LETTER

From typhoons to traders: the role of patron-client relations in mediating fishery responses to natural disasters

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Abstract
The majority of the world’s fishers, fishworkers and their dependents live in coastal tropical areas that are, and will be, highly exposed to human-induced climate change. Projections indicate such change could result in coastal populations being more frequently and acutely impacted by natural disasters. Increasing aid interventions is a likely knock-on effect of such scenarios. How these external natural and social disturbances interact and affect local fisheries and small-scale producers is in part determined by the internal dynamics of the social-ecological system (SES). Economic vulnerability often characterizes communities in these settings and influences the means with which they navigate changes. The patron-client system is prolific in many rural economies and small-scale fisheries. It forms a central element in the organization of market interactions and often provides much needed finance for low-income households in place of formal options. How such injection of capital promotes individuals’ ability to buffer income fluctuations at the expense of long-term sustainability of the broader fishery system is still an area in need of examination. This paper contributes to shed light on this issue by using a case study approach to trace the historical development of the fishery system in the Iloilo Province (Philippines) in relation to a major natural disaster—super-typhoon Haiyan, known locally as Yolanda—and the subsequent aid intervention that followed. The aim is to assess how the patron-client system filtered these two related disturbances and to highlight the resulting tensions between short-term individual resilience and longer-term SES sustainability.

1. Introduction
Two processes increasingly impact tropical small-scale fishery (SSF) communities, and rural communities in general; climate change related natural disasters, and the aid interventions associated with these. How these disturbances affect local fisheries, and small-scale producers more broadly, is in part determined by the internal dynamics of the social-ecological system (SES).

Patron-client relationships are an example of such an internal dynamic which strongly influences the organization of market interactions, with far-reaching effects at individual and systems levels alike [1–7]. These relations represent largely informal institutions [8], and are pervasive in rural economies worldwide [4, 9–11], including many tropical SSF [12–18]. Evidence suggests patron-client relationships can promote individual-level adaptability by buffering income loss in the short-term. But the same literature also shows how this individual-level resilience may come at the expense of longer-term fishery system sustainability, at times by promoting and perpetuating unsustainable rent-maximizing behavior that undermines the resource base [6, 17–20]. As such, patron-client relationships have been identified as a key challenge for fisheries governance and wider SES resilience [6, 18, 19]. Given the forecasted increase in climate-driven extreme weather events [21], understanding how patron-client relations mediate local system
responses to highly disruptive, natural shocks, and the aid interventions that often come in their wake, is essential.

Using a case study approach, this paper traces the historical development of the fishery system in Iloilo province (Philippines) in relation to a major natural disaster—the super-typhoon Haiyan that hit in 2013 (locally referred to as Yolanda), and the subsequent aid intervention that followed. At the heart of the analysis are the informal patron-client relations that largely govern market conduct and influence extractive behavior [18]. The aim of the study is twofold, to (1) document how the patron-client relationship mediated post-disaster recovery processes and (2) apply a resilience lens [22] as a means of analyzing how this mediation is likely to have affected long-term sustainability at different system scales. These aims are operationalized by asking

- What immediate social-ecological changes were caused by the typhoon event?
- What primary casual connections (economic, social and ecological) can be drawn between subsequent events in the following months and years?
- Can these causal connections be used to identify points of tensions between the long- and short-term resilience of the system?

While key characteristics of patron-client relationships have been extensively studied in different contexts, we connect their operation to broader system dynamics such as extractive behavior, stock fluctuations, economic vulnerability, and aid interventions, as a means to move beyond the socio-economic or sociological focus on the patron-client interaction and consider its connections to ecological dynamics and long-term system trajectories. This also allows us to examine the role this informal fishery institution plays in determining how a fishery system responds to other shocks or changes, such as the global market changes in which local communities are embedded.

The paper proceeds by first outlining the theoretical underpinning, and introducing the concepts of adaptability and resilience [23, 24], which form the key lens through which we analyze the synthesis of events.

1.1. Understanding change in SESs
Adaptability and resilience are two key concepts used to understand processes of change in SES [24]. Recent works have combined them under the umbrella of resilience thinking where adaptability is now one of the three systems attributes affecting SES trajectories, along with resilience and transformability [22, 25]. Adaptability and resilience evolved in different problem contexts and both have been used to independently frame the discussion on climate change mitigation [26].

Within resilience thinking, adaptability is the capacity to adjust to changing external drivers and internal processes, while maintaining the current system function [22, 24]. Resilience, on the other hand addresses the longer-term trajectories and viability of a system at broader scales [25]. Resilience is having the capacity to deal with change, to persist and to continue to develop with ever changing environments [22]. Resilience is not a normative concept and its desirability in a SES (or its parts) must be considered in relation to societal goals, benefits and risks [23]. Here, resilience is conceptualized as the capacity of the SES to develop along a pathway that promotes both ecological sustainability and human wellbeing.

1.2. Patron-client theory in fisheries
Patron-client relationships are a common form of interaction at various levels in fish value chains, particularly in low-income countries [12, 16, 18, 27–30]. Patron-client relationships are usually voluntary, asymmetrical in terms of power or socio-economic class, mutually beneficial in that both parties receive benefits of some sort, dyadic, and often marked by an affinity between the patron and client through ethnicity or religion or some shared experience like a history or common threat (ibid). In fisheries, patrons typically provide fishers (clients) with support for fishing and family life. The fisher reciprocates, primarily through fish supply and loyalty. Patron-client relationships are flexible and buffer short-term household income loss in fishing and trading resulting from catch or price fluctuations, while also helping investment in technological change (e.g. gear investments) [10, 18, 19, 31].

The flexibility of patron-client relationships appears to be a key to their persistence over time, in agriculture and fisheries. Several scholars have noted the tension between high adaptability of patron-client relationships at the local scale and the longer term dynamics of the fishery [4–6, 18, 19]. Yet, despite the pervasive nature of patron-client relationships in fisheries and other small-scale rural production systems, their role in mediating local system responses to natural disasters has received limited attention.

Figure 1 synthesizes the relationship between the adaptability of patron-client relationships, economic vulnerability of individuals, and overall SES resilience, as conceptualized here. Drawing on literature above, it also highlights the tension between adaptability at the level of individuals, and broader system resilience. Patron-client relationships mitigate income loss through finance (symbolized by the dollar sign) from both expected fluctuations in daily catch and prices, and unexpected disturbances, such as typhoons, aid, and management interventions. Through these relations, fishers become indebted to a patron, which in turn affects the amount of extractive effort applied (and needed to repay debts), and ultimately ecosystem
dynamics. A trade-off is created in that the high adaptability of patron-client relationships decreases the economic vulnerability of individuals and improves their ability to respond to short-term changes, but system resilience can be gradually undermined through increased fishing pressure or continued/increased long-term economic insecurity in households reliant on patrons. We return to this conceptual framework in our discussions.

2. Data collection

Primary data was collected through a mix of key informant interviews, participant observations, structured interviews, and focus group discussions with fisherfolk, fish traders, NGO representatives, and municipal and provincial level government officials in September–October 2015 and October–November 2017. Island and mainland barangays (smallest political unit in the Philippines) in the municipality of Concepcion, located north of Panay Island, were sampled, including the ports of Concepcion and Estancia and relevant government offices in Iloilo City. (See supplementary material 1 and 2 is available online at stacks.iop.org/ERL/14/045015/mmedia for details on interviews, respondents and analysis as well as a map of sites). Secondary data include official reports of post-yolanda events. Elements of process tracing are used to draw together the multiple datasets and qualitatively analyze the causal processes that led to the current system configuration [32, 33].

2.1. Context and background

In Iloilo, as in many areas in the Philippines and elsewhere, patron-client relationships (locally known as the ’suki’ system) are an important organizing principle throughout the fish value chain, as well as most other agricultural market chains [2, 6, 10, 15, 34]. Brokers, or commisionistas, are the most frequent fisher patrons. They are based at the ports (e.g. Concepcion and Estancia Port) and broker seafood from the ports through to Iloilo City, Manila and other urban centres throughout the country. They themselves have their own patrons, primarily other brokers or wholesalers in Iloilo City or Manila. The second most frequent fisher patrons are the barangay buyers. They are traders based within barangays, and are often neighbors of the fishers, whom buy, sell and often process, from their homes. Barangay buyers can also be clients of the brokers based at the port. The patron-client relationships in this context, whether it be between fishers and traders or among traders, constitutes the provision of financial capital to the client in return for supply to the patron. Payback depends on the personal relationships in question, weather and landings. In addition to financing, client fishers will receive fishing capital for both fishing and family life. More details on the suki system, specifically in Concepcion, can be found in supplementary material 3 [see also 16, 35–38].

In addition to economic fluctuations, patron-client relationships have repeatedly helped communities manage shocks in the form of typhoons, as the Iloilo province sits in a corridor where the majority of typhoons that enter the Philippine’s jurisdiction pass and make landfall [38]. Coastal communities are therefore familiar with the crises caused by typhoons, and the cycles of rebuilding and recovery of houses and fishery livelihoods which are habitually repeated.

The Concepcion fishery is weakly governed and experiencing declining stocks, overfishing and continued entry of youth into the industry [39, 40]. Panay Island is identified as an area of major concern for overfishing nationwide [41]. See supplementary
material 4 for details on the Concepcion context and fishery.

3. Results: typhoons, donations and ‘suki’ dynamics

3.1. Typhoon Yolanda
In November 2013, one of the strongest typhoons ever recorded, typhoon Yolanda [42–44], struck the Philippines. Yolanda spent one day crossing the Visayas. In Iloilo, it caused major destruction and loss of lives. Fishers in Concepcion spent days sheltering in the steeper or more inland forested terrain of their island barangays, largely without shelter and with only what they could carry. There were varying levels of damage across island barangays in Concepcion, with some could carry. There were varying levels of damage across island barangays in Concepcion, with some experiencing complete destruction of homes, buildings and fishing operations (gear, boats). Inshore reefs exposed to Yolanda were turned into rubble and many mobile marine species moved away into deeper waters or suffered high mortality [41, 45–47]. The mainland ports of Concepcion and Estancia were less damaged and business resumed after some weeks. Only days after Yolanda, help arrived and emergency relief supplies reached the islands. In the following weeks and months NGOs, banks, national agencies, local government departments, and philanthropist provided various waves of donations and support options in the forms of boats, fishing equipment, building materials, roofing, money, food, medicine, loan options, and others (see [41, 42, 44, 48–50] for more indepth accounts). Support continued for the next two years in the form of sustained boat donations and NGO projects, such as rebuilding wells.

3.2. Aid intervention and boat donations
For coastal fishing communities, the post Yolanda disaster relief process was fraught with inequity. Many fishers commented that political links to local government aided the swiftness of the boat donation process. Households without connections often waited long to receive help via these official channels. NGOs appear to have donated more to certain barangays than others, and this remains a point of confusion and frustration for fishing communities and managers. Similar processes of inequitable boat distribution, as well as a lack of official guidance (as municipalities and provincial bodies were bypassed when NGOs and other donors selected barangays for boat donations), were documented in other parts of the Philippines [42, 44, 49, 51]. As noted by a fishery official in Concepcion Municipality:

‘Before Yolanda there were 1000 municipal [small-scale boats under 3 GT] boats and now there is 2000 or more, I don’t know how many as there is no records, nothing is registered. We [the Local Governmental unit] can’t control the NGOs giving out boats, they gave boats to crew members and even some people got two boats. Now there is increased competition among the fishers, there are more little boats. Before there were bigger boats with bigger catch.’

The humanitarian charity Concern Worldwide was one of several NGOs involved in post-Yolanda relief efforts. It was the first one to enter Concepcion and the only one to stay long-term (±2 years). Concern members involved in the administration of aid noted that list of beneficiaries for boats constantly changed due to lack of coordination amongst smaller local organizations involved in recovery [45]. Chamberlain [49] reported that the Philippines’ Bureau of Fisheries and Aquatic Resources (BFAR) asked for boat donations to stop from the many independent donors by January 2014 due to concern for overcapacity. Other organizations were also concerned about the pressure the additional boat donations could place on the already-degraded and overfished stocks [41, 45, 48, 50], which happened in 2006 when post-tsunami boat donations caused serious depletion of fish stock [41]. The United Nations reported on Yolanda—‘One of the main concerns in the rehabilitation of the fisheries sector is to not produce an overcapacity of fishing effort. Anecdotal evidence suggests that fishing grounds have been depleted over the years.... Particular attention is being given to avoiding adverse effects, such as over-fishing which could result from an oversupply of fishing boats and equipment’ [51 pg. 13].

Overall, donated boats were under 3 GT, (58 fishers in 4 barangays reported receiving boats of approx 7 mt and Concern reported providing ±996 boats to ±70% of Concepcion’s offshore islands) and many were described by brokers (the main trading patrons, located at the ports) and fishers as relatively small. No commercial vessels (>3 GT) were donated according to Government’s wishes to remove fishing pressure of larger boats on dwindling stocks.

‘There were so many boats destroyed, especially the bigger boats. The NGOs came along and gave many fishers smaller boats, so now there are many more small boats compared to before’ Broker at Concepcion port.

While not all donated boats were used for fishing (some went into the service industry as fishers felt they were too small), a significant increase in boats post-Yolanda was widely recognized by all segments of production, trade, and management.

‘There are a lot more boats after Yolanda. Before, every Thursday market day there was lots of space to land at the port, now you have to tie up 10 boats back and then climb across them all to get to the port.’ Fisher, Bagongon.

Furthermore, the number of motorized boats increased, but average size decreased. Fishers expressed a theory that many donors had large budgets and boat donation was a direct and tangible way to spend them. No official registry exists in the local fisheries office or BFAR of the Concepcion fishing fleet [45]. Figure 2 shows how the effects of the boat donations...
and fleet changes were perceived by local actors to reverberate through the system.

### 3.3. Loans to patrons and fishers

Most respondents agreed that after an initial recovery phase of about one month, depending on damage levels, fishing began to take off again. Those who had boats and gears headed out to sea as soon as they could, but many needing finance from their patron to do so. Fishers who had damaged boats temporarily crewed on other boats. The few households with alternative livelihoods switched to these, e.g. construction, wood work. However little alternatives existed [41, 48, 50]. Over the next few months, more fishers were able to return to fishing as they rebuilt or received boats and equipment. Larger loans were requested from patrons to finance this rebuilding and for fuel to travel farther to less damaged fishing grounds. Many of these bigger recovery loans remain unpaid today. Brokers noted this was a risk they had to take so as not to lose clients and supply. But many brokers found it hard to quickly organize finance to offer fishers loans again. In some cases, when brokers were not able to begin operations quickly and provide financial support, fishers transferred to other patrons. Thus, for brokers, it was crucial to re-initiate the flow of cash. To do this many turned to local, informal moneylenders (locally referred to as 5–6) and to their own patrons (i.e. brokers downstream in the value chain) in the bigger cities. For many brokers interviewed, 5–6 played a key role in the stimulation of cash flow within the patron-client system again (though their interest rates can be 20%). This chain of loans can be seen feeding into the system dynamics outlined in figure 2.

The post-Yolanda period saw the number of client fishers proliferating, as many needed to rebuild and repair, and additional fishers now also owned boats that needed fuel financing. Fishers generally felt it was easier to take loans now compared to before as there were more brokers willing to finance them at the ports. Brokers and buyers (trading agents based from their homes) commonly agreed with this perceived increase in patrons.

‘After Yolanda, it [the number of brokers in Concepcion port] went up to 24 [from 12] because people saw that the broker business was good; they saw the system was good. They particularly saw the entry of money into the system.’ Broker at Concepcion port.

Fishers interviewed expressed a general view that people were encouraged to enter the business because they witnessed the huge levels of donations entering the system. Concepcion trading actors generally felt the same; in Estancia they added the increase in fishing operations as an incentive. For example, barangay buyers saw brokering as an opportunity for a better income as they noted brokers at the ports were doing well. Barangay buyers have natural connections with neighboring Fishers in their barangays so had a ready network of suppliers who could follow them to the ports. Most brokers felt the Yolanda donations were the biggest investment and the only major input of resources into the fishery they could remember.

Brokers stated they are less likely to offer big loans today because the post-Yolanda loaning dynamics mean they often lack the financial capacity to do so (as they themselves are indebted). Post-Yolanda, fewer large loans are therefore available to client Fishers and Fishers are more indebted, financially and through gratitude, to brokers than before. Consequently, they are less likely to be able, or willing, to pay off previous debts, which reinforces the strength of patron-client relationships. Ultimately, greater debt burden and reduced ability to repay are likely to have implications...
for how fishing effort is exerted, translating into direct effects on the ecosystem (figure 2).

3.4. Fishing, catch rates and marine ecosystem health
Although the ecosystem was badly damaged in Concepcion and other municipalities [46, 50, 52, 53], fishers were adamant that operations went back to normal within months to a year, and that time spent at sea, locations, target species, and fishing styles all reverted back to pre-Yolanda conditions:

‘Though there are more boats in Concepcion in general it has not affected our fishing, also even though the reefs are damaged, fishing is the same as before. The same catch and the same situation.’ Fisher, Macatunao

Fishers, along with patrons, also described prices recovering to pre-Yolanda levels and market channels remaining the same. In some barangays fishers claimed the longer-term catch rate was not affected by the increased number of operations, while in other barangays they felt it had decreased somewhat. An ecological assessment [46] identified an increase in the number of fish species and biomass in certain sites in 2014 compared to 2012, but by 2016 this has decreased again. Live hard coral saw widespread decline, certain types severely [46]. Government actors and brokers interviewed felt catch rates had decreased and believed this was a direct result of the boat donations, supported by accounts from other parts of the Philippines e.g. [53].

‘Yolanda greatly affected the situation [decreasing catch rates], it is a big reason behind the increase in loans and support to fishers.’ Broker at Concepcion port.

Managers also acknowledged that this decrease was linked to lack of resources to monitor the increased fleet size, especially the encroachment by commercial vessels in municipal waters.

‘Now [as a result of more boats] competition has increased, fishing effort is pushed in competing for these resources.’ Fishery official in Concepcion Municipality

4. Discussion
4.1. Adaptability, economic vulnerability and resilience at different scales
The present case shows how fishers, trader patrons and the latter’s own patrons, all access economic and/or material resources from patron-client relationships. These are necessary for their businesses and operations but also for dealing with unexpected changes that may occur. Thus credit bolsters individual-level adaptability, and economic vulnerability in these households is decreased in the short term (figure 1). However, while patron-client relationships ameliorate short-term individual economic vulnerabilities it does not address the underlying causes behind fishery actors’ vulnerabilities [5]. This case study shows how the credit relations are translating into extractive behavior that risks undermining the ecological base on which the whole system depends. Thus it illustrates how increasing adaptability to specific regular shocks and reducing specific risks or vulnerabilities, as patronage does in this case and in many other SSF, can actually decrease the overall system’s ability to deal with unknown shocks in the future [5, 23]. In this sense the patron-client system can be conceived as maladaptive, as it appears to have increased the sensitivity and exposure of households to future abrupt changes. Fishers in the system are generally more indebted post-Yolanda, thus more dependent on fishing, and with less margins to maneuver or adjust to perturbations. Our own survey data show that 77% (n = 252) of fishers preferred patron-client relationships (in comparison with other credit possibilities). However, the absence of other financial support in many cases translates to fewer chances to make longer-term livelihood investments which are not related to fishing. Patrons themselves are also more indebted. This tension or potential maladaptiveness spreads downstream in the value chain towards bigger national and global markets. The system therefore appears locked-in to a state where short-term coping mechanisms are fundamentally dependent on income derived from the natural resource base, while this same resource base is both being eroded by the extraction and left vulnerable to natural disturbance [54].

4.2. Longer term trajectories and social-ecological sustainability
A tension is clearly evident in many SSF exposed to (primarily national or global) market demands, which provide short-term economic incentives and are accessed and facilitated by traders and the fast responding and flexible patron-client relationships; for examples see [7, 16, 18, 19, 55, 56]. The tension arises from the contrasting importance of patron-client relationships for the individual, and the way this credit system affects extractive behavior and broader ecosystem dynamics over time. By trajectory we refer to the general direction in which the fishery system is likely to evolve in the longer-term, given observed current dynamics. In what follows we situate the dynamics uncovered in figure 2 in a wider discussion of social and ecological sustainability.

In this case study, the interaction between aid intervention and patron-client relationships is noteworthy for the SSF trajectory. Tracing the causal pathways through multiple data sources (figure 2) shows that while aid aimed at mitigating short-term vulnerabilities, the interplay between aid, the existing patron-client relationships and locally weak governance, has potentially undermined the long-term sustainability of the fishery resource. First, the overall system trajectory appears to have been influenced by how the nationally and internationally connected patron-client system responded to the typhoon. After
a temporary recovery period, patron-client relationships assisted the fishery to bounce back to pre-Yolanda modus operandi, and seemingly increased effort in terms of vessel numbers and locations. Second, the injection of capital through aid to replace lost boats has resulted in a homogenization of the fleet which, with is predominantly small boats, now constrains the choice of fishing grounds as small vessels are less able to cross open channels or move away from local reefs. Confinement of donated boats to certain fishing grounds due to small size and fuel needs, coupled with the inshore illegal operation of commercial boats and the clear expansion of the fleet post-Yolanda, all signal increasing pressure in coastal waters. These fishing grounds were already overfished [39–41], and badly damaged during Yolanda [46, 52], and there is evidence (albeit inconclusive) that catch rates for the majority of gear types decreased between 2012 and 2014 (see table S1, supplementary material). There are, however reports of increased fish abundance in 2014 in certain sites [46], potentially due to the alleviation of fishing pressure immediately after Yolanda, indicating local variability in ecosystem response and dynamics.

Despite the awareness and fear of many donors relating to overcapacity in unhealthy marine ecosystems, and associated risks for long-term food security and livelihoods (see [41, 45, 48, 50]), this scenario appears to have materialized—even with this foresight. Similar scenarios have played out in other parts of Southeast Asian SSF, such as in Aceh (Indonesia) in the wake of the 2004 tsunami [57]. How close Concepcion’s coastal ecosystems and associated fisheries are to a nonlinear and abrupt change is impossible to determine, especially given the limited and low resolution of ecological data available (see [58, 59]). However, the ecosystem does not appear to have fully recovered, while fishing effort has increased. The latter goes largely unregistered by many fishers, a common cognitive bias which purports that daily observations by users often miss incremental change [60]. The large uncertainty associated with the distance of the ecosystem from a critical threshold translates into big risks for dependent fishers and patrons [61, 62]. The shifting of ecosystems into different states can have stark consequences for fishing societies vulnerable to and unprepared for the long-term change of such state shifts [63].

In summary, in SSF such as Concepcion, it thus appears that social and ecological resilience can be undermined by behavior filtered through the ever-persistent patron-client relationships, which provides short-term relief for economic vulnerability, but shows signs of ultimately undermining the long-term resilience of these rural production systems.

4.3. Patronage and aid in future climate disturbance situations

The internal dynamics that result from the interplay of natural disasters, subsequent aid interventions and existing patron-client relationships may decrease the capacity of the Concepcion fisheries and similar cases [57] to be managed or governed. For example, Yolanda increased the number of boats to monitor and register, already a big governance challenge in a resource-poor setting. It expanded and deepened the influence of patron-client relationships, counter to the aims of existing projects in the area to address the power imbalance through microcredit schemes (Zoological Society London pers. comm.), and thus opened up the fishery to increasing influence by global market demands. Additionally, reliance of fishers on patrons and their identification of brokers as vital for fishery recuperation highlights the engrained perception of patron-client relationships as the default system, despite its inequity (see [41]). Formal governance in Concepcion will need to engage with the institution represented by patron-client relationships as a governing system itself in order to address future fishery pathways. However, the patron-client system in its current form, as observed in Iloilo and elsewhere [6, 17–20, 64], does not appear to promote change or aid in building broader system adaptive capacity for change [4]. Instead observations suggest choice, agency, collective action for management and self-determination risk being constrained by this pervasive patronage system [5, 6, 18, 21].

Informal financial systems like patron-client relationships are likely to grow in response to the increasing external perturbations caused by climate change and global markets. Formal credit sources are unlikely to be flexible enough to meet the new, unpredictable and atypical changes and demands created [28]. These disturbances coupled with a potential increasing reliance on patronage directly has the potential to lock a SES into a detrimental spiral and affect abilities to govern SSF. As such there is an acute need to enhance governance capacity within these changing contexts.

5. Natural resource governance in a system defined by patronage

On a general note, patron-client relationships remain central to the operation, organization and thus governance of SSF worldwide and have shown adaptability, evolution, and persistence, despite the major changes occurring around them e.g. globalization [10, 18, 31]. One reason is their embeddedness in local social relations and cultures of fishing societies [16, 18, 21]. Governance arrangements lacking acknowledgement of such cultural foundations, and failing to recognize the importance of local social arrangements or informal institutions, ultimately suffer from ineffectiveness and illegitimacy [65]. In fact, Jentoft [66] suggests that limits
to, and opportunities for, enhanced governance capacities are often of an institutional nature. Patrons, are influential and often pivotal actors in the systems in which they operate. As such including them in formal governance strategies has the potential to harness their structural leverage power as interventions are designed and implemented. This has been noted before [2, 6, 21] but is worth reiterating in relation to exogenous disturbances, like climate change, aid and expanding global markets. However, drawing on local norms or rules as a means to increase capacities to govern involve addressing and influencing human behavior. One way fisheries governance can equip itself to better understand fisher’s (and SES) behavior is by paying attention to, and devising support for, the risks associated with both the regular (e.g. daily or seasonal) and unexpected changes households face and respond to. The strategies actors develop to deal with such changes constitute system properties that have the potential to perpetuate or undermine dynamics that promote social and ecological sustainability, and are therefore a significant consideration for governance processes [67, 68]. Such adaptive strategies often hold paradoxes for governance capacities. More specifically, the patron-client system, much like livelihood diversification, provides insurance to low-income households but presents governance with a sticky problem as to when it is maladaptive or functional, or for whom and at what system level it is viewed as a success or an obstruction [18, 67, 69]. Nonetheless, it becoming clear that for SSF governance in the context of increasing climatic variability, patronage remains a critical characteristic to consider in order to facilitate transitions to long-term socially and ecologically sustainable trajectories.

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