

RESEARCH

Open Access



Institutions and collective action in a Costa Rican small-scale fisheries cooperative: the case of CoopeTárcoles R.L

Vivienne Solís Rivera*, Patricia Madrigal Cordero, David Chacón Rojas and Brian O’Riordan

* Correspondence:
vsolis@coopesolidar.org
CoopeSoliDar R.L, San Jose, Costa Rica

Abstract

CoopeTarcoles R.L is a cooperative on the Pacific coast of Costa Rica that has obtained better conditions for its members in the context of small-scale sustainable fisheries for over thirty years. Documents from the cooperative and interviews with diverse stakeholders provided information on the catalytic factors that have made CoopeTarcoles R.L advance towards small-scale fisheries sustainability. A political framework provided by the State concerned with social welfare, the adaptation of the organizational cooperative model to local needs and a community-based governance model for fishery management have been crucial in this regard. Information gathered shows that this collective enterprise has been able to create alternative and gender balanced sources of employment, lead environmental and ecosystem improvement and obtain better prices for fishery products across its three decades of existence. The cooperative, being a local, collective and inclusive initiative, has turned into an engine for community sustainable development, recognizing the value of small-scale fishers’ identity and its importance for the well being of the area. Several factors combined to be crucial for the long-term vision of the fishers in the cooperative and their successful path towards sustainable development. This study highlights the initial support of the government for the creation of a collective organization with adequate infrastructure, the structural changes that led to responsible fishing being promoted by the recognition of a Marine Responsible Fishing Area, and the more equitable relationships supported 15 years ago by another cooperative (CoopeSoliDar R.L.) dealing with human rights and marine conservation.

Keywords: Costa Rica, Cooperative, Collective action, Fisheries, Governance, Tarcoles, Sustainability

Introduction

The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) were adopted as a global instrument in 2014 (FAO 2015). The SSF Guidelines suggest that formal organizations and other forms of collective action in small-scale fisheries (SSF) are ways of maximizing long-term benefits to communities, ways to deal with threats from fisheries mismanagement, ways of addressing livelihood insecurity, and ways of eliminating the harsh realities of poverty in many of the world’s small-scale fisheries (Béné et al. 2007; Kalikoski and Franz 2014). There has long been evidence that fisher organizations such as cooperatives

provide a platform through which stakeholders exercise their right to organize, participate in development and decision-making processes and influence fisheries management outcomes (Hannesson 1988; Jentoft 1985, 1986). The development of capacity for collective action to exercise rights, and hence to gain access to fair markets, financial services and infrastructure, is crucial in the promotion of future actions towards securing sustainable SSF worldwide (FAO 2016). In the long-term, sustainable SSF should guarantee social resilience, provide economic well-being and allow for food and nutrition security (FAO 2015).

The above societal goals of SSF are especially relevant in coastal countries such as Costa Rica. This is a country with ten times more sea than land area — 449,000 km² of marine area versus 51,100 km² of land. It has approximately five million inhabitants and its extensive marine territory provides resources that are important for the country's sustainable development. The use of coastal and marine resources is vital for the well-being of local communities that are deeply linked to marine ecosystems, but significantly marginalized by the development model applied to Costa Rican coasts where the highest poverty is concentrated (INEC 2016). Marine resources provide food security, recreation, and tourism on both the Pacific and Caribbean coasts. Marine Areas for Responsible Fishing (AMPR in Spanish) have been considered a model for the collaborative management of SSF in Costa Rica (Fargier et al. 2014). AMPR engage fishers and government in providing options for sustainable fisheries through the integration of local governance and traditional knowledge (Fargier et al. 2014; Garcia-Lozano and Heinen 2015). A few SSF organizations and their supporters have been at the centre of such initiatives, but not without overcoming several challenges in the process from which we can learn.

This paper contributes to the quest to identify factors that favour the success of community-based organizations, such as cooperatives, in SSF. The case of CoopeTárcoles R.L, a SSF cooperative on the Pacific Coast of Costa Rica, is analysed to extract and share lessons learned on sustainable use of fishing resources, social resilience and the improvement of livelihoods related to SSF. There is a need for more discussion on these issues to inform theory on how to promote capacity development that strengthens collective action in SSF to reduce poverty while promoting equitable, just and responsible fisheries.

Specifically, the paper extracts lessons learned from how CoopeTárcoles R.L advanced in its efforts towards sustainable SSF and was able to move ahead with the promotion of SSF with dignity and respect for human rights in Costa Rica. It examines the cooperative's history and evolution, and presents the current situation along with new challenges that it will face in the future. Three Costa Rican organizations implemented this study: CoopeSoliDar R.L, CoopeTárcoles R.L and Consorcio Por la Mar R.L. Technical support was provided by the International Collective in Support of Fishworkers (ICSF). The next section describes a framework adapted for the data collection and discusses how it was applied in the fieldwork. The situational analysis is followed by results and discussion, ending with a summary of lessons learned and brief conclusions.

Conceptual framework and methods

Scholars and practitioners alike have long sought to discover the factors that favour the success of fisherfolk organizations (Meynell 1984, 1990), but yet there are few definitive universally applicable answers, since much is context-specific (Pinho et al. 2012). John

Kurien (in Kalikoski and Franz 2014), in a similar quest, set out some essential elements that should be built into any SSF organization’s functioning in order to promote wholesome and successful development that is just, participatory, self-reliant and sustainable. For this research we grouped Kurien’s similar elements into broader categories (Table 1).

In order to investigate whether these categories were features of CoopeTárcoles R.L. we sought information on key aspects of the cooperative’s development and current situation. A mix of qualitative methods was used to engage cooperative stakeholders and encourage them to reflect on the challenges and means of overcoming them in the developmental path.

The history of CoopeTárcoles R.L was reconstructed using information obtained from primary and secondary sources. Primary sources of data included in-depth semi-structured interviews and group discussions with members of the cooperative using typical social research methods (Neuman 1994). Secondary data from a 2004 survey of Tárcoles (CoopeSolidar R.L. 2005) provided additional information. In all cases, the prior informed consent of respondents and data owners, including the Administrative Council of the cooperative, was obtained.

The Administrative Council listed 15 people for key informants interviews on the history of the cooperative. In addition, the cooperative organized two information exchange meetings with the local fishers to obtain their perspectives. Information from the research conducted in 2004 (CoopeSoliDar R.L. 2005) was used to validate current interviews on the early history of the cooperative. All fisher members (men and women) of CoopeTárcoles R.L were surveyed, as well as individuals outside the cooperative. Supplemental data sources included reviews of articles, bylaws and the main agreements passed by the Administrative Council of CoopeTárcoles R.L. The alliance with CoopeSoliDar R.L that has lasted for over 15 years, was reviewed through published and unpublished studies and cooperative files.

Table 1 Kurien’s key elements for SSF organizations grouped for the case study

Key elements of Kurien’s framework	Grouped elements for this case study
Collective agreement and resolve	Collective agreement and collective action
Vision for collective action	
Democracy and transparency in functioning and governance	Good governance and trust
Trust in those elected to lead	
Resources and institutional arrangements to formulate and implement strategies for action	Resources and institutional arrangements
Accounting for gender	Accounting for gender
Courage and conviction to face odds	Managing risks and success
Achievements and failures	
Building alliances with other like-minded organizations and processes to evaluate actions and envision changes for the future	Alliances, information and capacity
Information on activities	
Education to build capacity	
Government recognition	Government recognition

Emphasis was placed on understanding, analysing and interpreting qualitative development narratives collaboratively with the respondents, rather than on quantification or using the Kurien categories purely as indicators. Although the findings refer only to the Tárcoles experience, they are globally relevant to SSF situations that share similar contexts.

Context of CoopeTárcoles R.L

The information on context comes mainly from literature and key informants. In the past and present, Costa Rica has supported very diverse strategies for SSF organizations (Villalobos et al. 1990). However, strengthening organizations and collective action with a long-term perspective has been one of the biggest challenges at the national level. Without organization, it is difficult for coastal communities to formalize productive activity and practice their rights for tenure, social security, fair trade, decent work and improvement of their quality of life. These efforts need to be undertaken with a holistic perspective in order to move towards overall sustainable development in their territories.

Today, around 30 years since its establishment, CoopeTárcoles R.L appears to be one of the most successful SSF cooperatives and the only one operating at the national level in Costa Rica (CoopeSoliDar RL, 2005). It is promoting SSF in a consolidated structure that keeps improving the well-being of its fisher associates. It is recognized by its creators as an engine of community development and promoting a local governance model at a national level, and one of the most important components to advance towards responsible and sustainable fishing use (CoopeSoliDar R.L, 2005) Examining what internal actions and external conditions have contributed to this apparent success can provide useful lessons. The first step is to understand the context in which development took place in Tárcoles.

The community of Tárcoles and CoopeTárcoles R.L. are located on Costa Rica's Pacific coast. This small community is part of the Garabito Canton. It includes the watersheds of the most important rivers in the country: the Río Grande de Tárcoles and the Río Tempisque. The community of Tárcoles is located 37 km southeast of downtown Puntarenas (one of the main ports in the country), on the eastern side of the mouth of the Gulf of Nicoya (CoopeSoliDar R.L 2005) (Fig. 1).

As in other small-scale fishing communities along the Pacific coast, this community is confronted by significant threats including debris and contamination from the Río Tárcoles inflow, multiple fishing fleets having different impacts on marine resources and a lack of governmental capacity to support development strategies that use marine resources sustainably in a more equitable fashion to address local needs (CoopeSoliDar R.L 2010). In addition to these challenges, Tárcoles is surrounded by massive tourist destinations, such as Jacó and Herradura (where the largest marina in Costa Rica is located). Furthermore, the area lacks recreational and educational spaces for a growing population, and is threatened by the presence of drugs. All of these types of issues can negatively impact a community's social resilience and aspiration for a better quality of life (CoopeSoliDar R.L. 2010).

The Costa Rican Institute for Fishing and Aquaculture (INCOPECA) is the state entity in charge of coordinating efforts and activities related to fishing and aquaculture in the country and its organization at the local level. Its functions include organizing,



Fig. 1 Location of Tárcoles on Costa Rica's Central Pacific Coast

fostering, and monitoring efforts to make sure that fishing activities are carried out in a sustainable way according to its constitution law (Law 7384 Art 2). On 13 December 1985, CoopeTárcoles R.L. was legally registered as a cooperative, under the authority of the Minister of Labor and Social Security by the Department of Social Organizations and the National Institute for Cooperative Advancement (INFOCOOP). The small-scale fishing cooperative was founded on several objectives, including: direct marketing of fishing products, eliminating the middleman, obtaining better prices, encouraging better working conditions, creating sources of employment, and raising the fisher's organizational level and participation.

In recent years, promoting sustainable SSF has gained greater visibility at both the regional and national level. This has occurred through the efforts of CoopeTárcoles R.L to improve small-scale fishers productive activity in a sustainable way, together with the community-based governance model that promotes more responsible fishing activities, social improvements such as decent work for women and the expansion of the socioeconomic benefits of the cooperative (CoopeSoliDar R.L. and CoopeTárcoles R.L., 2011). Today, Tárcoles and its cooperative of small-scale fishers are very strong pillars in the promotion of sustainable and responsible fishing activities in Costa Rica, and in Central America generally.

Fishing provides a direct livelihood to fishers who deliver their fresh seafood products to the cooperative. Indirectly, fishing also supplies a vital income source to businesses and postharvest activities. Ten years ago approximately 38% of the fishers in the community were direct members of CoopeTárcoles R.L and the remaining 62% were small-scale fishers who were not members, but who were on good terms with the cooperative (CoopeSoliDar R.L 2005). Key informants stated that the fishers in this community have similar cultural practices and education levels. It is a tight-knit community that is

united in trust and familiarity. We were told that most of the non-members do not want to be part of the cooperative due to administrative problems in the past, but they also now recognize the importance of CoopeTárcoles R.L in the development of the SSF activities and the community in general.

The cooperative has three groups of fishers according to their preferred fishing method: those who fish exclusively using nets (30%), those who only use lines (20%), and the remaining 50% who use both methods. The fishing grounds are located from Herradura to El Peñón, a sector located now under the governance of CoopeTárcoles R.L. Fishers from Tárcoles and the surrounding areas such as Playa Azul, Pógeres, and Tarcolitos sell fish to the cooperative. These fishers usually make trips that last less than 24 h. They generally leave in the early morning (3–5 am) and return before noon. The cooperative has facilities located at the landing site, and receives the fish as it is landed. CoopeTárcoles R.L. members fish for practically the entire year. The fishers' main business over the years has been to fish for marine species: mostly seabass and other types of bass, as well as tarpon, snook, sharks, eels, and red snapper, among others. As a result of implementing responsible fishing practices and voluntary agreements with other fleets (being the most important the negotiation of an exclusive zone without trawling fleets), coastal shrimp stocks were able to recover beginning in 2011. This was a vital development, as shrimp are a very important economic product for the cooperative.

As overall context we noted that the cooperative seems to have outstanding biophysical and socio-economic features associated with it, and that these assets are sustained through informal and formal governance interventions (e.g. the Responsible Marine Fishing Area). Having set out their context, such interventions are described and discussed next as the results of the investigation.

Results and discussion

The findings from interviews and document analysis are reported and discussed below in alignment with the categories of elements from the Kurien framework. The aim was to determine which activities fell into the different categories, and to understand what collective action took place in their implementation, rather than to assess or compare activities. Several of the cooperative's initiatives span more than one category of action. In such cases the evidence is placed in the category judged by the authors to be dominant.

Collective agreement and collective action

Legal-institutional arrangements

A wealth of information existed in organization files going back two decades, and key informants recalled some milestone events. In 2001, with the support of CoopeSoliDar R.L., CoopeTárcoles R.L. began a process to review and update its bylaws. In the General Assembly held that year, the members approved a new article in the bylaw. The new objective approved by the General Assembly opened new opportunities for the future of the SSF associated with CoopeTárcoles R.L as well as for the sustainable use of marine resources in the area. From 1984 to 2001, bylaws of CoopeTárcoles R.L in its Article 9, stated that the cooperative had as main objectives: to obtain better working conditions,

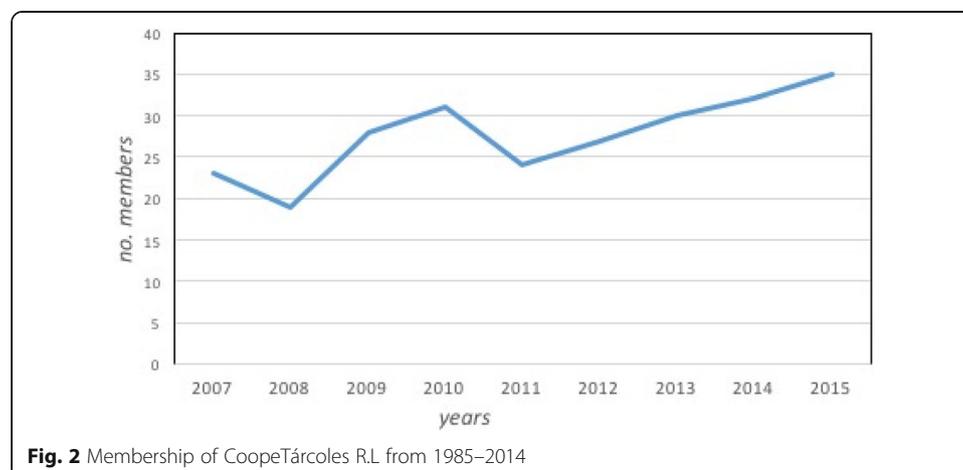
improve its members' socio-economic situation, eliminate the middleman, create sources of employment, obtain better prices for product, open up new markets and raise the levels of fisherfolk organizational capacity and participation. Since 2001 only one more objective was added: to promote research on forms of sustainable management of natural and cultural resources.

There was a consensus among the interviewed stakeholders and fishers from the organization that CoopeTárcoles R.L. arose to eliminate the middleman, seek better prices, and prevent other people from reaping the benefits from fishing or end up in debt. The interviews also revealed that since its beginning the cooperative and the fishers had other objectives beyond business earnings, as they also wanted to improve the livelihoods of fishers and their families. Little by little, the cooperative turned into an engine for community development through structured collective action as set out below.

To be a member of the cooperative, an application must be presented to the Board of Directors, and referred to the General Assembly. The only criterion to obtain membership is: "any person older than fifteen years of age who owns a boat." Nevertheless, since the General Assembly held on 11 November 1989, people without boats such as women who untangle the nets and administrators have been granted membership. In practice, the bylaws were not modified to mainstream gender, but women have been accepted as members since 1989. Figure 2 show changes in CoopeTárcoles R.L membership over time.

The membership increase in 1998 is related to the Regional Program to Support Fishing Development in the Central American Isthmus (PRADEPESCA) project. The project built a new storage centre, which made many people approach the cooperative since they saw this as improvement of the cooperative functioning.

The drops in membership in 1991, 1993, 2005, and 2009 are attributed to the reduction of fishery resources and a cooperative management crisis. This management crisis almost broke the organization and led to the leasing out of the facilities of the cooperative from 1992 to 1993 in an attempt to safeguard the collective investment. After 2011, the membership has stabilized at around 35–40 members due to the improvement of the fisheries resource and new administration capacities.



Community marine areas for responsible fishing

When the Tárcoles fishers became organized, they were able to eliminate the middleman while consolidating tenure and access to productive resources. Their cooperative was also able to move beyond the middleman role and establish itself as an important player in local development. However, by that time, the resource was exhausted, with coastal shrimp stocks disappearing from catches in 2001 as a first indicator of the critical ecological situation.

No precedent existed in Costa Rica for a Marine Area for Responsible Fishing as a new model for local governance of a marine territory (CoopeSoliDar R.L. and CoopeTárcoles R.L., 2011). In addition, there has been no set of norms by state institutions (responsible for developing and conserving marine territory) that guarantee recognition of marine territories for community use or governance. Faced with this situation, and based on a request made to the INCOPECA Board of Directors by CoopeTárcoles R.L. and CoopeSoliDar R.L., a commission was created whose main objective was to prepare a national proposal. The proposal was to allow for CoopeTárcoles R.L., as well as other organized SSF communities that met suitability requirements, to request recognition of a Marine Responsible Fishing Area from the INCOPECA Board of Directors.

Respondents said that the national proposal preparation process was slow and complicated. On the one hand, the legal competence to be able to recognize this type of area by INCOPECA and the State in general had to be established. On the other hand, being able to define a norm that would respect the rights of all citizens living in the country without excluding any sector during the drafting process had to be taken into consideration. In alliance, CoopeSoliDar R.L. and CoopeTárcoles R.L. were able to make their own contributions while preparing and negotiating the proposal. For example, CoopeSoliDar R.L. contributed by preparing the technical contents referring to Costa Rica's norms and compiling and analysing the primary advances in the area globally. For its part, CoopeTárcoles R.L. contributed by identifying the particular attributes of the small-scale fishers: their history, fishing tradition, local needs, and so on.

The draft proposal was taken to the Work Commission, where the final proposal for the Marine Areas for Responsible Fishing was developed. CoopeTárcoles R.L. and CoopeSoliDar R.L. participated in all of the commission's meetings. The final proposal opened the first co-managed initiative between the State and local fishing communities providing a political framework to recognize a local governance model for the marine protected areas under a human-rights-based approach in Costa Rica. The bylaws proposed for setting up the Marine Areas for Responsible Fishing were approved in a meeting held by the INCOPECA Board of Directors on April 4, 2008. These bylaws recognize the fisher's right to work, participate, and have a healthy and ecologically balanced environment. From that point on, the procedures began to recognize and establish the Marine Area for Responsible Fishing in Tárcoles (Fargier et al. 2014).

The definition established in the bylaws of a Marine Area for Responsible Fishing is:

“This is an area with important biological, fishing or socio-cultural characteristics, in which fishing is regulated in a particular way that ensures that fishing resources may be enjoyed in the long term. INCOPECA may count on the support of coastal communities and/or other institutions in conserving, using, and managing this area.”

Once the request was analysed and accepted, CoopeTárcoles RL and INCOPECA developed the Fishing Zoning Plan in 2009 (CoopeSoliDar R.L 2010) that set forth the

characteristics and individual regulations for fishing or aquaculture practices in the area. This initiative does not assign exclusive rights to Tárcoles fishers. On the contrary, fishing in these areas is allowed for members of the applicant organization and any other fishers so long as they have a current fishing license and follow the regulations set forth in the Fishing Zoning Plan defined for each area. Along with the applicant organization, a follow-up commission was appointed to ensure that the Fishing Zoning Plan is enforced, tracked, and monitored. The Fishing Zoning Plan recognizes Marine Responsible Fishing Areas as an alternative that achieves conservation efforts, the sustainable use of resources, and the inclusion of local populations in protecting nature and the resources that they depend on for survival.

The agreements for the Tárcoles Marine Area for Responsible Fishing established a zone that banned shrimp fishing for a period of one year, in an area that runs from the coast to 15 m in depth. In this area, drag boats, small-scale fishing targeting shrimp and the use of nets were prohibited. Only fishing with a hand line was legal during the ban. A year after this went into effect, trawling was excluded permanently down to 15 m in depth, and the traditional fishing of shrimp was open for three months every year under the request of CoopeTárcoles R.L. In August 2013, at the request of the Tárcoles fishing community, INCOPECA extended the ban on shrimping to the agreed-upon area and approved standards for sustainable use and management of the resource, based on the fishers' local knowledge (CoopeSoliDar R.L. and CoopeTárcoles R.L., 2011). Respondents stated that the successes from these efforts have cumulatively given an important boost to the local economy at the fisher and community level.

Today, the product that CoopeTárcoles R.L. offers is differentiated in a positive way in both the internal and domestic markets according to respondents and organization files. The production process ensures that the food is safe and sovereign. The number of members has kept up the productive base. Accepting fish from non-members has helped with managing the cooperative's finances. The cooperative and its Marine Responsible Fishing Area has now moved into learning and setting in place a traceability system that in the short term could recognize efforts by its members towards sustainable fishing.

Good governance and trust

Since the start of the organization, cooperative records show that CoopeTárcoles R.L. has held a General Assembly each year in which the Board of Directors is appointed. Some of the cooperative members have a high frequency of participation in the Administrative Council of the cooperative some of them participating up to 4–5 times through the life time of the cooperative.

The fishers have learned to manage their cooperative through practice and by participating in the Board of Directors. They have maintained their cooperative by adhering to the constitution, and through the long-serving members of the board in whom the organization has a high level of confidence and trust. In the words of one leader: "I have spent a lot of time on the Board of Directors. I have rotated through all the positions." Commitment and engagement with the cooperative were identified as main values held by the interviewees, especially those in management positions. CoopeTárcoles R.L. members have taken over tasks from external administrators in order to decrease costs and maintain best practices.

Fishers who are not members of CoopeTárcoles R.L. can sell their fish to the cooperative at the same price as members. They can purchase ice and bait at the same price as members. Because the intermediary has been eliminated, the sale of the fish on site has increased and thus the cooperative can sell other fishery products that are not necessarily provided by the members of CoopeTárcoles R.L. The organization's main goal has focused on the well-being of its members, not just economic profits. It was said that the cooperative model has strengthened fishers' self-esteem so that they trust their ability to manage the company and make decisions.

It appears that the organizational structure provides safety and social benefits, not just economic rewards, to its members and the community in general. The cooperative is seen as a productive organization in a legitimate coastal community with a strong cultural identity. It offers social resistance to the large-scale development model that prevails in the area, helping the cooperative to maintain a local identity, promote SSF as its main productive activity, and lead local decision-making efforts.

Leadership roles have been shared and are recurrent, which respondents say has upheld the cooperative's representative legitimacy. It is an organizational model in which fishers practice their livelihood individually, but share the company and the market as a group; a 'learning through action' experience. Led directly by fishers, the organization has adapted the cooperative model to their way of life based on culture and community economy.

Resources and institutional arrangements

Livelihoods and community economy are extremely important. There are four main items in the CoopeTárcoles R.L. revenue stream:

- a. Sales of fish
- b. Sales of ice
- c. Sales of bait
- d. Distribution of subsidized gasoline.

The cooperative's earnings derive from fees of 200 colons (US\$0.40) per kg of fish at the wholesale level and 600 to 700 colons (US\$1.20–1.40) per kg of fish at the retail level. When there is high international demand for certain species of fish, these species are sold for export with the same margin as above. Notably, all fishers reported that CoopeTárcoles R.L. buys fish at fair prices from the fishers. The cooperative is able to provide fair pricing as 70% of fish is sold on site with no middleman. This was one of the objectives of the establishment of the cooperative. The price is set as an average of what is paid on the market, but has added an additional dividend for the fisher that is paid at the time it is delivered. Afterwards, the cooperative must find the best way to sell the product.

According to the INCOPESCA's constitutive law, small-scale fishers can receive subsidized gasoline. There are two further benefits to being a member of the cooperative, which are important to the fishers involved: social security and administrative permits. Currently there are 43 fishers and 2 administrators from the cooperative who are reported on the Costa Rican Social Security Fund payroll. The cooperative supports

fishers in the procedure to apply for fishing licenses and keeps them informed on the laws passed that are relevant. The cooperative also pays for the fishing licenses of its members, with each license costing 22,000 colons (US\$44) per year.

Alliances, information and capacity

In the last fifteen years, CoopeTárcoles R.L. has worked as a national and regional representative of a SSF community. The organization has promoted a participatory conservation process and active participation of fisher rights at national, regional and global levels. Within these processes, small-scale fishers have advanced their businesses responsibly and sustainably using a local governance model that they say shares power equitably with the government.

Alliance with CoopeSoliDar R.L

Records suggest that since 2001, the Self-Managed Professional Service Cooperative for Social Solidarity (CoopeSoliDar R.L.) and CoopeTárcoles R.L. have had a mutually beneficial relationship. Though the relationship has not been without struggles, it has provided benefits for the sustainable development of Tárcoles. This synergetic relationship was initiated and actively developed thanks to the interest and openness of the fishers, as well as the members of CoopeTárcoles R.L. Their interest in carrying out more sustainable practices in SSF has made the mission of these organizations compatible, and together the community and the cooperatives have worked towards the sustainable management of the natural and cultural resources in the area. Both cooperatives have been working on promoting new, environmentally friendly business alternatives and changing national and regional models of conservation towards a human and tenure rights-based approach to marine conservation efforts. These proposals have given rise to initiatives with national and international recognition and awards.

The association between CoopeTárcoles R.L and CoopeSoliDar R.L combines conservation knowledge and practice in the long term, leading to greater hope at reaching environmental goals. More than ten fishing communities are now following the formal co-management model for Responsible Marine Fishing Areas at the national level. CoopeTárcoles R.L., with consistent assistance from CoopeSoliDar R.L in these efforts, leads a network of these areas.

The “por la mar R.L. consortium”: An inclusive business for responsible marine management

A distinctly important outcome from the relationship between CoopeTárcoles R.L and CoopeSoliDar R.L has been the formation of an Auxiliary Cooperative Body (Consortio Por la Mar R.L.), formally incorporated on 7 August 2007. The vision of this initiative is to seek development and consolidation of the alliance between both cooperatives and make it more sustainable (www.gofishingtarcoles.com). The initiative also seeks to promote improved living conditions for the Tárcoles fishers and the residents of that community by offering guided visits for tourists and students. The guided visits of responsible SSF showcase the knowledge of the community as well as the way of life of small-scale fishers in Tarcoles.

The Consortio Por la Mar R.L. vision is: “Share the experiences related to responsible SSF in Tárcoles, showing Costa Ricans and foreigners that fishers work with honour and responsibly.” Likewise, its mission was established to “propose alternatives to improve the quality of life while protecting their culture and the environment, with

equality and justice.” This aim is being accomplished by capitalizing on community tourism that bolsters the following important elements: the residents’ cultural identity and experience in small-scale fishing practices as well as the wealth of natural resources found in the Tárcoles marine coastal environment. The Consortium offers guided visits with the purpose of making people aware of how the fishers live. The visits include spending time with the fishers, getting to know their fishing practices, daily work life, and the natural resources that exist in the area.

Generating knowledge and a database for making decisions

In mid-2005, with the aim of strengthening local capacities, a Fishing Data Table was initiated to collect information about daily fishing hauls, fishing efforts, main fishing spots, and the moon’s influence on fishing. Reconciling traditional knowledge with scientific knowledge made the fishing database possible for CoopeTárcoles R.L. The database records the fishing effort; species caught, and associated information that strengthens responsible SSF. The data is taken from each fisher and compiled by a local fisherwoman who tabulates the information and enters it into a computer. CoopeTárcoles R.L. and CoopeSoliDar R.L. analyse the data and use it for decision making in sustainable fishing management. Sharing this information with society from month to month has been a major element in generating knowledge (CoopeSoliDar R.L. and CoopeTárcoles R.L., 2011).

This work has also made it possible to provide feedback with timely information to the state institutions responsible for marine research. For example, in 2009 there was a recommendation to monitor fishing on stingrays as well as a need noted for participatory research about lobsters on the Costa Rican Pacific. Today, CoopeTárcoles R.L. has the first traceability system in place for SSF in the country in part due to the adequate levels of information from its fishery.

A learning process adapted to local needs and capacities

It was said that some of the key lessons learned from the experience of CoopeTárcoles R.L. include: a need for small amounts of administration work and that local community people working in the administration work well; a need for a social security system and strategy for allocating responsibility adapted to the local organization; the importance of a long-term perspective; and the valorising potential of traditional knowledge. All of the following aspects have reportedly contributed to the development of leadership capacity: adaptation of the cooperative organizational model to local realities, entrepreneurial thinking, and knowledge building. As an organization, the cooperative has been strengthened, enabling it to adapt and integrate a model of responsible fishing into its functioning.

Accounting for gender

The social construction of gender and female roles is related to the reality of the fishing communities in Costa Rica. From the times of their ancestors, there has been a myth that nothing feminine, no symbol or presence, could be in the boats that go out to sea, because it was a sign of bad luck and tragedy. Many women in the fishing communities have been overcoming these deeply rooted beliefs, not just in relation to their traditional culture, but also in relation to a society where most of the opportunities, the

control of resources, and the power to make decisions have been concentrated in the hands of men.

Slowly, CoopeTárcoles R.L has been expanding beliefs on the role of women, promoting the fact women can and do play an active role and contribute on a daily basis to the community’s economic, social, and cultural life. Women have been accepted in the cooperative and have taken active roles in the Administrative Council (Table 2). The first woman was appointed to the Board of Directors in 1991. In 2006, a woman was elected as the Vice President, and in 2011 the first woman was appointed as Secretary of the Board of Directors. Currently, CoopeTárcoles R.L has five fisherwomen as its associates.

Recognition of women continues to be important. In SSF in Tárcoles, women play active roles. They fix fishing lines, prepare the bait, find molluscs and use fish for the food and nutrition security of their families. Previous research (CoopeSoliDar R.L, 2005; CoopeSoliDar R.L. and CoopeTárcoles R.L., 2011) demonstrated that due to the association with CoopeSoliDar R.L, opportunities have opened up for some of the women fishing leaders to participate in activities, conferences and seminars that broaden their horizons and build their self-esteem. They have also taken a very important role in the community-marine tourism efforts promoted by Consorcio Porla Mar R.L.

Managing risks and success

The CoopeSoliDar R.L and CoopeTárcoles R.L alliance has promoted innovative activities related to the improvement of fisheries and livelihoods. Most of the previously described activities include risk management and their promotion as success. The latter is a striking feature of CoopeTárcoles R.L in which almost all activities are perceived and promoted as being successful once objectives are at least partially met. None were considered failures as long as there was a learning experience and capacity was built. Today other stakeholders follow these activities at the national level as examples to emulate. Shared codes of practice are key in this approach to risk and success.

A local responsible fishing code

The initiative to adopt a voluntary responsible fishing code at CoopeTárcoles R.L. arose from the desire to extend and spread the Code of Conduct for Responsible Fisheries (FAO 1995) already adopted by the country. The initiative sought creative answers and fishers’ participation in an effort to advance conservation and sustainable use of marine resources. Simple discussions about creating the local code were held with small-scale fisher associates. The discussions covered the main principles of the international Code.

Table 2 Women in the Administrative Council of CoopeTárcoles R.L

Years position held	Position held by women
2012, 2013, 2014	Secretary of the board
2006, 2007	Secretary of the board
2011, 2012	Vocal of the board
1991	Vocal of the board
2006	Vice-President of the board

The CoopeTárcoles R.L. Responsible Fishing Code was approved unanimously in the General Assembly at the end of November 2004 (CoopeSoliDar R.L, 2005). It was presented officially to national authorities in April 2005. The Code is a voluntary guideline that has been adopted by this SSF cooperative as an expression of its will to contribute to the sustainable use and conservation of the coastal marine resources.

Implementation of the SSF guidelines

The SSF Guidelines, as mentioned at the start of this paper, were adopted in 2014 as the first internationally agreed instrument dedicated entirely to the small-scale fisheries sector. They have become important to fishers' policy influence and empowerment in Costa Rica. We identified three main points arising from CoopeTárcoles R.L. activities that are instructive for the implementation of the SSF Guidelines.

The first concerns policies that support social development and provide SSF with adequate infrastructure, the necessary conditions of access, and the possibility to become better organized. This support has been valuable in strengthening the cultural and productive identity of SSF communities. Its continuity is essential for achieving the necessary conditions for responsible fisheries that guarantee both ecological and social well-being.

Second, the cooperative provides learning opportunities and serves as a foundation for nurturing leadership. These two factors allow the cooperative to remain flexible in a changing environment and can also be seen as potential capacities themselves, such as for resilience, governance, and an integrated management system that considers human rights-based approaches to conservation.

Last, the SSF Guidelines are being used as a tool to establish appropriate public policies to support SSF development in Costa Rica. The president of the CoopeTárcoles R.L. Administrative Council to promote local sustainable use in SSF is also using the SSF Guidelines. There is hence a need to train and prepare social organizations engaged in implementing the SSF Guidelines, and to promote local follow up and evaluation of the implementation process. CoopeTárcoles R.L. has taken the lead on this at the national level.

Government recognition

As described earlier, CoopeTárcoles R.L. was strengthened and supported by state policies that promoted social development. A central goal of these policies was to improve the quality of life and well-being of rural (including fishing) communities. Respondents often recalled three examples of state assistance that enabled and catalysed improvements:

1. With the support of the government, a storage centre was created when establishing the cooperative that made it possible to market fish in a collective form. The storage centre also helped the cooperative to provide a fair price to the fishers involved and established a reference point to the cooperative for the other independent fishers of the area.
2. The choice of location of the storage centre ensures that the cooperative fisher members have control of their working area and marine territory, enabling them to have complete priority access to tenure and fishing. Notably, it is also a structure that makes the small-scale fishing culture visible to the outside world.

3. The support received at the beginning of establishing the cooperative as well as recently from state and other aid organizations have helped consolidate the business. There have also been donations during difficult financial times such as a soft loan for new ice-making machinery in 2004 that enabled the fishers to remain active.

After the creation of CoopeTárcoles R.L, the government changed its ideological support and there was a time of no support from either INCOPESCA or the cooperatives national institution INFOCOOP. These were difficult times for the cooperative, when it also had to innovate administratively to survive. Recently, a new policy oriented at the political level to reduce poverty and support marginal communities has made CoopeTárcoles R.L establish new and important alliances within the government. These alliances have also been crucial in implementing the SSF Guidelines. Today, CoopeTárcoles R.L reports strong and positive communication with the fishing authority and other institutions like the National Animal Health Service/ Servicio Nacional de Sanidad Animal in spanish (SENASA) and the local government, all of which are crucial for its own development and capacity strengthening.

State political framework was focused on social welfare

At the creation of CoopeTárcoles R.L, governmental policies supported land and sea access for fishers, as well as infrastructure development and the provision of fishing gears. Fishers mentioned these as important support to them. Specifically, they referred to the increased productivity that the ice machine provided as particularly important. This support provided CoopeTárcoles R.L with a foundation on which to build further cultural and productive activity for the long term.

Within a political framework, the fishers have sought ties with governmental institutions, including those not directly related to the fishing sector. They have called on the institutions related to the social sector, including the Institute for Social Support (IMAS) and the Ministry for National Planning and Economic Policy (MIDEPLAN). The extension service of INCOPESCA does not seem to have played an important role in CoopeTárcoles's history and/or its activities from the perspective of the fishers. However, its role was recognized in the creation of the cooperative and again recently with the establishment of a Community Marine Area for Responsible Fisheries.

Social values provided the foundation on which the cooperative was built, on the premise that such values can strengthen the community and its SSF activities. The cooperative model promoted and bolstered these collective values that have in turn strengthened social resilience in the SSF community necessary for sustaining their local development model. The cooperative has also provided the main economic engine for local development. Thus, well-being, collective action, community benefits, and respect for culture and environment were said to be important elements of the model.

Some challenges for the future

The history of this SSF community goes back much longer than the establishment of CoopeTárcoles R.L. However, the organizational history and collective action catalysed by its history has been a very important part of this community, as recognized by most interviewees. Fishing is part of cultural identity in this community in the Pacific coast

of Costa Rica and CoopeTárcoles R.L. has consolidated this identity as an important SSF asset.

Respondents said that today CoopeTárcoles R.L. is an exemplary organization at both the local and national levels in the field of community-based fisheries. It has gained experience and provides lessons in the three pillars of sustainable development: social, environmental and economic. The cooperative venture has served to strengthen both the fishery economy of the community and the social structures needed to support SSF activities, both important towards sustainable management of marine resources. CoopeTárcoles R.L. is essentially an entrepreneurial organization dealing with economic activities, but its activities through history also include strong environmental and social dimensions. The social dimension links people living in the community to actions aimed at promoting community well being and leads towards responsible fishing. There were certain conditions that supported the initiation of the cooperative and that matched the key elements of the Kurien (2014) conceptual framework.

This study highlighted challenges that need to be addressed in the short to medium term. In particular, these challenges need to be addressed by the CoopeTárcoles R.L. Administrative Council and its members, both through discussion and action, in ways that build their capacity and strengthen social resilience. These challenges should also be used to provide learning pathways as was done before. The challenges have arisen through a process of dynamic change and transformation that the cooperative itself has engendered in its members and the community. Three diverse challenges are current learning pathways.

Sustainable use of fish for food security and well-being

Increasing local governance of SSF is a strong indicator of the progress made by the community of Tárcoles. In SSF, sustainability cannot be seen as the exclusive responsibility of coastal communities that depend on the use of marine and coastal resources for their survival and livelihoods (CoopeSoliDar R.L. and CoopeTárcoles R.L., 2011). Often, there are many other external impacts on the resources that come from other activities, over which these communities have no control. In Tárcoles it is clear that fishery resources have been affected by several different external factors. These include pollution coming from the upper watershed in the Tárcoles River, inappropriate policies that force communities in the coastal areas into more vulnerable conditions, and incursions into near shore areas by trawlers and other destructive fishing activities.

The cooperative has been able to improve its situation by garnering state support in a new initiative to promote and implement conservation measures by establishing a Community Marine Area for Responsible Fisheries. The measures adopted should contribute to sustainable long-term use of the SSF resources by helping the recovery of the ecosystem and fishery resources. As a result of this initiative, CoopeTárcoles R.L. members will now have the opportunity to sustainably use shrimp and fish resources in a responsible fishing area supporting food security and well-being to future generations of Tárcoleños (people from Tarcoles).

The sustainability of Consorcio Porlamar R.L. and recreational fishing

An important challenge to consider is continuity in the way in which the Consorcio has supported and strengthened the diversification of activities of CoopeTárcoles R.L. In recent years, there have been a few possibilities for developing alternative productive activities to fishing as the ecosystem has evidently recovered. This result has created a

positive motivation towards improving the income of this vulnerable sector by optimizing existing practices, and this in turn, has strengthened their self-esteem. Today, local fishers have developed more than 50 recreational fishing entrepreneurship. This activity is providing enormous economic benefits, sometimes substituting for commercial fishing. There is need for control over recreational fishing to make it sustainable environmentally, socially and economically. In the Consorcio por la Mar R.L, these touristic activities have been oriented towards raising awareness about SSF in Costa Rica and how to improve the sustainability of fishing and livelihoods. Today, the touristic activities seem only to be considered from an economic perspective at the individual level, contrary to the cooperative ethic.

Youth, women and gender, and cultural identity considerations

The improvement in local fisheries sustainability has attracted young fishers. A major challenge is to promote collective organization among them, develop their leadership and forge linkages with and create space for them in the cooperative. Gaining recognition for women and youth participation continue to be significant challenges. The democratic and regular transfer of leadership in succession planning now has to be urgently discussed.

Summary of lessons learned

Kurien’s key elements appear to have been crucial in the development of CoopeTárcoles R.L. The cooperative’s history shows that these elements have been vital for their SSF collective action and organization (Table 3).

Table 3 Findings from the case study related to the key elements identified by Kurien

Grouped elements of Kurien’s key elements	Findings from the case study supporting the elements
Collective agreement and action	<ul style="list-style-type: none"> • CoopeTárcoles R.L has maintained a transparent accountability and representative system and has been able to change its Administrative Council according to a democratic process • Bylaws have changed accordingly over time and due to interest of the associates. • We see repetition of associates in power positions.
Good governance and trust	<ul style="list-style-type: none"> • Every year, CoopeTárcoles R.L has its General Assembly, with no one reporting unclear or corrupt actions <p>Power relations seem to be well managed</p> <ul style="list-style-type: none"> • Local governance of the marine responsible fishing area.
Resources and institutional arrangements	<ul style="list-style-type: none"> • The cooperative has been able to maintain actions towards the primary needs of the fishers: marketing the product, providing ice and licenses and following up with procedures.
Accounting for gender	<ul style="list-style-type: none"> • A history of the cooperative demonstrated that the participation of women has increased, with women now able to take part in the cooperative even though this is not yet part of the statutes. More work needs to be done in this regard.
Managing risks and success	<ul style="list-style-type: none"> • The cooperative is now 30 years old • Associates and community members noted the importance of the cooperative for community development and well-being.
Alliances, information and capacity	<ul style="list-style-type: none"> • The alliance with CoopeSoliDar R.L seems to have been crucial in promoting innovation and capacity strengthening
Government recognition	<ul style="list-style-type: none"> • Government has been present at the initial stages of this organizational effort and has become very important in the present (2015–2016). This support has been crucial for the development of CoopeTárcoles R.L.

New challenges are now faced by the organization and strategies from the organizational point of view will need to be developed in order to achieve resource sustainability and resilience. Some of the key elements used in the past and lessons learned could be very important to analyse and use as a strategy for the future actions of CoopeTárcoles R.L.

Conclusions

Kalikosk and Franz (2014) posit that fisher organizations have important roles to play in the sustainability of SSF worldwide, and through the SSF Guidelines in particular. This case sought to examine this potential in Costa Rica. CoopeTárcoles R.L. has exhibited adaptable strategies over time that have fostered its existence in order to improve the Tárcoles community's way of life, especially for fishers. The elements identified by Kurien have contributed to this success. Support for fishers to obtain subsidies and services from the State have been maintained as an important objective of the cooperative. All of these aspects have contributed to the development of leadership capacity based on experience, adaptation of the cooperative organization model to local realities, entrepreneurial thinking, and knowledge building. The cooperative has enabled the productive activity of fishing to become more sustainable and contribute to the well-being of the community. More cases such as this are needed to inform notions of collective action, tenure, poverty reduction, decent work, food security and other ideals with empirical evidence if the aim of the SSF Guidelines is to be achieved.

Authors' contributions

VSR has been the main author and writer of the article. VSR and PMC developed the methodology and research of the main information where the article is based. DCR accompany the research team and BO was a technical advisor throughout the research process. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Received: 23 June 2017 Accepted: 23 November 2017

Published online: 20 December 2017

References

- Béné, C., G. Macfadyen, and E.H. Allison. 2007. *Increasing the contribution of small-scale fisheries to poverty alleviation and food security*. Rome, Italy: FAO Fisheries Technical Paper. No. 481.
- CoopeSoliDar R.L. 2005. Tárcoles: una comunidad de pescadores artesanales en Costa Rica, aportes a la conservación de los recursos marino costeros del golfo de Nicoya. San José, Costa Rica.
- CoopeSoliDar R.L. 2010. Plan de ordenamiento de la pequeña pesquería. Área marina de pesca responsable de Tárcoles. CoopeSoliDar R.L.; CoopeTárcoles R.L.; INCOPESCA. San Jose, Costa Rica.
- CoopeSoliDar R.L. and CoopeTárcoles R.L. 2011. Tárcoles +5. San Jose, Costa Rica.
- FAO. 1995. *Code of conduct for responsible fisheries*. Rome, Italy: FAO.
- FAO. 2015. *Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication*. Rome, Italy: FAO.
- FAO. 2016. In *Strengthening organizations and collective action in fisheries: Towards the formulation of a capacity development programme. Workshop report and case studies. 4–6 November 2014, Barbados*, ed. S.V. Siar and D.C. Kalikoski. Rome, Italy: FAO Fisheries and Aquaculture Proceedings No. 41.
- Fargier, L., H.J. Hartmann, and H. Molina. 2014. Marine areas of Responsible fishing: A path towards small-scale fisheries co-management in Costa Rica?. Perspectives from Golfo Dulce. In *Fisheries Management of Mexican and Central American Estuaries. Estuaries of the world*, ed. F. Amezcua and B. Bellgraph. Dordrecht: Springer Science+Business Media.
- García-Lozano, A., and J.T. Heinen. 2015. *Identifying drivers of collective action for the co-management of coastal marine fisheries in the Gulf of Nicoya, Costa Rica. Environmental management*. New York, USA: Springer Science+Business Media.
- Hannesson, R. 1988. Studies on the role of fishermen's 1988 organizations in fisheries management. Fishermen's organizations and their role in fisheries management: theoretical considerations and experiences from industrialized countries. *FAO Fish Tech Pap* (300):1–27.

- INEC. 2016. *Encuesta Nacional de Hogares. Resultados Generales*. San José, Costa Rica: Instituto Nacional de Estadística y Censos (INEC).
- Jentoft, S. 1985. Models of fishery development: The cooperative approach. *Marine Policy* 9: 322–331.
- Jentoft, S. 1986. Fisheries cooperatives: Lessons drawn from international experiences. *Can J Dev Stud* VII (2): 197–209.
- Kalikoski, D., and N. Franz, eds. 2014. *Strengthening organizations and collective action in fisheries- a way forward in implementing the international guidelines for securing sustainable small-scale fisheries*. Rome, Italy: FAO Fisheries and Aquaculture Proceedings No. 32.
- Meynell, P.J. 1984. Small-scale fisheries cooperatives: some lessons for the future. COPAC occasional paper no. 2. Based on a report by P.J. Meynell.
- Meynell, P.J. 1990. Success and Failure in Fishermen's Organizations: Results and Analysis of Case Studies of Fishermen's Organizations in Developing Countries. Food and Agriculture Organization of the United Nations. Retrieved from <https://books.google.co.cr/books?id=xYn4tgAACAAJ>.
- Neuman, L. 1994. *Social research methods*. 2nd ed. Boston: Allyn and Bacon.
- Pinho, P., B. Orlove, and M. Lubell. 2012. Overcoming barriers to collective action in community-based fisheries management in the Amazon. *Human Organization* 71 (1): 99–109.
- Villalobos, Carlos, Rafael Luna, and Jose Roberto Jimenez. 1990. El apoyo de la FIA al Sector Pesquero Artesanal de Costa Rica. In *Contexto, impacto y aprendizaje 1986–1990*. Costa Rica: FIA.

Submit your manuscript to a SpringerOpen[®] journal and benefit from:

- ▶ Convenient online submission
- ▶ Rigorous peer review
- ▶ Open access: articles freely available online
- ▶ High visibility within the field
- ▶ Retaining the copyright to your article

Submit your next manuscript at ▶ springeropen.com
