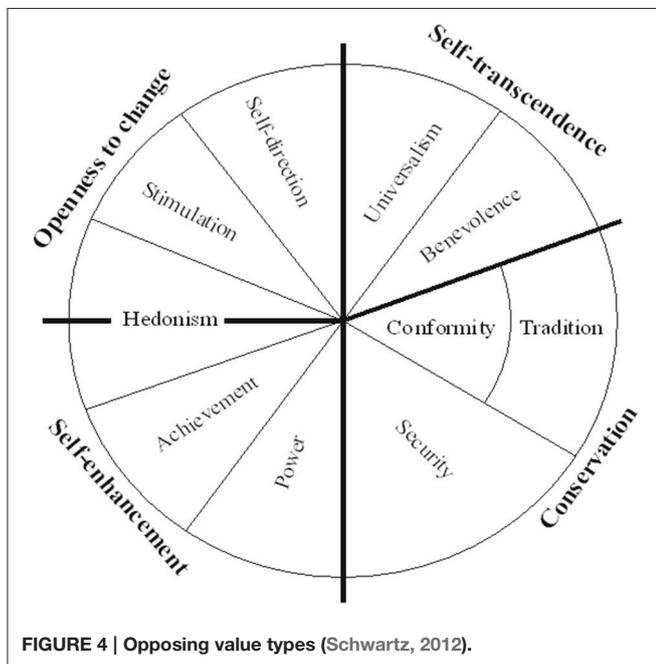
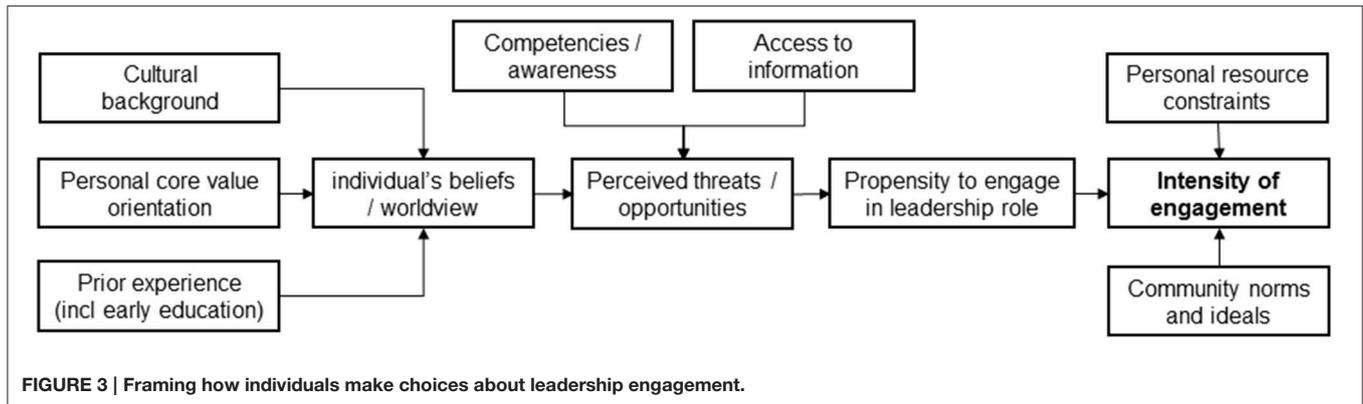
future participation, while experiences with unsuccessful projects can discourage future participation. Social memory is the mechanism in which information regarding experiences is stored (Adger et al., 2005) and is embedded through community discussions and decision-making (McIntosh, 2000).

### Cultural Context

Cultural values such as freedom, prosperity and security represent shared ideas about what is good, right and desirable in a society (Williams, 1970). Cultural values guide people to understand which behaviors are appropriate in various situations

(Schwartz, 1999). Cultural values are numerous and can differ substantially between countries. Schwartz (2012) asserted that some values are congruent with each other while others conflict (Figure 4).

With four quadrants, Schwartz (2012) defines the four major values types: openness to change; self-transcendence; conservation; and self-enhancement. The closer the values are, the more similar their underlying motivations, while the more distant they are, the more antagonist their underlying motivations (Schwartz, 2012). Therefore, conflicts can arise between individuals and groups that hold different values. The



value of openness to change relative to the values of conservation captures the tension between independent thought and readiness to change, and values that encourage order, preservation of the past and resistance to change. Differences of values emphasizing self-enhancement relative to self-transcendence capture potential tensions between the concern for the interests of others (and the environment) and the pursuit of one's own interest.

In synthesis, the IAD framework, and the VBN and cultural value theories facilitate the in-depth analysis of leadership. Individual-level factors we focus on include cultural values, prior experiences, and access to information, all of which influence an individual's propensity to engage in leadership roles. The link between individual-level factors and propensity to engage in leadership is based on the VBN theory (Figure 3). The intensity of engagement is constrained by capital assets (e.g., financial and social capital) and community-level activities (Figures 1, 2). Higher level factors at the political level directly and indirectly

influence local-level leadership through policy direction and regulation setting.

## Empirical Implementation

### Interview Questions

To collect contextual information on leadership we used semi-structured interviews that offered participants the chance to explore issues they perceived as important (Longhurst, 2010). Interviews started with a general discussion on the fishery to obtain information about the fish stocks targeted, fishing methods used, perceived health of stocks and the environment, and governance arrangements. We then asked four theoretically-guided questions (listed below) to help direct a conversation. Participants thus had the opportunity to develop arguments and engage in open discussions regarding key issues while minimizing interview time (Weiss, 1995).

*How do individuals come to be community leaders?* The effectiveness of local leadership is related to the legitimacy or credibility of a leader. Theory assumes that individuals who have a connection to the community or who originate from the community are likely to be successful leaders (Ostrom, 2009). Legitimacy can also be enhanced through formal processes of elections and rotations (Hollander and Julian, 1970). In our interviews we sought to explicate the processes by which leaders most commonly emerges, and the conditions and factors that aided or hindered this emergence from an individual role as householder or small business person to an actor that took on a formal or informal leadership role at the community level.

*Why do people get involved with leadership roles?* Motivations are an important precursor to the performance of certain behaviors (Giberson et al., 2005). The expression of inherent values is shown through motivations to act. Motivations can determine whether an individual will act in self-interest or for the interest of the wider community (Schwartz and Bilsky, 1987). Deciphering an individual's motivation for becoming involved with SSF leadership roles is therefore crucial.

*Are potential leaders prepared for leadership roles?* Capacity building is often provided to local communities as part of CBFM projects (Pomeroy and Rivera-Guieb, 2005). Training programs are either directed at the wider community, specific key interest groups, or current leaders. Capacity building increases an

individual's knowledge and skills, which can be then utilized in an action arena (Stern, 2000). Our question aimed to explore a range of tools and approaches used to enhance leaders' ability to function in SSF management.

*Do individuals receive external assistance to enhance their leadership capacity and meet their responsibilities as a leader?* The introduction of CBFM structures often puts additional pressure on community resources. In many instances local organizations do not have the capacity to facilitate CBFM. For those communities, external assistance in terms of leadership, technical assistance, and the facilitation of access to resources is required (Pomeroy et al., 2001).

*Do you think there will be any challenges to leadership going on into the future?* In addition to four theoretically guided questions, we included one final question that asked respondents to identify key future challenges regarding leadership in SSFs. The aim was to link leadership emergence to broader environmental, economic, political, and social landscapes.

### Sampling Method

We selected cases deliberately to help ensure we covered as broad a range as possible of case study configurations, and to obtain opinions from individuals with diverse expertise. Four contextual variables that were potentially important for SSF success were used to broadly identify 16 general types of case study configurations: development status of the country where the fishery was located; whether fishers regularly participated in CBFM; fishery complexity, defined simply as single-species vs. multi-species fisheries; and management status (i.e., how established the SSF management arrangement was) (Table 1). Our aim was to include at least one case study from each of those possible combinations. Sampling was therefore theoretically-informed rather than random or representative. Once as many variable combinations as possible were covered with at least one interviewee, we added interviews opportunistically across case types until we reached our target of at least 50 interviews in total (a reasonable number for future Qualitative Comparative Analysis research—see Sutton and Rudd, 2015).

Potential case studies were identified using academic journals, organization websites, project reports, and the Too Big to Ignore (TBTI) SSF database ([toobigtoignore.net/issf/](http://toobigtoignore.net/issf/)). After case studies were identified, potential interviewees were contacted via email. Our criterion for selecting interviewees was based on their involvement with the SSF. To be involved in this research, the individual had to either be a researcher of, or a practitioner within, a focused SSF. As such, our respondents included academic researchers, government scientists, representatives from NGOs and leaders in community-based organizations. This ensured we covered a range of insights and opinions on SSF leadership from individuals in different regions and with different backgrounds. Of 200 individuals contacted globally, interviews (via Skype or Google Hangouts) were conducted with 54 respondents between January and July 2015.

Kingdon (2003) defined leadership as key individuals who by their skills, experience and personal characteristics are justified in being a central and influential role in social processes. Due to the complexity of leadership, the lack of a common definition for SSF

leadership, and the difference in leadership structures between SSF communities, we decided not to have a fixed definition of leadership. Instead we left respondents to define leadership in a manner that was appropriate to their case study; for example, this included a single individual or a group of individuals, external or internal actors, and informal or formal leaders. As we took insights from both academics and practitioners, we had an even mix of respondents who were researchers or advisors to the SSF, and respondents who were themselves leaders.

Interview questions were approved by the Department of Environment research ethics committee at the University of York in November 2014. Confidentiality agreements were signed by all interviewees and transcripts were stored on a private device.

### Data Analysis

Interviews were transcribed and coded using NVivo software ([www.qsrinternational.com](http://www.qsrinternational.com)). Theme identification is important to show recurrent unifying concepts or statements within data (Boyatzis, 1998). *A priori* themes were defined drawing on terminology likely to be important for theoretically-informed discussions of SSF leadership performance (i.e., terms relating to potential precursors to individual action; individual and community level action choices and constraints; interactions between various social groups; and higher level socio-political influences). As the interview transcripts were analyzed, themes and sub-themes were modified, refined and often combined to improve clarity. Further, theme structure evolved inductively with emergent themes reflecting representation of unanticipated interview responses (Bradley et al., 2007).

## RESULTS AND DISCUSSION

### Interview Results

Our 54 interviews covered 52 case studies and 15 of 16 case study configurations (Table 1) from 34 countries (Figure 5). Conversations lasted between 30 and 120 min, resulting in over 46 h of interview recordings that were subsequently transcribed for textual analysis. In our subsequent reporting of results, we summarize the number of respondents who made reference to particular themes and provide selected interview excerpts. For confidentiality purposes, respondents are numbered R1, R2, etc. This research relied on the opinions and views expressed by our respondents. The potential for biases among our respondents was, we hope, minimized by collecting and reporting on information from a wide range of interviewees across diverse case configurations.

### Factors Affecting Individuals' Propensity to Engage in Leadership

#### Cultural Background

Individuals' perceived threats and propensity for taking action are influenced by shared culture and unique personal experiences. Culture influences an individual's behavior by shaping a repertoire of shared habits, skills, and values (Swidler, 1986). Cultural conditions can be either conducive for collective action or act as a barrier (Pomeroy et al., 2004; di Falco and Bulte, 2011), and either can influence leadership potential. We found

**TABLE 1 | Number of case studies of each configuration type.**

Configuration	Development status	Fishery participation	Fishery complexity	Management arrangement	Number of cases
1	1	1	1	1	11
2	1	1	1	0	7
3	1	1	0	1	2
4	1	1	0	0	4
5	1	0	1	1	2
6	1	0	1	0	1
7	1	0	0	1	1
8	1	0	0	0	3
9	0	1	1	1	3
10	0	1	1	0	2
11	0	1	0	1	3
12	0	1	0	0	6
13	0	0	1	1	0
14	0	0	1	0	1
15	0	0	0	1	3
16	0	0	0	0	5

*Development status: using the Human Development Index (HDI), cases in very high and high HDI nations were ranked 1, and cases in medium and low HDI nations were ranked 0. Fisher participation: if fishers regularly participated in CBFM decision-making the case was ranked 1, and if not, the case was ranked 0. Fishery complexity: if the case SSF was mostly single-species in focus, the case was ranked 1 and if mostly multi-species focus, the case was ranked 0. Management arrangements: if SSF management techniques were fully established, the case study was ranked 1 and if new or unestablished, the case study was ranked 0.*

cases studies in this research that exhibited both possibilities, where cultural context was conducive to collective action and vice versa (Table 2).

Seven of our cases studies highlighted cultural contexts that facilitated collective action. For small-scale aquaculture in northern Sri Lanka, collective action was traditionally practiced in cooperatives and associations. R1 emphasized that “if people are used to working collaboratively, it’s easier.” Fisheries and fish resources were an important part of the community’s cultural identity in Velondraike, Madagascar. R2 stated that “it’s completely intertwined with who they are as people”, so that consequently community members actively participated in activities which focused on protecting those resources. Religion also influenced fishing activity and conservation measures. In Bangladesh, fishing activities ceased in line with Hindu and Muslim festivals. R3 noted that fishers have built a special connection to the fisheries, which has helped place a conservation value on fish stocks. The relative homogeneity of communities in the Khong District, Laos—in terms of ethnicity, language and culture—enabled effective information exchange between community members. R4 reported that this enabled individuals to easily evaluate the actions of others.

For other contexts, collective action was hindered by cultural influences. In many SSFs, fishers had individualistic tendencies, which reduced the likelihood of collective action and of following a leader. R8 described the Bajau fishers of Wakatobi, Indonesia, as “rugged in their individualism” and questioned “why on earth would they accept someone being a leader, when they know everything they need to know.” Similarly, fishers in Scotland preferred to act independently of regional grouping; that independent orientation, which was a valued trait among fishers in the region, hindered the potential of CBFM (R9).

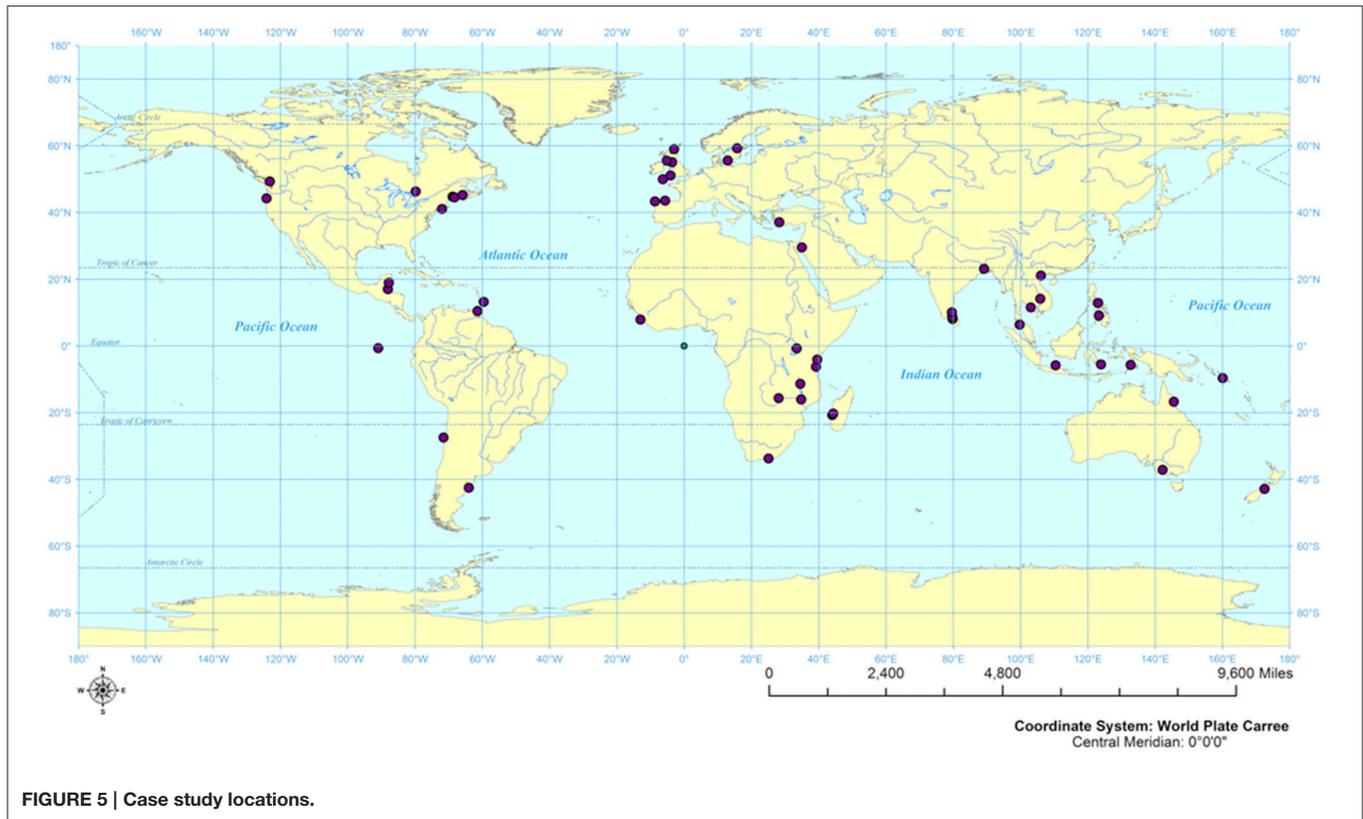
**TABLE 2 | Cultural values facilitate or restrict leadership and collective action in SSF management.**

Key findings	Comments/Tally
Fishing is an important part of cultural identity which incentivizes leadership and community participation in SSF management	7
Culture is not conducive to leadership and community participation in SSF management	4

In part, a fisher’s individualism is attributed to the characteristics of the resource. Fisheries are a common pool resource, characterized by two defining features, excludability and subtractability. When fish stocks are declining, this can place fishers under pressure to participate in a race to fish (Ostrom, 1990). Independence and individualistic tendencies should not be regarded as undesirable characteristics, as they encourage the propensity to think and behave freely, facilitating the ability to make quick decisions (Poggie, 1980). However, in those cases, what is the likelihood of fishers working collectively, following a leader or becoming a leader themselves? Poggie (1980) recognized that CBFM needs to be compatible with the psycho-cultural characteristics of the fishing community: new management structures should encourage free thought in decision-making, independence, and the creation of community ownership whenever possible.

### Core Values

Our respondents highlighted that individuals have different motivations for leadership (Table 3). The motivation of a leader influences his or her behavior and can consequently significantly



**TABLE 3 | Core values are expressed in motivations for taking on leadership roles.**

Key findings	Comments/Tally
Individuals become involved due to altruistic values	9
Individuals become involved due to the opportunities of self enhancement	18
<ul style="list-style-type: none"> <li>• Livelihoods (13)</li> <li>• Connections (3)</li> <li>• Social recognition (2)</li> </ul>	
Individuals become involved due to environmental values	7

influence the overall effectiveness of the organization (Giberson et al., 2005). We found that altruistic, self-enhancing, and environmental motivations all played motivating roles for individuals to engage as leaders in differing cases.

Nine respondents attributed motivation for leadership to altruistic factors. In western Canada, R12 noted that older fishers believed that “it’s time to give a little business back to the industry, the industry has been good to me and I’m going to put my time in.” Similarly, older fishers in Bangladesh were found to be motivated to, “support their community and ensure the continued livelihoods for future generations” (R3). In Cambodia, R10 recognized that there will always be a member of the community who is committed to improving the life of community members.

Many leaders were motivated for self-enhancement purposes. Simply getting paid was enough encouragement for poorer

individuals in Malawi and Tanzania to take on leadership roles. Securing livelihood opportunities was particularly important in western Canada: “I think a lot of it is that this is their livelihood, this is how they and their families survive” (R12). The connections made with external, influential actors through leadership activities are a second motivating factor. One respondent (R17) stated that “individuals [in Argentina] are always trying to get help or trying to connect themselves to other levels, politically.” R13 noted that leadership in Spain “brings all sorts of benefits, because you are the linking organization between all the fishers and the government; I think that’s a big motivation.” Social recognition was also a motivating factor according to two of our respondents. In Australia, R18 highlighted that fishers “are proud of the recognition they receive...they tend to be held in high regard by their communities and this social license is important to them and their families.” In Laos, “leaders are people who were more interested in the prestige of the position, in the sense that they wanted to be known in their communities as important people” (R4).

Environmental values were attributed as motivating factors by seven respondents. A member of a local environmental group in Taunton Bay, Maine had little confidence in the State government; his motivation for participating was to represent sound environmental policy (R23). In the Philippines, R29 highlighted that leaders “do not get paid for the work, it is purely a voluntary service, they believe in the cause of resource conservation and protection.” Similarly, R30 commented that the

leader of a marine protected area (MPA) in Spain was a local university professor; “he was on a mission for sustainability; he was really passionate about it.”

Our findings offer insight into the motivations of leaders in SSF and highlight different value structures. In line with the work of Schwartz (2012), it is possible to hypothesize that individuals with altruistic or biospheric tendencies are more likely to serve collective interests for the good of conservation, whilst those who express self-enhancement values are more likely to serve individual interests. However, individuals have multiple values which emerge at different times calling for a temporal component to future leadership research.

### Prior Life Experience—Early Education

Our respondents identified education as a key factor that influenced fishers’ behavior. The introduction or re-establishment of participatory approaches often included elements of education, training or capacity building. Education increases awareness and influences perceptions and beliefs that guide human behavior (Hungerford and Volk, 1990; Stern, 2000). Multiple educational approaches for increasing awareness were practiced in our case studies and targeted both children and adults. As early education is thought to influence threat salience and behavioral choice via its effect on worldviews (as opposed to skills- and awareness-building in adults, which can more directly and immediately affect perceptions regarding threat salience; Stern, 2000), we deal with each separately.

Marine programs were developed for school children in seven countries including Tanzania and the Philippines. Increasing awareness from a young age embedded the importance of marine ecosystem sustainability (Table 4). R7 reported that after two decades of the marine program on Apo Island in the Philippines, local children had a strong sense of place and their marine environment was “sacred” to them. Similarly, an MPA organized by the Community of Arran Seabed Trust (COAST) in Scotland, UK, has received strong support from the local community. R19 attributed that level of support to “the continued presence of COAST at community events and awareness raising activities for children in local schools.”

### Human Capital—Adult Education and Awareness of SSF Threats and Opportunities

Human capital refers to the stock of knowledge that individuals possess in an action arena. The ability for individuals to adopt more profitable and secure livelihood strategies from SSF is in part dependent on education (Dercon and Krishnan, 1996). Adult members of the community benefited from awareness building opportunities that were created through the

development of workshops, training programs, and community events (Table 5). R3 reported that programs in Bangladesh taught local fishers how to brand their fishery products and participate in micro-credit programs. The development of a co-management program in Spain increased local awareness of the importance of local fisheries resources to the local livelihoods. Consequently, R13 noted that fishermen were volunteering more of their time to participate in surveillance and monitoring. R30 reported that local ecological knowledge, a form of knowledge held by local resource users, was incorporated in Spanish MPA proposals, and that this “fostered a sense of ownership and that’s what made it succeed.”

Many local fishers, however, have minimal formal education, and this can reduce their ability to participate in CBFM (Hollup, 2000; Vedeld, 2000; Glaser, 2003), a point that was reiterated by our respondents. In Sweden, R6 highlighted that language barriers hindered local fishers in their application for a Marine Stewardship Council (MSC) certification, which recognizes the sustainability of a fishery. Similarly, few community members had the level of education required for higher level positions of an MPA authority in Tanzania; R24 reported that “you have to be able to write on the computer and you have to be able to write in English, so that limits the number of people who can apply to the job.” Many individuals simply do not have the capacity or disposition to be leaders. Respondents from the UK, Chile, Canada, and Ecuador highlighted that little or no capacity-building was targeted specifically at leadership. Lack of capacity-building for leadership was attributed to poor funding opportunities or leaders having too little time to attend workshops. Capacity building for leadership was provided for Beach Management Units (BMUs) around Lake Malawi and Lake Victoria in East Africa. However, R31 stated that local fisheries officers did not have the capacity to transfer knowledge on to their successors, and R22 added that training was one-off in nature, not followed by successive training that built skills over time.

Several of our interviewees also reported that increased levels of awareness regarding other livelihood and investment opportunities, combined with the uncertain nature of fishing, could deter individuals from remaining in SSFs. In the Philippines, fishers were “less interested in managing the fishery because they don’t depend on it anymore” (R32). In Argentina, “the sons and daughters of fishermen don’t want to continue in fishing” (R17). Similarly, R31 emphasized that fishers around Lake Victoria were beginning to invest more in their children’s education and that, as they did, their motivation to participate in SSF collective action, leadership and management was diminishing.

**TABLE 4 | Prior experience influenced engagement through multiple pathways.**

Key findings	Comments/Tally
Early childhood education increased the awareness of local people of all ages	7

**TABLE 5 | Human capital at the local level impacts an individual’s ability to lead.**

Key findings	Comments/Tally
Awareness of other opportunities has reduced motivation to remain in the SSF industry	6
Fishers have poor educational levels that can inhibit participation in SSF leadership	8

## Access to Resources

### Financial capital

Many small-scale fishers are extremely poor and live well below the poverty line (Béné, 2003). Financial capital at the individual level is therefore often limited. Our respondents noted that fishers' poverty levels impacted on their ability to participate in CBFM in Tanzania, Bangladesh, Malawi, and Madagascar. In Vietnam, R15 stated that "the folks on board are also actively engaged in securing a livelihood, so there isn't a huge amount of time to spend doing project activities. This was reiterated by R37 who recognized that "people may be willing (to participate) but not able... an individual, whose livelihood relies on them being out in the industry—that is a constant problem... it's a catch 22." Timing issues were exacerbated by fishers working hours that are highly influenced by tides, and R23 reported, "no matter how carefully we planned, securing 100% attendance was impossible." Fishermen are increasingly being put under greater pressure due to dangerous working conditions, reduced stocks, and stricter regulations. It is inevitable that time will become even more restricted in the future (Salas et al., 2007). Therefore, the need to provide a secure income reduces the time fishers can devote to both leadership roles and collective action (Table 6).

Manufactured capital such as fishing boats and technology are the stock of produced assets that people use over time (Rudd, 2004). The importance of manufactured capital was referred to by two of our respondents. Although this is a low level of coverage, we included it as a distinct category to emphasize the importance of further research on the influence of manufactured capital on leadership. In Bangladesh and Indonesia, a fisher's access to boats was the basis of their leadership. For the Bajau in Wakatobi, formal leadership among community members was an uncommon occurrence. However, R8 confirmed that "temporary leadership can emerge if an individual gets a bit more money, who maybe owns three boats and has a crew... this isn't policy-based leadership, it's fisheries-based leadership but not because of the need to manage the fishery, it's just what you do to run your business."

### Social capital

Social capital is an asset built on social networks (Rudd, 2000; Krishna, 2002). It facilitates the transmission of information and reputation, and is a key factor influencing the socio-ecological sustainability of CBFM (Rudd, 2004). While social capital by definition needs multiple actors to function, one can conceptualize that an individual's access to social capital—their niche in the network—strongly affects their capacity to engage as an effective leader. Social capital is also an important

resource from an organizational perspective at higher levels of management and political choice processes.

Social capital was an important influencing factor in our case studies (Table 7). Trust and confidence between community members decreased the need for strict enforcement in the tilefish fishery in northeast USA (R42). Limited bonding social capital, or the bonds between likeminded people, was, however, also reported at the individual level. Poor social cohesion between fishers prevented collective action in the Galapagos Islands, Ecuador. R43 attributed this to the prevalence of fishers from mainland Ecuador who had stronger connections to their home communities. In Western Australia, bonding social capital was commonly weak among abalone fishers; R44 argued that this was due to "the historically fractious relationships between fishers." R5 recognized that social bonding between community members around the shore of Lake Malawi needed to be strengthened in order for shared objectives to be developed.

A potential mechanism for increasing social capital was also highlighted. Experiences of working collectively are stored in the social memory of communities (Adger et al., 2005). Members of SSF organizations in Spain and Malawi who participated in prior CBFM projects had heightened confidence and trust in their collaborations with other fishers. In these communities, leaders used the experience of working collectively and the social memory of the fishing community to participate more effectively in subsequent projects.

## Community-Level Leadership Issues

### Leadership Legitimacy

At the community level, individuals need to be considered in relation to the formal role that they play as leaders in fisheries management. Legitimacy is a psychological property of leadership that allows followers to perceive appropriate, proper, and just leadership (Tyler, 2005). Legitimacy is the common way of signaling acknowledgement of a leader (Hollander, 2012). By accepting a leader, followers influence the strength of a leader's influence and consequently the performance of the group. Over half of our respondents identified legitimacy as important and highlighted the numerous pathways individuals can become legitimate leaders (Table 8).

Legitimacy can be achieved through formalized mechanisms of nominations, elections, and rotations, processes that define boundary rules and provide clarity regarding the leadership role within which individuals are placed and act. Elections also create a heightened psychological difference between followers and leaders (Hollander, 2012). To become a member of an Inshore Fisheries Group (IFGs) in Scotland, R9 reported that

**TABLE 6 | Financial capital influences leadership potential.**

Key findings	Comments/Tally
Many individuals have too little money to be involved in leadership activities	8
Many individuals have too little time to be involved in leadership activities	6
Mechanisms that strengthen social capital	4

**TABLE 7 | Human capital at the local level impacts an individual's ability to lead.**

Key findings	Comments/Tally
Social capital is apparent in the SSF community	6
Social capital is not apparent in the SSF community	4
Mechanisms that strengthen social capital	4

**TABLE 8 | Human capital at the local level impacts an individual's ability to lead.**

Key findings	Comments/Tally
Leaders can gain legitimacy in numerous different ways <ul style="list-style-type: none"> <li>• Elections (13 out of 36)</li> <li>• Origins (23 out of 36)</li> <li>• Leadership activities (21 out of 36)</li> </ul>	36

an individual had to meet certain criteria outlined by the organization's guidelines. In western Canada, to gain a place on the Board of Directors, prospective members were required to be nominated and elected by current members (R12). Individuals from regional groupings in New Zealand were nominated to become representatives on the New Zealand Rock Lobster Industry Council (NZRLIC) by other community members (R20). Elections increase legitimacy, but in some circumstances elections can also lead to unrealistic expectations of leaders and consequently they can become the subject of criticism (Hollander and Julian, 1970). Elections can, for instance, be corrupt (Hauck and Sowman, 2001) or poorly executed in the face of community members' low literacy rates (Xu and Ribot, 2004).

Our case studies reiterated that the geographic origin of a leader can be important for leadership legitimacy. Local leaders who have a deep understanding of local processes and cultures are essential for collective action (Meaton and Low, 2003; Olsson et al., 2004; Beem, 2007; Bodin and Crona, 2008; Gutierrez et al., 2011). *Calettas* or fishing federations in Chile have strong social bonds, leading R33 to assert that when someone comes from another area, "he will always be an outsider." Leadership positions were maintained within family units in Quinta Roo, Mexico, and Apo Island (despite formal elections for barangay leadership in the Philippines). SSF leaders were also found to be traditional leaders in Malawi, Canada, Vietnam, Laos, the Philippines, and Malaysia, a factor that helped increase their legitimacy among community members.

A leader's legitimacy can also be enhanced through his or her actions. In our case studies, a leaders' legitimacy was strengthened via their reputation, and the trust, accountability, and transparency that they engendered. In Madagascar, R34 noted that "community members have seen the benefit (of their leader), so trust had already been developed." Similarly, in the Philippines, R29 highlighted that "although leaders do not possess leadership skills at first, they evolve to be good leaders because of their first-hand knowledge...they gain the trust of the people in the community." The most important criteria of developing leadership in Jordan fisheries were transparency and openness (R25 and R26).

### Leaderful Issues at Community Level

Creating "leaderful" organizations can be important for SSFs. A leaderful organization encourages each member of the community to gain experience of being a leader concurrently and collectively (Raelin, 2003). Due to the difficulties of leadership succession, it is important to expand the focus of leadership. The image of "successful leaders" has to shift from developing individual leaders to developing "leaderful organizations" of

multiple leaders (Al Mamun, 2015), thereby increasing the pool of potential leaders. Succession is a social process determined by the interactions between leaders and their constituents, and the capabilities of local communities to produce new leaders (Hart, 1993). Our respondents identified several concerns about leadership succession (Table 9) and techniques to potentially facilitate more successful leadership succession planning.

Motivation was found to be a limiting factor in leadership succession. R5 noted that local chiefs in Malawi had minimal motivation for leadership, as CBFM projects were implemented by the government. Reduced motivation among SSF leaders in Argentina was due to fluctuating support from governmental departments and poor success rates of prior CBFM projects; R17 reported that "the fishers started with a lot of motivation and strength, but the same people who are still in the fisheries are tired of continuing...it's really difficult to maintain the motivation." Similarly, R30 stated that due to reduced effectiveness of an MPA in Spain, the local leader is "totally deflated, he doesn't want to be involved anymore."

Leadership succession was impacted by the lack of up-and-coming leaders. In northern Scotland, R50 reported that "we put an advert in the local press and invited applications from anybody who was interested...we didn't get many people who were interested." A limited pool of potential leaders was also experienced in Taunton Bay, Maine; R23 commented that the "area and the resource were just too small...we were a very limited number of people who were interested and that meant we were an inbred group by the end, we didn't get the fresh blood we were hoping for."

An aging population of fishers contributed to concerns regarding leadership succession. Reporting from Spain, R13 noted that "many of the community leaders in the gooseneck barnacle industry are older, which could be problematic considering the dangerous nature of the fishery." R12 added that with the retirement of older fishers, years of cooperative expertise and local knowledge was likely to be lost. Despite concerns of an aging population, barriers to young, nascent leaders were also highlighted in some cases. In Tanzania, India, and Malaysia, older members of the community often discounted the authority of young members. R24 recognized that "you have an older guy and he doesn't want to listen to the younger guy who was supposed to be a leader, it's very difficult—it's definitely a cultural thing."

To overcome concerns of leadership succession, new approaches should be developed to ensure the longevity of leadership. Capacity building was used in several of our case studies as a method to train individuals for leadership. A non-governmental organization (NGO) called Blue Ventures provided newly elected individuals in Bel Sur Mer, Madagascar, training in leadership and organization management skills (R2). R35 reported that in a regional project in the Caribbean, local fishers were given the opportunity to attend capacity building workshops and conferences on SSF. Similarly, R28 who worked for an NGO in Mexico, stated "over the last 3 years, we have worked quite heavily on leadership, working on administration and business training, because it's not something they are used to." Succession planning, the process which stabilizes the occupancy of key positions and consequently helps to ensure the

**TABLE 9 | Succession is a beneficial attribute that helps the longevity of successful leadership.**

Key findings	Comments/Tally
Concerns of the ability to produce successors for leadership <ul style="list-style-type: none"> <li>• Motivation (6 out of 24)</li> <li>• Poor capacity building (13 out of 24)</li> <li>• Lack of up-and-coming leaders (8 out of 24)</li> <li>• Barriers to young people (4 out of 24)</li> </ul>	24
Techniques to ensure successful succession planning	20

continued effective performance of an organization (Rothwell, 2010), is also explicitly needed.

### Vertical Collaborations between Communities and Agencies

Nesting CBFM organizations in numerous institutional layers is crucial (Dietz et al., 2003). Community-based management has been reported to fail when communities lack linkages to higher levels of government (Lejano and Ingram, 2007; Cudney-Bueno and Basurto, 2009). Our cases studies reiterated the benefits of establishing and strengthening ties to different levels of SSF management organizations (Table 10). Linking social capital is important to this process and refers to the ability of groups to engage with external agencies to either influence policies or resource allocations (Rudd, 2000; Pretty, 2003).

Several of the fishing organizations in our cases studies demonstrated effective linking roles. Fishing federations in Chile's co-management structure played important boundary spanning roles by communicating community issues to state agencies and vice versa (R36). The New Zealand Rock Lobster Industry Council (NZRLIC) provided a method of linking regional groups with the government in New Zealand. Our respondents also noted methods of enhancing linking social capital. In the Caribbean, R35 recommended the use of neutral platforms to facilitate the interaction of different actors including fishermen and government representatives. Similarly, in India, the Palk Bay Fisheries Management Platform was created to bring together key fishing stakeholders (R46).

Local leaders are crucial in establishing and enhancing linking social capital. A key factor in the ability of communities to interact with higher levels of SSF management is the presence of educated, young individuals (Krishna, 2002). These individuals provide a mediating role by dealing with the complex procedures of a state and understanding complicated governmental language. The importance of an educated, younger generation was reiterated by our respondents. In Chile, some younger generations of fishers have been given the opportunity to study technical aspects of fishing and are thus more prepared and educated. R36 stated that these individuals "have a broader perspective on things."

### Elites and Power

Traditional leaders have significant influence over community processes. Traditional leaders include religious or spiritual leaders, caste leaders, and local elites. The potential gains from

**TABLE 10 | Interactions between different SSF organizations/agencies at different levels affect leadership.**

Key findings	Comments/Tally
Horizontal and vertical linkages are beneficial for leadership groups	13
Young, educated leaders are crucial in securing and enhancing linking social capital	4

natural resources such as forestry and fishery products have often enticed local elites to act in self-interest. Consequently, the presence of local elites has been associated with embedded power inequalities and the ineffective use of community resources (Hauck and Sowman, 2001; Kull, 2002; Larson and Ribot, 2004; Njaya, 2007).

Our respondents emphasized that local leadership is not immune from the abuse of elite capture (Table 11). R3 noted that formal positions in Bangladeshi co-management were often usurped by rich individuals, who were not members of the fishing community; consequently ethnic fishers (Jalyes) were unable to participate in decision-making. In Indonesia, R45 asserted that CBFM was not the best approach for fisheries management; collaborative or co-management should be implemented to allow for the careful monitoring of community elites by external actors. One respondent also noted that local elites also worked for the interest of the community. R5 commented on a village chief in Malawi who recognized the dangers of elite capture. The chief purposively did not sit on the Beach Village Committee (BVC) but instead orchestrated rotations when committee members became tired or unmotivated to perform leadership responsibilities. R5 referred to this individual as a "benevolent puppet master."

Local elites have a strong influence on CBFM. As our case studies show, the activity of local elites can reduce the legitimacy of local leadership. In addition, the presence of local elites can lead to the dilution of wider community input, corruption, and improper use of community resources (Mahanty et al., 2006). However, elites can also help achieve successful SSF management, for example in Malawi and Mozambique, where traditional leaders have become advisors to SSF committees (Crona and Bodin, 2006).

### Interaction between Leadership Groups

Implementing new management structures introduces new institutions, leadership, and potentially new power struggles into SSF communities. As Pinkerton (1989) recognized, key outputs of CBFM to consider are the new relationships that are created between different community organizations. It is especially important to consider how old and new institutions interact, and how power relationships play out (Amy, 1987). The interaction between old and new leadership proved to be an important influencing factor on the effectiveness of local leadership in our case studies (Table 12).

Our case studies highlighted experiences where implementing agencies chose to create new leadership authorities within a community. The Galapagos National Park (GNP) was the

**TABLE 11 | Elites have a profound influence on CBFM through their leadership.**

Key findings	Comments/Tally
Elites have an influential impact on CBFM for both positive and negative outcomes	6

**TABLE 12 | Harmonious interactions between “old” and “new” leadership groups and elites.**

Key findings	Comments/Tally
The interaction between old and new leaders is crucial to the effectiveness of SSF	6

main administrator of the Galapagos Marine Reserve. In 2008, the Ecuadorian government approved a new constitution that created a new governing institution called the Galapagos Governing Council (GGC). R43 identified deep uncertainty about the function of the GNP and GGC since the new reforms were implemented in 2008. In Malawi, working relationships between the newly implemented and formalized BVCs and traditional village chiefs continued to influence CBFM effectiveness; R22 emphasized that there is “a blending of management systems where you have the chiefs and the villages on one hand and the government on the other; when there’s transparency and accountability it’s good and when there’s not, it’s bad.” In the creation of the Gulf of Mannar’s Bio-Reserve in India, managing authorities chose not to work through existing leaders but created parallel authorities, although R38 questioned “whether this was an entirely sensible decision.” R3 reported that project officials in Bangladeshi co-management arrangements decided to hire new local leaders, as many community members were unhappy with the existing leadership.

Limited research has been conducted on how existing leadership and newly implemented leadership can work together. Our case studies indicated that the transition is often complicated and characterized by uncertainty. Uncertainty is particularly evident in the responsibilities of each leadership group. Community members often questioned the legitimacy of their leaders, which reduced the overall effectiveness of leadership. It is important that agencies implementing CBFM consider the impact new leadership can have on exiting leadership and on the relationships leaders have with SSF communities.

## Interactions between Local Leaders and External Actors

CBFM often requires external assistance from organizations such as NGOs, government agencies, and research organizations (Pomeroy et al., 2001). Depending on local leadership capabilities, external actors may need to perform leadership roles. Roles may include identifying management options, providing advice and expertise, and helping in community capacity building. Our respondents outlined a variety of experiences with external leadership (Table 13).

**TABLE 13 | External assistance is important to the effectiveness of SSF leadership.**

Key findings	Comments/Tally
External assistance brings benefits to local SSF groups	10
External assistance is not beneficial to local SSF leadership	9
External leaders are paramount to local groups	12

Several respondents highlighted the positive experiences of working with external leaders. An external leader proved invaluable to local SSF in Argentina; R17 reported that “an outsider from Washington had a lot of experience and knew what was happening in other fisheries and how to manage resources...he organized and invited fishermen, students and researchers to visit communities in Chile, to learn of their experiences.” Respondents from Vietnam and the Philippines recognized the work of system thinkers who could leverage important resources from international organizations and link them to communities who required extra help.

Despite the importance of external leaders, barriers were also highlighted that restricted their effectiveness. Reflecting on the work of a governmental representative in Scotland, R50 commented that “does he add anything (to our community)? No, he’s not as experienced in businesses as some of us are, he is not experienced in fisheries management, he’s not nearly as knowledgeable about the fishery as our fishermen, so what does he add?” Concerns about the capacity of external leaders, in terms of resources and knowledge of local systems, were also highlighted by respondents from Malawi, Bangladesh, Madagascar, and the Solomon Islands.

## Higher Level Political Context Institutions and Management

Institutional design—various management techniques, policy instruments, and other required, permitted, or prohibited activities and outputs—is used to influence SSF resource use at the local level (Ostrom, 1990; Rudd, 2004, 2010). Our case studies highlighted how rights-based approaches and direct payments provide economic incentives, which help shape fishers behavior (Table 14). If such approaches are designed properly, they provide incentives for fishers to balance resource stewardship, economic efficiency, and social welfare (Castrejón and Charles, 2013).

Rights-based approaches used in our case studies included limited entry, individual transferable quotas (ITQs), individual fishery quota (IFQ) and territorial user rights in fisheries (TURFs). The implementation of rights-based approaches can be contentious due to the exclusion of some community members from the fishery (R12 and R42). R51 recognized that younger members of SSF communities found it difficult to obtain potentially expensive licenses. In northeast USA, a SSF management plan, which included a limited entry program and an IFQ, was initially met with resentment from excluded fishers. However, after concerns were addressed, R42 reported that the management plan now runs smoothly, has secured

rights for local fishers, and has increased cooperation between community members. Similarly, the NZRLIC in New Zealand is made up of nine shares owned by regional groupings and incorporates separate TACs. Through the work of the NZRLIC and the use of TACs, R20 stated that fishers have heightened custodial attitudes resulting in higher levels of environmental stewardship.

Economic incentives can be utilized to motivate fishermen to participate in and comply with CBFM. In a small Jordanian fisheries project, economic opportunities were created for local fishers by project officials who created partnerships with local businesses (R25 and R26). Similarly, in northeast USA, creative marketing ensured local fish was increasingly sold in local restaurants (R42). In Scotland, a major retailer invested in fisheries resources from a remote SSF; R50 noted “if fishermen can see quantifiable advantages of imposed management tools, those tools are more likely to be a hit with them.” Payments to cover transport costs and a free lunch were given to participants of co-management projects in East Africa (R31). However, as R5 emphasized, “unfortunately, every time you pay someone for work that is in the collective interest, it reduces their incentive to contribute to anything else in the collective interest without being paid to do so.”

Economic incentives are powerful tools used to entice fishers to participate in SSF management. Increased motivation for participation and compliance with regulations was evident in our cases studies for those individuals who have access to rights and/or direct payouts. Those same individuals may be more inclined to follow a leader they perceive will maintain their access to economic incentives or even take on leadership roles themselves to maximize the outputs of their rights. However, as our results allude to, there are limitations to rights-based approaches and direct payouts. Reducing access to fisheries resources has social and economic costs to fishers and their families (Kitts et al., 2007). Poor fishers and younger members of the community are often unable to access rights, which reduces the likelihood of their participation in CBFM and leadership activities. In addition, the longevity of direct pay-outs influences continued fishers' participation.

### Influences of Political Change

An enabling political environment and government support is essential to sustain CBFM (Pomeroy and Berkes, 1997). Changes in government policies can cause knock-on impacts at all levels (Razzaque et al., 2000; Berkes, 2006). Ostrom (1996) found, frequent top-down changes of national, state, and local authority

reduced the motivation of highly effective leaders and fishers to regularly participate in CBFM. Our results support the assertion that policy change creates uncertainty of the longevity of CBFM and is linked to changing attitudes among fishers at the local level (Table 15).

Uncertainty about the longevity of CBFM organizations was evident in several of our case studies. In Argentina, the government went through several structural iterations for fisheries management and a recent change in the head of the Fisheries Department, which resulted in the decline of effective CBFM. R17 reported that “the State no longer supports local initiatives...the constant change and lack of support makes fisheries management difficult.” The government of Tanzania leased an island off the coast of Zanzibar to a private company to run a no-take MPA. R24 suggested that the uncertainty surrounding lease renewal was a major concern for the longevity of the MPA. R52 expressed concerns about the uncertainty of continued funding to the English Inshore Fisheries and Conservation Authorities (IFCAs): “at the moment, we are fine; we are fine up until March 2016 when technically the money runs out. And, on paper, there's no more support funding from the government.”

Influences of policy uncertainty on individual behavior were reported by our respondents. In New Zealand, the rights-based approach used in the NZRLIC was designed to engender a custodial attitude among fishers. However, R20 recognized that the government has “created so much uncertainty among the continued use of those rights that custodial attitudes and stewardship are being eroded.” Reflecting on experiences of working with fishers in a Inshore Fisheries Group, R9 noted that “there's always a bit of suspicion from the fishermen, of anything to do with the government...if you have been in the fishing industry for 20 or 30 years, you will have seen a lot of changes...the fishermen are very wary.”

Activity at the government level is important to consider when researching SSF and leadership. Constant policy change and fluctuating government support creates uncertainty about the longevity of CBFM organizations and the flow of government resources available. Importantly, local leaders may be tied to the interests of particular politicians, which can compromise their ability to truly represent SSF communities (Scholtens, 2015). Our case studies reaffirm that uncertainty is linked to changing attitudes at the local level. Local leaders were found to lose motivation with CBFM in times of constant change due to limited support from government actors, and reduced credibility among community members. Fishers can also become apathetic to management processes, which influences the likelihood of participation.

**TABLE 14 | Management techniques influence leadership potential at the local level.**

Key findings	Comments/Tally
Rights-based approaches influence behavior at the local level	4
Economic incentives are provided to influence behavior at the local level	3

**TABLE 15 | Policy change affects local level leadership capacity/potential.**

Key findings	Comments/Tally
Policy change causes uncertainty in the longevity of SSF organizations	8
Constant policy changes are linked to changing attitudes at the local level (positive and negative)	8

## CONCLUSIONS

“Everything depends on leaders.” (R16).

Local leadership is crucial to CBFM and SSF success. Our research explored the factors that influenced the effectiveness of local leadership. Factors that helped shape leadership engagement and effectiveness were evident at multiple levels: the precursors to individual behavior relating to perceptions of threats and opportunities; institutional constraints on behavior at both the individual and community level; and higher level considerations. Interactions between the levels are intricate and complex, and contribute to uncertainty regarding potential leaders’ willingness to engage in leadership roles, their balancing of personal vs. leadership goals, and the ultimate effectiveness of leadership. Thus, many factors either help or hinder leadership effectiveness, depending on the environmental, social, and political context within which SSFs operate.

Precursors to individual action are numerous and multifaceted. Our research demonstrated that it can be useful to employ theoretically-derived frameworks to help clarify how individual behaviors are shaped by core values, culture, experiences, and education, and how resource limitations or institutions can constrain leadership engagement. Motivation to participate in leadership can be altruistic in nature (for environment or people) or more narrowly oriented toward self-enhancement. Future CBFM research on how and why individuals decide to become leaders could be useful to help guide interventions that might successfully increase engagement in SSF management. In addition, our respondents highlighted that fishers often display individualistic tendencies. Consideration needs to be given to how likely individuals are to participate in leadership roles or collective action. These fundamental individual characteristics of a SSF community have to be factored in when designing CBFM projects.

Individuals and communities have a stock of capitals that they can use in SSF management. The availability of financial, human, and social capital can hinder or facilitate participation in leadership activities and collective action. At the individual level, we found that financial and human capital often restricted activity to such a point that SSF leadership potential was inhibited. Many fishers do not have the time or money available, or education level, needed to contribute effectively to SSF management leadership. The need for additional capacity-building aimed at local communities was frequently noted by our respondents. At the community level, the ability to work collectively and to follow a leader is particularly influenced by social capital. Although strong ties between community members were found in many SSF communities, historically fractious relationships between fishers, and between fishers and external actors can significantly reduce the likelihood of collective action.

Interactions between leaders and followers are crucial to the effectiveness of leadership. Our findings suggest that local leadership is strongly influenced by perceptions of legitimacy

among the local fishing community. Legitimacy may be achieved or enhanced through elections, by efforts to build reputation and trust, and via the geographic “credentials” of a leader. We also found, to a lesser degree, that external leaders could also be effective. However, external leaders often have to contend with a lack of trust from communities and limited resources beyond finances, and therefore have a more limited role to play in most SSFs. The ability of a community to produce appropriate leader successors was highlighted as a major concern by our respondents. They recommended developing more “leaderful organizations” to help facilitate long-term and effective leadership succession.

Finally, our focus was primarily on factors that influenced leadership at the local level. Due to the political nature of leadership, it was also apparent that activities of higher-level actors considerably affected how local leaders could actively engage and be successful in their roles. Thus, there always needs to be consideration of the political environment within which SSFs operate. The uncertainty generated by policy change, in particular, can inhibit effective leadership due to fluctuating government support and access to resources. We found that constant policy change could also lead to the disintegration of relationships and trust between government departments and local actors, reduced motivation among fishers to engage in SSF leadership, and apathy toward SSF management initiatives.

The management and governance of SSFs occurs in complex social environments. Local leadership is extremely important to the functioning of SSFs, and especially in contexts where communities and community organizations are tasked with key management roles in devolved CBFM. Our research outlines a variety of factors that influence the effectiveness of local leadership and that can help inform researchable future hypotheses, which will help further advance empirical and theoretical understanding of the role that local leadership plays in successful SSF management. Further research can build on this work to further decipher how different social-ecological contexts influence the effectiveness of leadership engagement.

## AUTHOR CONTRIBUTIONS

AS and MR conceived research, AS conducted and transcribed interviews, AS analyzed data; AS and MR wrote paper.

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