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**Establishing a Fishery Cooperative
on Bonaire: The Silver Bullet to All
Fishery Management Problems?**



6.1 INTRODUCTION

In Chapter 5, I gave an in-depth overview of the history and institutional framework of fisheries management and the resulting challenges to instituting effective oversight of, and cooperation with, this sector. Based on this analysis it can be concluded that Bonaire's fishery sector faces many challenges in terms of its management. These challenges are mutually reinforcing and are visible at three levels; namely: a) institutional (i.e., inadequate legislation, ambiguity concerning roles and responsibility); b) economic (i.e. lack of capacity and resources for enforcement, policy development, monitoring of catch landings); c) socio-psychological (i.e. lack of perceived priority to act, mixed sense of urgency to act, lack of sense of ownership, feelings of unfairness and neglect among fishers, distrust among fishers towards government and ENGOS). Moreover, the growing, global, importance of nature conservation, the growing importance of a pristine marine environment to Bonaire's economy, and the growing and vocal group of stakeholders in favor of environmentally protective measures has led to an increase in the implementation of these protective measures while, simultaneously, there has been a (perceived) neglect of the immediate needs of the fishers. Related to this, one of the main conclusions drawn from the previous chapter was that there had been an insufficient inclusion of the fishers in past management efforts.

These issues are not uncommon for small scale fisheries like that of Bonaire. These are places where the costs of effective management of natural resources such as fisheries presents wicked problems, and do not often meet the economic revenue derived from the sector.³⁴ Nevertheless, and despite this lack of immediate economic viability, small scale fisheries do require management. Marine resources can become overfished, even with small scale fisheries. In addition, management is required because fishers are generally economically and socially low income and poorly educated members of the community. Moreover, fishing is culturally important to a degree that far outweighs either its economic value or the percentage of the population actively involved in it. A solution can be found in co-management as I described in the Introduction to this part of the thesis. Co-management is argued to be effective for small scale, low value, artisanal, fisheries as it can address the shortcomings associated with governing from a single institutional level alone.

The quest for understanding what might be an effective, sustainable, and broadly acceptable management structure for fisheries led me to the following research questions that I will address in the current chapter, namely, can a fisheries cooperative help resolve the existing (co-)management challenges present in the fisheries sector of Bonaire? Even though the initial plan for my collaboration with WWF-NL was for me to conduct a

34 "Wicked problems" meaning particularly complex, open-ended, and intractable issues, in which both the nature of the "problems" and the preferred "solutions" may be strongly contested and are not clear cut (De Fries & Nagendra, 2017; Head, Ross & Bellamy, 2016).

series of interviews with fishers and other local fisheries stakeholders, WWF-NL and I concluded early on that it would be more useful and insightful to change this approach to a participatory action research where I would attempt to help the fishers establish a fisheries cooperative. Granted, the idea of establishing a fishery cooperative was not new as became evident in Chapter 4. However, none of the earlier attempts lasted nor had they led to effective co-management of the sector with the fishers. It was therefore decided that a participatory action approach would be of both high scientific and societal relevance because:

- 1) It would allow me to get an in-depth understanding of ways to establish and maintain a fishery cooperative on Bonaire through which existing co-management strategies could be strengthened;
- 2) It would allow me to experience and therefore clearly identify the struggles of fisheries co-management from the perspective of the fishers and indirectly also those from other management stakeholders (i.e., the government of the Netherlands, the public entity, ENGOs);
- 3) It would allow me to work closely with the fishers in a non-intrusive manner and to gain valuable insights by building a relationship of trust with them;
- 4) It would allow me to test to what extent a fishery cooperative was indeed the missing link to effective inclusive co-management of the sector with the fishers;
- 5) It would provide the opportunity to produce a tangible outcome, not only for the government and ENGOs, but also and, in particular, for the fishers.

After several months of work with the fishers, I succeeded in establishing a fisheries cooperative called PISKABON. To answer the main question of this chapter, I formulated the following sub-questions: a) *What challenges does a fishery cooperative encounter during its establishment and involvement in co-management efforts of Bonaire's fishery?*; b) *What management challenges does a fishery cooperative resolve regarding co-management of the sector?* Considering that co-management should not be seen as an end result, but, rather, a management process or strategy, I also investigated a second main question namely: c) *How is Bonaire's fishery co-management strategy through a fisheries cooperative affected by notions of belonging, small scale, and the constitutional reforms of 10/10/10?*

In this chapter, I first describe some of the theories behind co-management and include a more detailed discussion of Ostrom's principles and their relationship to co-management structures. I then describe the methodology used to answer my research questions. Next, I share a detailed description of the establishment of the fisheries cooperative PISKABON spanning a period of 1,5 years. I have divided this into two narratives. The first account describes the first general member meeting with the fishers which launched the formalization process for the establishment of PISKABON. The second narrative focusses on the months following this meeting during which PISKABON had to formalize their establishment and their role as co-management partner of Bonaire's fisheries. These two ethnographic accounts clearly illustrate the challenges

and complexities of fisheries co-management through a fishery cooperative. The accounts are analyzed in the Results section where I answer my two sub questions and identify which management struggles the cooperative still faces and which ones it helped to overcome. In the Discussion, I move on to answering the two main questions, namely: 1) *how these challenges are amplified by three specific characteristics of the local context of Bonaire, namely its small scale, the constitutional reforms of 10/10/10, and the island's colonial past and how these challenges relate to notions of belonging?*; and, 2) *if a fisheries cooperative can indeed alleviate or resolve the management challenges the sector faces or not?* Lastly, I reflect on the question of 3) *if the fisheries co-management strategies on Bonaire adhere to the CPR design principles?*

6.2 CO-MANAGEMENT

Co-management is a form of management that can be defined as “a partnership by which two or more relevant social actors collectively negotiate, agree upon, guarantee and implement a fair share of management functions, benefits and responsibilities for a particular territory, area or a set of natural resources” (Borrini et al, 2007, p. 103) An important element in co-management is thus not only the sharing of responsibilities, but that benefits are also shared. Different forms or hierarchies of co-management exist, meaning it can involve different degrees of management responsibility and authority between the local level (resource user) and the state level (national or island government). Sen and Nielsen (1996), for example, classified five types of (co-)management, visualized in Figure 32:

1. *Instructive management* is not a form of co-management as it refers to decisions made by the government and resource stakeholders merely receive instructions on these decisions.
2. *Consultative co-management* refers the process where resource stakeholders are consulted on management measures before decisions are taken.
3. *Cooperative co-management* means the process where resource stakeholders and government authorities are equal partners in the development of management measures.
4. *Advisory co-management* refers to a form of management where resource users advise the government on the required measures and the government approves of these recommendations.
5. *Informative co-management* is used to describe the situation where the government delegates its authority to resource users who are then responsible for (elements of) the resource and inform the government about their management decisions (Sen & Nielsen, 1996).

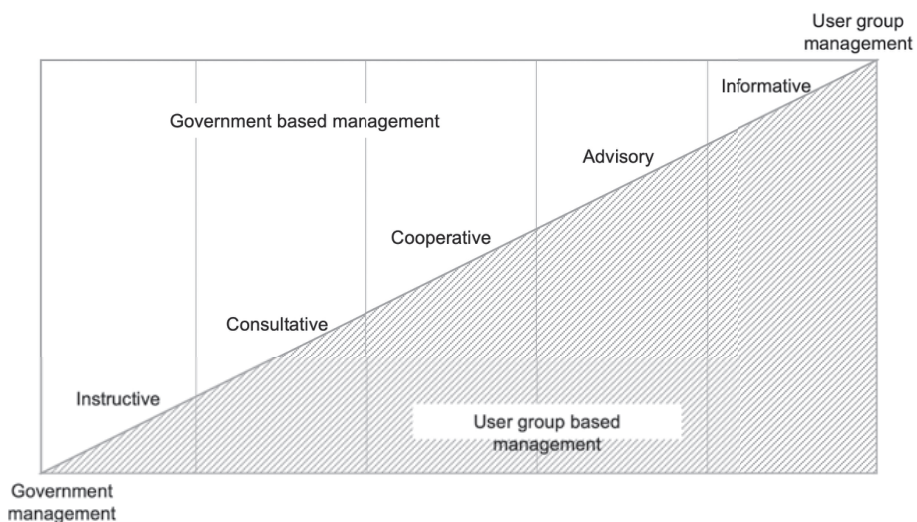


Figure 32. Range of co-management arrangements categorized by Sen & Nielsen (1996) (Original figure adapted from McCay 1993 and Berkes 1994).

Co-management has been argued to be effective for small scale, low value, artisanal, fisheries as it can address the shortcomings associated with governing from a single institutional level alone. Because co-management is a participatory management model in which multiple resource users are actively involved, it is able to develop measures that cater to multiple needs (i.e., biological, social, and economic) related to fisheries, the marine resource, and its users (Costanza, et al., 1998; Gutiérrez, Hilborn, & Defeo, 2011; Jentof, 1989; Pinkerton, 1989). This, in turn, can also result in more equally shared (economic) benefits between the involved stakeholders (Finkbeiner & Basurto, 2015; Tietze, 2016; d'Armengol et al, 2018; Oldekop, Holmes, Harris & Evans, 2016; Pomeroy & Williams, 1994). Wiederkehr, Berghöfer and Otsuki (2019) used the adapted version of the principles from Pomeroy, Katon and Harkes (2003) to assess their proactive guiding abilities for fisheries co-management programs. Wiederkehr, Berghöfer and Otsuki (2019) concluded that while the eleven principles as formulated by Pomeroy and Williams (1994; see Appendix G) were applicable, they lacked a key element, namely the availability of sufficient, fair, transparent, and adequate financing. Hence, I added this additional element to the eleven principles and included it in my analysis of Bonaire's fishery co-management program in the current chapter. The definitions of these twelve principles are presented in Appendix G.

Studies using the principles have critiqued the incompleteness of these principles, which is greatly influenced by characteristics of the resource and the specific context (Cox, Arnold & Villamayor Tomás, 2010; Baggio et al., 2016). Consequently, scholars have refined and adjusted the principles, creating differing variants of Ostrom's design principles. The guidelines were also adapted and specified for (small scale) fisheries co-

management (Serafini, Medeiros & Andriquetto-Filho, 2017; Wiederkehr, Berghöfer & Otsuki, 2019; Trimble & Berkes, 2015; Levine & Richmond, 2015). The CPR principles I have presented did not guide the data collection process I described in Chapter 5 but I did use them as an analytic tool for the purpose of gaining a deeper understanding of the environmental management struggles present in the Caribbean Netherlands. Thus, my objective was not to conduct an exhaustive analysis of the compliance with the design principles in Bonaire's fisheries, but rather to use the principles as a tool to shed light on the opportunities and barriers for effective fisheries co-management

Co-management is believed to have many advantages, including, but not limited to, enabling more inclusive and transparent decision making processes, more effective collective action and conflict resolution through the inclusion of relevant fishery stakeholders, more support and compliance with management measures, reduced management costs, and increased sensitivity to local realities and conditions which can, thereby, lead to the development and adequate implementation of fitting, supported, credible measures (Berkes, 2009; Evans, Cherrett & Pemsal, 2011; Gutiérrez, Hilborn & Defeo, 2011; Pomeroy & Williams, 1994).

While there are many forms of co-management and, indeed, as became evident in Chapter 4, some co-management strategies had already taken place on Bonaire, specifically the delegation of management of the national marine park to STINAPA, one particular approach was believed to be crucial for breaking the impasse of ineffective fisheries management on Bonaire. This was the inclusion of the fishers in management efforts by means of a fisheries cooperative. There are numerous reasons why fisheries cooperatives or organizations can more efficiently facilitate fishers' participation than approaches that focus on the individual fishers in fishery management efforts. Pollnac (1994), for example, identified four main reasons, namely: 1) it eases the coordination of meetings to discuss management matters; 2) working with smaller representative groups increases the chances of achieving agreement on management decisions; 3) it can create fairer representation for individuals affected by the proposed changes, as organizations can help effectively represent the less privileged and educated groups; and lastly; 4) it reduces the pressure placed on individual participants as organizations are often better able to defend themselves against (il)legal threats. While numerous researchers have provided evidence for the effectiveness of fishers' cooperatives or organizations as facilitators for fishers' inclusion in fishery management (McCay, 1980; Berkes, 1986; Jentof, 1989; Bailey & Jentof, 1990), it has also been stressed that the existence of cooperatives does not guarantee successful co-management. The latter depends greatly on the effectiveness and the success of the cooperative and the cooperation among fishers. Or as Pollnac (1994) stated: "... the mere existence of a cooperative does not guarantee either successful cooperation among fishers or successful co-management. It could, however, be a beginning as well as influence members' willingness to manage the resource" (p. 101-102).

The awareness of the value of co-management to small-scale fisheries and the acknowledgement of the fact that fishers had been insufficiently heard and involved as active stakeholders in fisheries management efforts on Bonaire, led to the strong belief among (mostly Dutch) experts and institutions on Bonaire who strive for sustainable fisheries that the missing link to effective management was the inclusion of the fishers themselves. Moreover, learning from past experiences, it was argued that fishers should be included in an organized form and not individually. Past efforts to collaborate with fishers had shown that if fishers were approached and included individually, other fishers would argue that the collaborating fisher did not represent all of the fishers, and, furthermore, it has been seen that there were also reputational concerns for the fisher, as my discussions in the first section of this dissertation illustrated. For example, it has been the case that a fisher who closely and actively collaborated with STINAPA or the government would be called a traitor by the fishing community. I encountered this at the very beginning of my fieldwork on Bonaire when I was introduced to a well-known fisherman at the cultural market at *Magazina di Rei*. He came from a long line of fishers — both sides of his family had been involved in fisheries activities for many generations. He, himself, had noticed the decline in fish stocks and size over the years and had collaborated with the government and STINAPA in the past to bring more awareness among the fishers about this issue. When I asked him if he was interested in starting a fishery cooperative on Bonaire, he made it very clear that even though he supported the idea he personally did not want to be involved anymore. He shared with me that he was not trusted anymore among the fishers, that they said he sided too much with STINAPA, and that it would be unwise for me to include him in the process. This is a perfect illustration of the dynamics at play in small-scale insular societies.

6.3 METHODS

In the current chapter, I describe the process of the establishment of the fisheries cooperative PISKABON and the cooperative's journey to becoming an equal co-management partner for Bonaire's fisheries sector. Through my description of this journey, and the struggles the fishers involved in the cooperative faced, I will highlight how and why merely having a fisheries cooperative is not sufficient for the elimination of all institutional, physical, and/or psychological barriers involved in fisheries management. I helped to establish and closely and formally worked with PISKABON on Bonaire from October 2017 through January 2018 at the request of WWF-NL. However, I continued to provide weekly voluntary support to PISKABON for the remainder of 2018 and the beginning of 2019.

The establishment of the fisheries cooperative was through a so-called participatory action research approach (Stringer, 2013). This means that the researcher observes a situation and/or identifies a problem, comes up with a way to change the situation or

solve the problem, implements this solution, and evaluates the new situation. This cycle repeats for the duration of the project (illustrated in Figure 33).

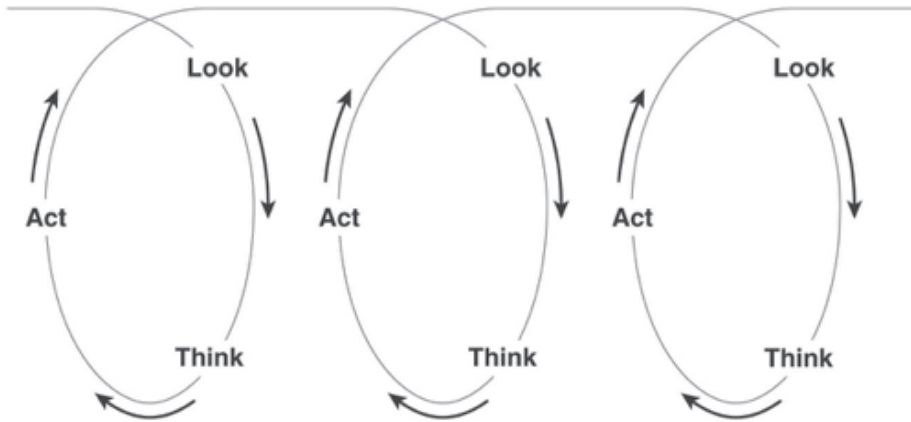


Figure 33. Action Research Interacting Spiral (Stringer, 2007).

Aware of the need to include fishers in the management of the sector, my action research focused on setting up a fisheries cooperative. I chose this approach based on the literature review and insights derived from the preliminary interviews. Initially the intervention was aimed at organizing a meeting with fishers in order to involve them in fisheries management practices. Because the desire for a fisheries cooperative was expressed by various stakeholders, including the fishers themselves, I decided to shift my focus to helping the fishers establish a fisheries cooperative.

I chose this approach for several reasons. First, researchers who conducted research on fisheries on Bonaire in the past shared that fishers, in particular, place little value on research and extensive interviews as they feel that these have little effect or impact on improving the sector. Instead, fishers expressed a need for “real” action in order to improve the sector. Second, having a fisheries cooperative in the view of WWF-NL as well as of other local fisheries stakeholders, is essential to ensure the proper representation of fishers as a group in fisheries management decisions and discussions. Third, several attempts had been made in the past to set up a fishery cooperative but had been unsuccessful thus far. Thus, it was crucial to find out in what manner the fishers could be effectively organized. Lastly, working closely with the fishers and, particularly, the Board of the cooperative would give me in-depth insights into the bottlenecks facing the sector and create for me the opportunity to experiment with solutions for achieving a management climate in which the fishers are structurally and equally involved.

In addition to this participatory action research, I conducted interviews with 27 experts and twelve fishers. The experts include local and national government representatives, and ENGO representatives, and they were consulted both for explorative purposes

and to enhance data triangulation. In Table 14 I present an overview of the number of interviews held with the different stakeholders concerned with, or affected by, fisheries management on Bonaire. Interviews focused on several topics, including the importance of Bonaire's fishery sector to the island, views on past, current, and planned management efforts for the sector, and the roles and responsibilities of the various marine resource users regarding its management. Thirty-two of the interviewees were male and seven were female. All key informants referred to in the following chapter have been given a pseudonym to safeguard their anonymity.

Table 14. Stakeholder interview sample: overview.

Stakeholder level / Representatives	Number of interviews
National government	2
Island government	8
ENGO representatives: park managers, rangers & scientists	12
Fishers: commercial & recreational	12
Other: private sector, consultancies	5

6.4 CO-MANAGEMENT OF FISHERIES THROUGH A FISHERIES COOPERATIVE: THE ESTABLISHMENT OF PISKABON

Before delving into the analysis of Bonaire's fishery co-management strategy and its effectiveness and the concomitant implications for natural resource management in the Caribbean Netherlands, I will describe two crucial events during my fieldwork on Bonaire. The first event revolves around one evening at the very beginning of my fieldwork. This was the first general member meeting during which the fishing community needed to support the plans for establishing a cooperative and vote for a Board to represent Bonaire's fishers in fishery management and development activities through the cooperative. I will describe the events of the evening of the general member meeting in detail. The second event was not actually one specific event and took place over a prolonged period of time. I will describe the various events taking place during the months leading up to the moment when the newly established cooperative received a subsidy granted by the Ministry of Agriculture, Livestock and Food Quality (Ministry of LNV).

Both events exemplify the important social and political challenges Bonaire faces when it comes to fisheries co-management; specifically, fisheries co-management in the form of collaboration between the government and the fishers through a fishery cooperative. As I was closely involved in both these trajectories with the Board members of PISKABON, both events are shared from my perspective of, and experience with, the fishers. While my participation allowed me to experience the challenges and figure

out ways to overcome these, it also impeded me from viewing the happenings from the perspective of other key stakeholders, particularly from the government's perspective.

6.4.1 The First Member Meeting

A couple of days after my introduction to the fishers at the pier in Kralendijk, a meeting was organized with a carefully selected group of fishers at a fish restaurant run by a former cooperative Board member. The group was comprised of three commercial professional fishers, two of whom fished part-time and one who fished full-time. In addition, there were two recreational fishers. During this meeting I introduced myself and my reasons for being on Bonaire. I explained that I was asked by WWF-NL to assist them with a study on the social bottlenecks of fishery management on Bonaire and that I was conducting this study as an independent researcher. Moreover, I stated that I would be present on Bonaire for a period of three months and that I would be available to assist the fishers with establishing a cooperative if they desired one.

Once the five fishermen met up with each other and decided they would take on the challenge of re-establishing a fisheries cooperative on Bonaire, we only had a couple of days to make all the necessary arrangements for a first general member meeting. This meeting was crucial because it was here that it would be officially decided whether or not the fishing community was in favor of having a cooperative to represent them, whether or not they, as individuals, were willing to become a member of cooperative, and if the fishers who volunteered to become Board members would be approved of by the rest of the group.

Using past experiences and all the advice I could collect from previous cooperative initiators; I went to work. I wrote and printed personal invitations for all commercial boat owning fishers, and these were personally delivered to the fishers by Pedro, one of the fishermen who offered to become the president of the cooperative. A neutral, low key, and familiar spot was chosen to hold the gathering and catering and drinks were arranged. On the day of the meeting, I made a PowerPoint presentation for the spokesperson and vice-president of the still to-be-elected Board members. I made this PowerPoint presentation the morning of the general member meeting when it occurred to me that having some visuals would help structure the meeting. Using the minutes of the meeting we had held with the aspiring Board members a couple of days before, I quickly made a couple of slides which included a slide that laid out the goal of PISKABON and the importance of having a fishery cooperative, a slide presenting the membership guidelines, a slide to present the aspiring Board members, a slide presenting a logo, and, lastly, a slide briefly presenting the planned next steps for the newly established cooperative. While it felt a bit strange that I made the presentation by myself, there was no time to do it any other way, and I felt confident enough to make a simple presentation based on the meeting I had already had with the Board. For me, it felt as if I were merely summarizing and structuring what they had already shared with me. About fifteen

minutes before the meeting started, I quickly showed the slides to the spokesperson and luckily, he was happy with the presentation and easily made use of it during the meeting.

In addition to making the presentation I arranged a beamer, a laptop, and arranged for all other logistical necessities to ensure that the gathering would run smoothly. We also invited the island Lieutenant (Lt.) Governor to show the fishers that the government supported the establishment of the cooperative. Moreover, we knew the Lt. Governor had a strong affinity with fishing and for the fishing community. Lastly, there was one final secret weapon used to entice the fishers: the promise of receiving funding to buy and install a series of Fish Aggregating Devices (F.A.D.s) from the Ministry of LNV. This time the F.A.D.s would be built according to the latest technological developments which had been tried and tested and thus had a higher guarantee for success than had the previous ones used on the island.

As the hour of the meeting approached and all chairs and presentations were in place, the tension was building, and nerves were clearly visible. I was not the only one who felt this tension. The prospective Board members felt it too. Would the fishers even show up? What state would they be in? Would they support the initiative, or would they boo us out of the room? One prospective Board member, Willem, was the most visibly nervous. Willem worked as both a commercial fisher and with commercial recreational fishers, the latter as an employee of one of the larger fishing charter services of Bonaire. Right before the meeting started Willem shared some of his concerns with me. He was not sure if any fishers would show up. He had been to several fisher folk meetings in the past and could only recall the heated debates during these past gatherings. A few days before the meeting, he also shared with me that he had little faith in Pedro's ability and reliability to even be the president of the cooperative. When I asked him if he would rather be the president, he stated that "I did not want to be the only white, Dutch guy in the group and then also take the lead. I had to work hard enough for my status as a true Bonairean fisherman as is". Being raised on the island from a very young age helped his status and reputation, as did the fact that he almost solely spoke Papiamentu. He had learned the fishing trade from the best-known fishers on the island as a boy, and he also had a local partner. However, all of this did not change the color of his skin.

Despite these concerns, a large number of fishers ended up attending the meeting. These were primarily boat owners who also fished themselves, or boat owners who had other fishers who would do the actual fishing for them on their boats (see the boat owner agreement as described in Chapter 5). These boat owners were a specific target group for the evening, as they tend to have more weight in the fishing community due to their ownership of the boats making them the ones who concretely provide work for the fishing community. Hence, it was reasoned that if this group would be willing to support the idea of a fisheries cooperative and the prospective Board members, the rest of the fishing community would very likely follow.



Figure 34. Opening the first official general member meeting with the goal of choosing the Board members for the fisheries cooperative PISKABON (Credits: Arjan de Groene).

I opened the gathering in Papiamentu, welcomed the fishers, and briefly shared the program with the attendees (Figure 34). This was followed by a warm welcome from the Lt. Governor, who also expressed how happy he was to see so many fishers present. He stressed that the government that he whole-heartedly supported this gathering and that he hoped the meeting would be fruitful and lead to great developments for the fishers in the future. Next, the aspiring spokesperson and vice-president of the cooperative took the floor. It became immediately clear that he had a way with words and could present quite well. Even though he is not a commercial fisher or boat owner — he is in fact a police officer by day — he does fish recreationally, is from a long established Bonairean family, and has years of experience on the boards of various associations. He explained to the attendees how important it was that the fishers join forces and organize themselves through a cooperative. He strategically avoided lingering on the topic of past failures in terms of organizing the fishers and their (lack of) involvement in management efforts. As soon as he noticed the fishers becoming a bit restless, he guided the discussion back towards the future. This was followed by the request for members to sign up to become a member because a cooperative could not be formed without members. I prepared a simple form for the fishers to fill out through which they could become a member. On the form fishers had to share their name, address, email address, phone number, as well as some information about their boats so that I could get an indication of the types of fishers PISKABON would be representing. This was the moment I was confronted with the reality that many fishers are illiterate, in particular the older generation of fishers. Many fishers required assistance with filling out the form, most fishers did not have

an email address, and some were only just able to put down a simple signature. That evening, a total of 20 fishers signed up to become a member of the cooperative.

This was followed by the most crucial moment of the evening: would the new members approve of the nominated Board members and supervisory Board? The spokesperson introduced all the candidates and their respective function on the Board. It would be an all-male group, each Board member representing a different type of fisher, each member with his own set of skills, experience, and network. Prior to the meeting, I had discussed this moment of voting with the aspiring Board members, as well as with several of their shadow advisors. This would be the first of many formalities required to properly establish the cooperative, but this was one of the most important ones. Since the earlier failed attempts at establishing a cooperative in the early 1990s and 2000s, it had taken years for fishers to once again be willing to make a new attempt to do so. While efforts were made many times by various community members, the biggest struggle had been to find fishers who would be willing to take a seat on the Board, and for the Board to be approved of by the fishing community. No one was ready to take the risk of failing and hence harming their own reputation along the way.

I later learned that the main reason the aspiring Board members were willing to take on the challenge this time around was because of the promise I made to assist and guide them along the way. The vice-president even openly expressed to me and other stakeholders that the only reason he accepted the challenge was because he felt I would be able to help them. In addition, several developments on the island that directly affected the fishers worked as an important incentive to make an effort once more. A few weeks before the Board members were approached, the public entity and STINAPA informed restaurants and hotels (the biggest customers for professional fishers) that they were no longer allowed to buy a list of protected species from fishers. This had a direct impact on the fishers' market, and they were angry. This regulation had direct consequences for the income and fishing habits of the fishers. Moreover, the fishers felt it was unclear which fish species were no longer allowed to be caught (i.e., there exists disagreement on the names of certain species of fish) and why these fish are protected. Second, the Ministry of Agriculture, Nature and Food Quality agreed to subsidize a project for the fishers (F.A.D.s) that would immediately improve the fishing conditions of the fishers. The fishers were promised a sum of 20,000 euros from the Ministry of Agriculture, Nature and Food Quality if they were able to formally organize themselves. Most fishers were aware of the success of these devices because the local governmental department responsible for fisheries (LVV) had placed several F.A.D.s in the past. Considering their declining catches, the placement of F.A.D.s could lead to significant catch increase and a resulting improvement in their income.

Then the moment arrived for the spokesperson to present the question to the attendees: Do they agree with the nominated Board members? After a brief silence two of the

elder fishermen raised their hands and voted yes. Their assent was quickly followed by a younger fisherman who stated: “Well, I think they just spoke for us all” after which all hands were raised (Figure 35).



Figure 35. The crucial moment: the brand-new members vote for the nominated fishers to form the new Board of PISKABON (Credits: Arjan de Groene).

After this successful moment, the brand-new members and Board were given the opportunity to choose the logo for PISKABON. Some pictures of the new Board members were taken, and they were congratulated. The plans for the coming months were discussed and this was followed by celebratory drinks and snacks afterwards. That all fishers and organizers of the meeting were relieved and happy was very clear, as was the realization that the actual work had only just begun.

6.4.2 Luring In Fish and Fishers: The F.A.D. Project.

While the first big hurdle of choosing the Board was an important one that was overcome, this was to no extent a guarantee for the success of the cooperative. This became clear very quickly in the weeks after this meeting. The day after the Board was chosen by the new members of the co-operative, I informed the national government, specifically the policy workers responsible for the fishery sector of Bonaire (and Saba and Sint Eustatius), about this accomplishment. Not even a week later, one of the Board members (hereafter called James) received a letter from the Ministry requesting that he submit a formal project proposal for the execution of the promised F.A.D. project. I later learned that

James had been working with the Ministry for several years to realize the F.A.D. project.³⁵ It was thus not surprising that the request for the proposal was sent so speedily. As all proposals submitted to the national government do, this proposal had to meet a series of requirements (i.e., detailed description of the approach, budget, of risks, planning, reporting obligations, and of the experts responsible for the execution). In addition, the proposal was required to report the official name of the cooperative according to its registration at the Chamber of Commerce, the Chamber of Commerce registration number, and bank account information. All of this had to be submitted to the Ministry within one week. Writing the proposal itself required some time, however this was not the biggest challenge. I agreed with the Board that I would take on the writing of the proposal in close collaboration with James who had done extensive research on the F.A.D.s and who was deemed to be the island F.A.D. expert.

This time the real challenge was to formally establish the cooperative within a time span of one week. Forms had to be filled in, paperwork and signatures had to be collected, and invoices had to be paid. To open a bank account, the Board had to be registered at the Chamber of Commerce and was required to have a business plan and bylaws, Board members required a bank reference, and all addresses had to be verified. For the registration at the Chamber of Commerce, all Board members had to be (financially) cleared and official notary approved by-laws were required. While the Board already had a concept version of by-laws, these still had to be adapted to the wishes of PISKABON and finalized at the notary. Moreover, while the Board members were not illiterate, the by-laws were written in Dutch and used a lot of complex legal jargon, whereas the language of most of the fishers is Papiamentu. Even if the Board members took the time to read the by-laws, the chances of them understanding what was written was very small. Moreover, all these activities required funding, meaning that the Board members were required to personally fund all these costs. Determined to receive the funding, we worked tirelessly to get all the paperwork done. We were just able to manage it due to the collective effort of the Board, the high sense of urgency, my assistance in all practical matters which reduced the bureaucratic barriers for the fishers — including paying invoices whenever required — expenses which ended up being reimbursed by WWF-NL — and by fully utilizing the personal network and connections of the (supervisory) Board within all the institutions³⁶. Because of the personal network of the Board members exceptions were made by the institutions which made it possible for the cooperative to temporarily meet the minimum requirements for all the paperwork — the finalized documents required additional paperwork and signatures which could be arranged at

35 He was also one of the recreational fishermen who attempted to establish a cooperative several years before my arrival. However, his attempts failed as the approach was business oriented with the primary goal to increase his personal revenue and not to represent the fishers of Bonaire. Consequently, he did not manage to gather a group of fishers willing to form the Board of the cooperative as they felt his intentions were questionable.

36 These institutions include the the bank, the Chamber of Commerce, and notary. In Figure 36 I present an overview of the assistance I provided during my fieldwork.

a later date. In addition, we received assistance from the locally based policy advisors working for the Ministry who reviewed the written proposal before its official submission to ensure we did not omit any crucial information.

Another perceived hurdle was overcome by the Board members once the proposal was submitted. Just a couple of days afterwards, we received an email response from the Ministry that the cooperative would only receive the money if they would agree with a set of collaboration agreements, including monthly monitoring and reporting of catch landings by the fishers. Initially, only James was aware of these conditions, but he did not discuss them with the Board as the focus was to complete the formalization of the cooperative so the proposal could be submitted before the stated deadline. When the Ministry of LNV learned about my assistance to the Board, I was included in later email correspondence with the Ministry of LNV, as well, in which I was made aware of the conditions stipulated. Although these agreements seemed reasonable, the Board members were unaware of these conditions and James ignored my requests to inform and include the remaining Board members in this process as he felt the conditions stipulated by the Ministry were more than reasonable.

However, when I received yet another email from the Ministry of LNV in which more conditions for the execution of the F.A.D. project (i.e. closely collaborate with STINAPA regarding the collection of other fishery related data surrounding the F.A.D.s and the phased introduction of circle hooks) and proposing to organize meetings with the fishers during the upcoming visit of the policy officer responsible for Bonaire's fisheries in little over a week, I decided to no longer wait on James but to inform the remaining Board members myself. I carefully presented and explained the conditions, stressing that we could still discuss these with the Ministry.³⁷ At first it seemed as though they took this well, however, later that evening during the Board meeting it became obvious the Board members were furious. They were angry at James that he did not inform them about this beforehand and angry at the government for trying to trick them into making these agreements. Another member also started to express his concerns regarding me, questioning my integrity and honesty towards the fishers. After much debating and cursing the group settled down and apologies were made by the Board members for lashing out at James, and by James towards the Board for withholding crucial information regarding the F.A.D. project.

In subsequent conversations with the Board, they confided in me that they already expected something like this to happen. They stated that the government cannot be trusted, and that they always try to trick you in situations. Eventually the Board decided they did not object to some form of collaboration, however the general sentiment was

37 A different type of fishing hook that reduces the chance of by-catch but also requires different fishing techniques.

that the presented preconditions were made unilaterally without consultation with the fishers. Consequently, all Board members were concerned with notifying the members of the cooperative about these preconditions. They shared that they would only be willing to work with the Ministry if this happened in a transparent way and on an equal basis. If not, they would retreat from all requests for collaboration.

Despite the Ministry’s hesitation in withdrawing the preconditions, the policy workers at the Ministry of LNV responsible for fisheries management in the Caribbean Netherlands were eager to formalize the collaboration. After several discussions with the policy workers during their visit to Bonaire, the fishers were able to come to a new agreement with the government which they felt was more feasible: they would receive (financial) assistance from the Ministry to hire an expert to develop a F.A.D. management plan together with the Board of PISKABON. This plan would contain clear agreements on the use of the F.A.D.s (including agreements on monitoring, data collection, and evaluations on the effectiveness of the F.A.D.s to be carried out by PISKABON) (F.A.D. Management Plan PISKABON, 2018; *Jaarverslag PISKABON*, 2018). This plan was finalized in November of 2018. The policy workers of the Ministry of LNV also agreed to finance the purchase of an ice machine for the cooperative so the expected increased catch due to the F.A.D.s could be handled and stored properly by the fishers.

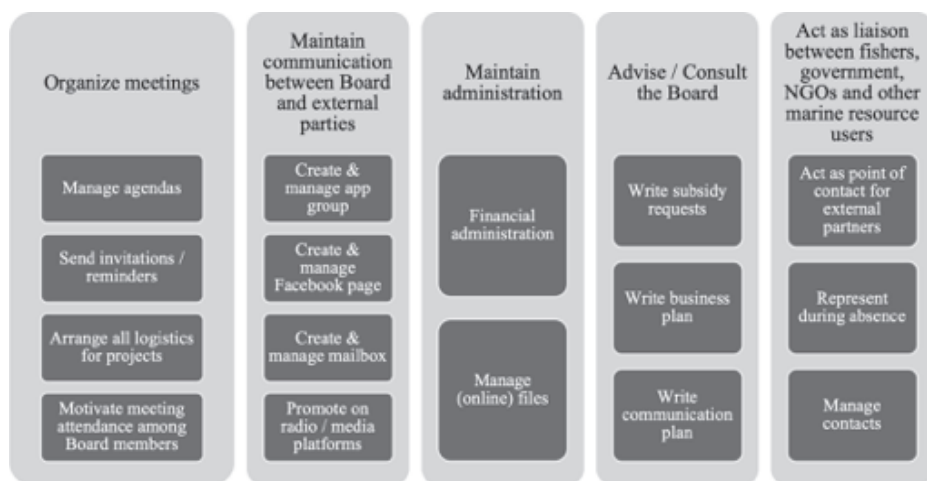


Figure 36. Overview of my assistance required for PISKABON establishment and management.

For a while it seemed that all the arrangements with the Ministry of LNV were finalized. However, the cooperative still had to formalize them: complete the development of a business plan, finalize the by-laws, and activate their bank account. It was also important to find someone to replace my assistance to the Board members, as my time on Bonaire was coming to an end. Despite my efforts to make all the arrangements for the cooperative’s formal establishment, we were not able to complete this task. In addition to these arrangements, I focused on setting up introductory meetings with

representatives of the public entity of Bonaire. The aim of these meetings was to come up with some kind of agreement between the public entity and PISKABON through which PISKABON would receive financial compensation for their start-up costs, receive funding to take on a series of projects the government had failed to execute (i.e., repair of piers, construction of a slipway) and to fund the necessary assistance to and for the Board.³⁸ Despite the many meetings, with the exception of some vague promises, no concrete agreements were realized with the public entity.

From the very first meeting I had with the Board members of PISKABON and all the other involved parties, I had made it clear that my time on Bonaire was limited. I would be on the island for three months, and there was no possibility for me to extend my stay as I had other obligations to attend to. Everyone I spoke to was concerned with this from the outset, stating that even if I would be able to book some progress this would all come crumbling down with my departure. While I acknowledged this concern, I was also stubborn and did not want to let these risks keep me from trying to achieve as much as possible with the fishers while I was there. My goal was to build as solid a foundation as possible so that the incentive to stop would be minimal despite my departure. In addition, I asked around — both to the Board and other community members — if anyone knew of someone on the island who could possibly replace my support. Again, I was confronted with the small scale of the island which this time translated itself into the apparent absence of individuals who would be suited to serve as my replacement. As the day of my departure from Bonaire, and thus my assistance to PISKABON, neared the urgency to find someone on the island to assist the Board intensified. Eventually, I was introduced to one of the fishermen's wives and I decided to ask her if she would be willing to provide some assistance to the group in terms of writing minutes, making appointments, and managing their email inbox. She was interested and we had several meetings together during which we went over all the procedures, to-do lists, and different tasks I had taken on. While her willingness was there, it was also clear that the extent to which she could be available to PISKABON was limited because she also had three children to take care of, wanted to invest in her own coaching enterprise and, most importantly, did not have any experience with administrative or secretarial work. To provide some additional support to the cooperative in order to assure the continuation of its existence without my assistance, WWF-NL offered to make one of their locally based consultants available to assist the Board, however, the Board did not feel such a close and direct collaboration with the respective consultant would be a good idea. They felt they would not be able to justify this within the fishing community. Moreover, they did not feel that the consultant would be a trustworthy partner based on experiences they had had with him in the past. Despite the pleas of the Board, the Ministry of LNV argued that they would not be able to make funds available for an assistant for PISKABON as it was not

38 Also known as a boat ramp or launch or boat deployer, which is a ramp on the shore by which boats can be moved to and from the water.

at all customary for the Ministry to directly fund an assistant for such an organization. The Ministry explained they were only able to make funding available for concrete, co-management related projects such as the completion of a strategic plan for the Board³⁹.

Several months after my departure I noticed that the activities of the cooperative had lessened considerably and that they were running the risk of losing the subsidy for the F.A.D.s.⁴⁰ It turned out that the formal agreement PISKABON had made with the Ministry was that they would take care of all expenses to be made for the construction and deployment of the F.A.D.s which they could then get reimbursed for with after presenting the invoices from the Ministry. However, PISKABON did not possess any capital, hence this agreement was not in any way feasible. Because of this confusion, the project was delayed and frustrations on both sides were high. Once I noticed this development (the first couple of months after my departure I attempted to take some distance from the cooperative), I decided to step in and offer my assistance — this time digitally. After a series of emails, calls, discussions, clarifications, and apologies for misunderstandings, the Board was now able to complete their formal establishment and they received the first part of the subsidy in their bank account in October of 2018. In addition, the deadline for completion was extended with another year.

In addition to these activities, PISKABON made many efforts to secure their reputation and right to exist among their members and the (fishers) community of Bonaire. Responding to requests from the fishers, PISKABON managed to put the already legally in place exemption from import taxes for imported goods for professional, commercial fishers into practice. The President and spokesman of the cooperative gave a series of radio interviews, some in collaboration with representatives of the local ENGO STINAPA, to share their position on issues and to bring attention to their work with the community, as well to demonstrate their willingness to collaborate with organizations such as STINAPA to manage the fishery in a way that was beneficial to all parties.

Meanwhile, WWF-NL offered to help PISKABON recruit and finance a manager to the Board to aid with the daily execution of their work. At first, the Board was hesitant to accept this offer as they feared the proposed conditions of WWF-NL for receiving the funds (i.e., regularly reporting their progress to WWF-NL) and they did not like the title of “manager” that WWF-NL had suggested for the position. The Board feared that they would lose authority and control if they would hire a so-called “manager”. Nor were they keen on the stipulation that they report their progress to WWF-NL, again feeling that this would create a too close collaboration with an organization that, from

39 Which they did. In April of 2018, PISKABON received the assistance of an expert to develop a strategic plan. Weekly Skype meetings were arranged between the expert, the president of the cooperative, and myself to develop the strategic plan. In November of 2018, the expert visited Bonaire for a series of meetings with PISKABON and the completion of the strategic plan. The plan was completed in January of 2019.

40 I still was part of the WhatsApp group I made for the cooperative and had access to their email account.

their perspective, had interests in the shared marine resources that differed too greatly from the interests of the fishers. After months of negotiation, WWF-NL and PISKABON came to terms and PISKABON accepted a new offer from WWF-NL: Six months' worth of funding for a secretary to the Board. By January 2019, PISKABON had managed to make the following steps (since their establishment in October 2017):

- Register at the Chamber of Commerce;
- Open and activate a bank account;
- Finalize their by-laws;
- Recruit new Board members;
- Organize two general member meetings (October 2017; November 2018);
- Develop and finalize their strategic plan through ministerial subsidies;
- Purchase an ice machine and materials for the construction and installment of six F.A.D.s by means of ministerial subsidies;
- Develop a F.A.D. management plan with the help of ministerial subsidies;
- Submit a formal request at the public entity for the establishment of co-management agreements;
- Arrange import tax exemptions for the fishers;
- Attend and participate in the Gulf and Caribbean Fisheries Institute (GCFI)⁴¹ fisheries conference together with representatives of STINAPA;
- Recruit paid part-time assistance for the Board of PISKABON through WWF-NL sponsorship.

In sum, it has been and still is a challenging journey for PISKABON and their adoption of co-management practices for Bonaire fisheries. While the establishment of PISKABON was clearly desired and vocally encouraged by all stakeholders, actually realizing the cooperative proved to be far more complicated than initially anticipated. In the following section I analyze these events in depth.

6.5 FINDINGS

While the establishment of PISKABON was clearly desired and vocally encouraged by the government and other stakeholders, my narrative in the previous section vividly illustrates that realizing the establishment of a cooperative is very challenging and requires a lot of guidance. Based on earlier attempts to establish a fishery cooperative on Bonaire and my experience and work with the fishers I can safely conclude that this is

41 A regional fisheries conference focused on applying fisheries and marine science to solving problems by bringing multiple users of ocean resources together to make informed and coordinated decisions for the sustainable use of these resources. Addressing the issues of connectivity, fisheries management, conservation, and related issues at GCFI will aid in addressing critical marine resource issues within the wider Caribbean Region.

not something the fishers are willing to achieve on their own as there are many barriers present that inhibit this process. To answer my first sub question, namely: *what challenges did the fisheries cooperative encounter during its establishment and involvement in co-management efforts of Bonaire's fishery sector?* I make a distinction between two types of mutually reinforcing barriers. Namely, structural or practical barriers and psychological or emotional barriers. I will first discuss the practical barriers and their implications and then move on to the psychological or emotional barriers. Next, I will address my second sub question by identifying the management challenges the existence of PISKABON helped resolve.

6.5.1 Practical Barriers

Availability of Adequate, Trusted Long-term Assistance

A first major practical barrier that is clearly evident is the necessity of adequate, trusted, and long-term assistance for the fishers to achieve co-management through a fishery cooperative. In Figure 36 I present an overview of all the support I provided to the cooperative and the kind of support the cooperative required long after my departure. In fact, the cooperative ran the risk of losing all its gains once I left the island and stopped my assistance. They were able to recover from this once I decided to keep assisting them from a distance until they were able to find an adequate replacement. I specifically state that this assistance needs to be adequate and trusted as PISKABON proved to be very reluctant to accept help from WWF-NL or other individuals who made themselves available to assist after my departure. This shows that the fishers do not accept just any person to provide them with assistance. To gain trust, tireless communication and transparency proved to be key. Keeping all parties, particularly the Board members, informed about the latest developments was crucial to ensure a sense of fairness and understanding among the fishers and, therefore, in the overall process of achieving co-management of the fisheries sector. Putting in the time and effort by doing what had to be done not only helped to build trust among the fishers, but also helped other stakeholders to gain confidence in the possible success of a fisheries cooperative. Lastly, the assistance needs to be long-term considering the inevitable lengthy process of realizing effective modes of co-management in which fishers are included.

Volunteering Board Members

Currently, the fisheries cooperative is still made up of volunteers with limited time to run a fisheries cooperative. In order to set up a cooperative, fishers are required to volunteer and invest their free time. However, fishers and especially part-time fishers have irregular and very diverse schedules. Fishers do not or cannot always attend organized meetings. Some fishers work all day at sea and have no interest in attending meetings after a long day of work at sea. This makes it difficult to set dates with the fishers and even more so with other stakeholders for collaboration. Lack of action among fishers is often not due to unwillingness, but due to lack of time and resources, including financing and knowledge

of organizational governance. In comparison, the various government officials (both at the level of the Ministry of LNV as well as that of the public entity) and I received payment (in the form of a salary) to achieve co-management of the fisheries sector or to establish the fishery cooperative for the benefit of fishery co-management on Bonaire. This means that other involved stakeholders and I were more motivated to invest the time and energy to work toward improved fishery management than the fishers themselves. The many hours I invested in establishing the cooperative during my months on Bonaire were not at the cost of other responsibilities I had, nor did it affect my income. On the contrary, if I were able to successfully establish a fisheries cooperative, this could have immense benefits to my reputation and create opportunities for my future professional endeavors.

Moreover, co-management has been argued to be a means to reduce the perceived costs of management for the government (Berkes, 2009; Evans, Cherrett & Pems, 2011; Pomeroy & Williams, 1994). While delegating management responsibility to PISKABON at this stage may reduce the costs for the government, considering their voluntary role, the fishers have had no direct financial gain as of yet. Consequently, the benefits of co-management can be questioned by the fishers — in particular by the Board members who are taking on the bulk of the work for the benefit of their members who do not yet (financially) participate (Coglan & Pascoe, 2015).

Language Barriers

While the official language on Bonaire is Dutch, like on Curaçao and Aruba, most local residents speak Papiamentu on a day-to-day basis. This is especially the case among the less educated or lower-class residents. While most fishers have some understanding of the Dutch language, they primarily speak Papiamentu and are thus better able to converse, discuss, and express themselves in Papiamentu. While this is not an issue in their day-to-day lives, this does create a large barrier when having to deal with government officials — in particular those representing the Dutch ministries — and scientists or (foreign) ENGOS. The barrier is even more evident when trying to organize the fishers and create forms of government supported by co-management as this requires fishers to be able to read, understand, and write often complex (or advanced) Dutch texts. For example, when formally establishing a fisheries cooperative, fishers are required to create and approve of the by-laws which are generally written in complex, legal language. Similarly, it is a major challenge for fishers to write government approved proposals to receive subsidies. Another example is that the fishers are required to defend and explain their standpoint and views to the government officials and foreign non-Papiamentu speaking representatives of ENGOS. While fishers can clearly and confidently express their concerns in Papiamentu, expecting them all to do this in Dutch is not realistic and can be argued to be unfair.

Educational and Experience Differences Between Stakeholders

That fishers tend to have a disadvantageous position in organized co-management efforts in terms of their educational level was clearly evident during the first meeting of PISKABON when some fishers were struggling with filling out the membership form. Of course, not all fishers are illiterate — this is mostly the case for the older fishers. However, the educational and experiential disadvantage is visible on many levels. Despite their commitment and enthusiasm, the five fishermen who were willing to take a seat in the Board lacked experience and knowledge about how to run a cooperative. In addition, they lacked knowledge about, and experience with, formal bureaucratic systems, and were consequently confronted with institutional barriers during the establishment of PISKABON (i.e., finalizing the required by-laws, writing a business plan). Related to this, most Board members did not realize the extent of the responsibility they took on when committing to filling a position on the Board of the cooperative. This was something they were confronted with later when they started to gain some sense of the commitment they had taken on later in the process of establishment of the cooperative. This realization tended to demotivate the Board members and this demotivation hindered the speed at which certain actions were taken. This slow pace, in turn, diverged from the pace at which the government and other stakeholders tended to work and the rate at which they expected actions to be completed.

Increased Bureaucracy with a Distant The Hague

A clearly felt practical barrier was that the practical needs on the island level do not fit with the type of support the ministries in The Hague are willing and able to provide. One could argue that prior to 10/10/10 the fishers of Bonaire were required to deal with government officials of the Netherlands Antilles based on Curaçao. While this governmental layer shares similarities with the roles and responsibilities now assigned to the Ministry of LNV (and other Dutch ministries), the fact remains that the central government of the Netherlands Antilles was significantly less distant to Bonaire and its fishers, the procedures were easier to adhere to, and the government of the Netherlands Antilles had more in-depth knowledge and understanding of the local realities than government officials of the Dutch ministries have, in general.

Moreover, while the Ministry of LNV tried to make concessions to the cooperative to simplify procedures and to meet the needs of the fishers, their ability (or willingness) to do so was limited due to rigidity of the Dutch governmental system. For example, for PISKABON to receive a subsidy to make the purchases for the F.A.D.s from the Ministry of LNV, procedures based on Dutch societal standards are required to be followed via online-forms and programs that require certain data or information which is non-existent on Bonaire. These programs (so called *e-facturen*) are not adapted to fit the realities of the island, thereby making it impossible for organizations like PISKABON to follow these required procedures. This further complicates the transfer of approved subsidies to their account. For example, when registering at the Chamber of Commerce,

organizations on Bonaire do not receive a VAT number. Without this number, it is not possible for PISKABON to declare their expenses digitally. Consequently, Dutch policy officers responsible for fisheries on Bonaire were required to facilitate this process administrative process. While the policy officers were willing to assist in this procedure, this does create an extra step and thus a potential barrier for fishers to receive subsidies from Dutch ministries through which co-management practices can be realized. Aside from these technical challenges, the Ministry of LNV is also required to stick to strict financial procedures dictated by the Dutch government. In the case of the collaboration with PISKABON, the terms presented by the Ministry of LNV first were that only expenses which had already been made could be reimbursed (i.e., PISKABON had to hand in paid invoices to the Ministry of LNV and get reimbursed). However, this was not feasible at all as PISKABON did not possess any funds. In response to this, the Ministry of LNV agreed they would make an exception and stated that they would provide PISKABON with the funds based on the invoices of the third-party suppliers. Once PISKABON received the money from the Ministry of LNV, they then would be able to pay the suppliers. This worked for most of the invoices, right up to the final \$5,000 that was allocated to the organization. Upon PISKABON's request for the final funding to pay for the invoices in order to place the F.A.D.s in the water, the Ministry seemingly changed the terms and stated that PISKABON would only receive the remaining funds after completion of the project. As PISKABON still did not possess any funding, this created another battle between the two parties.

Reluctance of the Government to Structurally and Actively Include Fishers in Management Decisions

Even though PISKABON is able to actively lobby the government for proper fisheries management and voice their concerns and demands, this does not guarantee that the fishers will be structurally and actively included in (all) difficult management decisions the government makes.

This reluctance to structurally include the fishers in management procedures was visible in the lack of active participation within the public entity in the establishment of PISKABON. The lack of the public entity of Bonaire's tangible involvement in PISKABON's establishment became especially clear in the months after my departure when PISKABON was still in the phase of securing their credibility among the community. The countless attempts made by PISKABON to receive some funding or assistance from the public entity were ignored or kept being postponed. Ultimately PISKABON has more direct contact with policy workers of the Ministry of LNV through which tangible co-management efforts were realized (i.e., the F.A.D. project) and not with the public entity which is, in theory, the party to responsible for working directly with PISKABON. Specifically, in theory the public entity is supposed to carry out the execution of policy and management plans. Instead, the Ministry of LNV took on this role more directly. The absence of the public entity in this respect proved to be a big issue

especially in the later stages of PISKABON's establishment, when the Ministry of LNV argued that the type and the extent of their assistance to PISKABON was becoming disproportionate to their legally stated role. One reason the public entity gave to explain the lack of their involvement is linked to the factor discussed below.

Unclear Roles and Responsibilities of Fishery Management Stakeholders

Once PISKABON was established, one of the challenges we faced was the ambiguity regarding to what extent which party had the (legal) responsibility to provide assistance to the Board members in their co-management efforts. As the Board members of PISKABON and I set out to receive the resources required to create forms of co-management and a shared responsibility for the management of the fisheries sector, we soon discovered that no civil servant, policy officer, or commissioner was either willing or able to assist the cooperative. Each person we spoke to applauded the establishment of the cooperative, but as soon as we would bring to their attention the topic of collaboration and the requirement of (financial) support from the government, we would be redirected to a new individual at a different office stating that that person either had the authority or the responsibility to provide assistance. At one point we had spoken to all of the individuals to whom we had been referred and our calls and pleas were no longer answered. Where previously these same civil servants, policy officers, and commissioners would argue that the fishers were not eager to collaborate, now it seemed that the various government officials at all levels were no longer willing to cooperate. They accused anyone other than themselves of being directly responsible or blamed other individuals for ignoring their responsibility towards the fisheries sector. Whenever organizations were willing to establish some form of collaboration, the ambiguity of roles and responsibilities inhibited these organizations from making concrete agreements with PISKABON. In sum, the general existing ambiguity of roles and responsibilities between the national government, public entity, and other organizations such as STINAPA and WWF-NL made it difficult for PISKABON to navigate and determine their own role regarding the management of Bonaire's marine environment and fishery.

Limited Availability of Resources: Financial and Human Resources

In terms of budgeting, the general rule is that money can only be spent once. Choices made on how to spend money are strongly affected by the urgency (or priority given to) an issue and who is responsible for certain fisheries management activities. Because the roles and responsibilities for daily fisheries management are unclear and debated, there are disagreements regarding budget allocations. The different fisheries stakeholders argue about what these priorities should be and, in some cases, have even withdrawn from financially fulfilling certain responsibilities. An example of these dynamics would be the ongoing debate about who will pay for fishing harbor maintenance: the Ministry of LNV, the Ministry of I&W, or the public entity of Bonaire?

The perceived urgency of the issues affects the priority given to, and the budget made available to, invest in fisheries management. The limited budget in combination with the perceived lack of urgency for fisheries sector management compared to other sectors results in little-to-no investment being made in the capacity of the organizations concerned with the sector, with the end result being that proper fisheries management remains elusive.

Closely related to the issue of an insufficient budget, all stakeholders, but mainly the government officials and ENGOs, shared with me that there is a lack of capacity (people and knowledge) to meet their organizations' respective roles and responsibilities. The existing personnel of the LVV department of Bonaire, for example, need to be educated and there needs to be more positions within the department in order to be able to develop and implement fisheries policy. Up until now, there have been few investments made in strengthening the LVV department's capacity to deal with the fisheries sector. Lack of capacity is also affected by the small scale of the islands: there is a very limited pool of people readily available and willing to work in the fisheries sector of the islands. This lack of human capital was also evident among the fishers during our search for eligible Board members and for the required administrative support.

Miscommunication and Different points of Departure

Another challenging reality PISKABON was confronted with was the fact that we were dealing with many parties coming from very different backgrounds, which led to a lot of miscommunications and stemmed from, and exacerbated, the existing distrust between the parties. For reference, PISKABON was only just being formed, while WWF-NL, STINAPA, and, more importantly, the Ministry of LNV (all long-standing well-established organizations) had been working on co-management strategies for several years already — including strategies to include the fishers through a cooperative. One clear example of these dynamics at play is the backstory of the F.A.D.s. While I did not fully realize this during my involvement with the fishers on Bonaire at the time, I later learned that the Ministry of LNV had been talking for years (on and off) with several different fishers' representatives about the establishment of a cooperative and the provision of F.A.D.s as a “lure” for setting up a viable cooperative.

This also meant that the specific policy worker responsible for this project had engaged in many conversations regarding the terms and agreements under which the subsidy would be granted. Thus, while these agreements came as a complete surprise to the Board of PISKABON and me in the days after the first general member meeting, several members of the supervisory Board were to some degree long aware of these terms but did not explicitly mention them to the rest of the Board members or myself. Another example is the intensity with which PISKABON was being approached by other stakeholders, for example STINAPA, all of whom were eager to set up some form of collaboration. As the establishment of the cooperative gained a lot of attention in the media and was promoted

among all marine resource stakeholders, the requests for collaboration came pouring in. However, the Board was quite aware of the fact that they were not well equipped to take on a lot of extra work. They generally lacked the knowledge and experience on how to manage a Board, and, moreover, they did not have a clear idea of what the collaboration with other stakeholders could or should look like.

6.5.2 Psychological or Emotional Barriers

Lack of Trust between Fishers and Other Stakeholders

Trust has been identified as an important factor required for co-management success (Kamiyamaa, Miyataa, Ferrer, Kurokurac & Ishikawa, 2018; Vos & Tatenhove, 2011; Ebel, Beitzl, Runnebaum, Alden & Johnson, 2018). The idea that lack of trust inhibits co-management is relatively straightforward: if people do not trust each other, they are very unlikely to collaborate, support each other, or comply with legislation.

The lack of trust among the fishers towards other stakeholders was one of the most evident and destructive factors inhibiting co-management on Bonaire. Fishers generally do not want to be “controlled”. They are often in the profession because of the sense of freedom it provides. Establishing a cooperative with the intention to make management agreements with the government and other resource users is thus perceived by them as a direct threat to this sense of freedom. They feared that organizing themselves and collaborating with nature organizations and/or the government would only make it easier to implement more restrictions, rules, and regulations to their detriment. The requirement presented by the Ministry of LNV to monitor the catches at the F.A.D.s, for example, created a lot of resistance amongst fishers because they were concerned that this monitoring would result in them having to pay (higher) income taxes or limit/prohibit the catch of certain species. Fishers currently do not pay income tax and have never been forced to do so. Consequently, the fishers are unfamiliar with the reasons why paying taxes is important. Nor are they familiar with the bureaucracy around tax payments such as filing tax returns, which requires that some semblance of financial administration had been kept, proper registration of income and expenses had been made, etc. If fishers were now obliged to pay income taxes, this would mean that they would lose their freedom, as they perceived it, and freedom was one of the main reasons why they choose to become fishers in the first place. Even more so, the fishers were distrustful of the government as they felt they had attempted to trick them into making agreements on measures the fishers did not support.

Not only are fishers not always willing to collaborate with other stakeholders, but also not with each other. The previous unsuccessful attempts to establish a fisheries cooperative left the fishers feeling unmotivated and skeptical as to why fisheries management is needed or even desirable. Fishers felt that there were hidden agendas involved and that the previous cooperative had not helped all fishers equally. For instance, there was the

view that Board members would only help their friends and family members in times of need rather than aiding the whole group or that the initiators of the cooperative were primarily guided by personal business endeavors and the desire to make a profit instead of advocating for the interests of all of the fishers. The incident with James not being fully open towards the Board regarding the conditions presented by the Ministry clearly illustrates this distrust, as well. Based on these events it can be concluded that while it is difficult to gain trust, losing it can happen easily.

Power Inequality between Stakeholders

The topic of power among stakeholders concerned with fishery management on Bonaire is an intricate one. On the one hand, it can be concluded that government officials and ENGO representatives have more power as they tend to have completed higher levels of education and possess both the human and financial resources required to take action. In this respect, government officials representing the Ministry of LNV tend to have the highest degree of power in comparison with other stakeholders as they have access to the largest financial resources. Fishers, and thus the Board of PISKABON, have the least power as they tend to experience the largest visible disadvantage in terms of their level of education, experience, and possession of resources compared to government officials or highly educated scientists, for example. Consequently, this tends to place them at a disadvantage when negotiating with the government about management measures.

On the other hand, this disadvantage is compensated for by the fact that all stakeholders are highly dependent on the collaboration of the fishers and thus PISKABON to realize and implement effective co-management measures. The negotiations pertaining the F.A.D. project agreements illustrated this phenomenon nicely. Initially, PISKABON and I were only focused on meeting the requirements of the Ministry of LNV to receive the promised subsidy for the execution of the project. All other obligations and requirements of the fishers were ignored in order for us to meet the stated deadline presented by the Ministry. However, when the fishers later learned about the terms and conditions accompanying the agreement to receive the funding, they threatened to back out of the collaboration completely if adequate changes were not made to these requirements. Not willing to lose this co-management momentum, the Ministry decided to respond to their objections and changed the conditions of the collaboration. Reflecting on this, it seems as though in terms of negotiating co-management on Bonaire, it is not so much a question of there being power inequality but more so a power difference meaning that the different stakeholders possess of a different *type* of power.

Personal and Organizational Reputational Concerns

Reputational concerns affected the willingness of and extent to which individuals were ready to actively engage in co-management efforts, such as instigating collaboration between the different parties. This was visible on an individual level, but also at an organizational level. Clear examples of this barrier were illustrated in the ethnographic

accounts. On the level of the individual, I describe the caution expressed by the one Board member with a Dutch background at the idea of taking on a prominent role on the Board. On a more organizational or group level, this reputational concern was shown in the reluctance of PISKABON to blindly agree to the terms and conditions accompanying the F.A.D. subsidy because they were worried that this could damage their reputation and trust among the fishing community.

Similarly, another example was visible in the reluctance expressed by the cooperative to closely collaborate with — i.e., accept funding from — WWF-NL to support PISKABON in the execution of their daily activities. The factor of reputational concern could also explain the ambivalence of the public entity of Bonaire to financially/materially support and contribute to the establishment of PISKABON. Nevertheless, reputational concern can also have a positive effect. This was somewhat visible in the extent to which the policy workers representing the Ministry of LNV were willing to accommodate and give in to the demands made by PISKABON. Meaning, aware of the strained/conflicted relationship or status/presence of the national Dutch Government/ministries on the island, by choosing to directly financially support the fisher's community of Bonaire the Ministry of LNV was able to improve the relationship, and thus their reputation within the fishers' community and perhaps also the island.

(Perceived) Conflict of Interest

Throughout my fieldwork, stakeholders shared their views about why it is difficult to manage the fisheries sector and proposed solutions on how the sector should be managed. The different views distilled from these interviews illustrate that “Fisheries management is characterized by multiple and conflicting objectives, multiple stakeholders with divergent interests and high levels of uncertainty about the dynamics of the resources being managed” (Smith, Sainsbury & Stevens, 1999; p. 965). For example, fishers focus on their livelihoods, whereas ENGOS focus more on the implications the use of this resource has for the health of the environment (i.e., healthy fish stocks, balanced ecosystems). This perception exists among fishers despite the fact that most ENGOS like WWF-NL currently do consider the livelihood of the resource user as being of equal importance to the resource itself. This shift in priorities has been driven by the fact that if the livelihood is affected, the management of the resource will not be accepted and therefore not implemented. It is important to understand that there is not one “correct” perspective, as a complex social-ecological system cannot be captured using a single point of view (Berkes, 2009; Röckmann et al., 2015). However, looking at the different perspectives does illustrate where the stakeholders' priorities lie. Consequently, this affects the willingness of these stakeholders to collaborate with each other and the ease with which stakeholders can come to collaborative concessions. Moreover, interests do not necessarily have to conflict to be harmful for achieving co-management. Even if interests are shared among stakeholders, the priority they give to each individual interest

is different, this difference can affect the willingness of stakeholders to collaborate with each other.

6.5.3 Fishery Co-management Challenges Resolved by PISKABON

Although Bonaire's fishery sector still faces many challenges regarding its management, even in its early stages the fishery co-op PISKABON has helped to address some of the issues that are required to achieve effective co-management. Namely, the cooperative proved to be an effective platform to give the fishers a voice in management decisions regarding the sector. They have been able to actively lobby the public entity of Bonaire to execute several long overdue maintenance projects on fishery facilities, such as the piers.

As the cooperative is able to represent (theoretically) all fishers, the Board creates an effective and well-organized point of contact for governmental institutes and other organizations seeking dialogue or collaboration with the fishers. Moreover, as the cooperative is formally established it creates and increases the opportunity for fishers to receive subsidies for the execution of projects.

The cooperative has also proven to be an effective way for the government to delegate certain responsibilities and tasks to the fishers (i.e., building and managing F.A.D.s). This in turn can help in working towards creating more clarity in the division of roles and responsibilities within the sector. The cooperative has been able to actively advocate for certain changes in Bonaire's fishery management; for example, informing fishers proactively on extreme weather conditions, fishery legislation, and sustainable fishing measures, which has incentivized the government to implement some of these changes as well.

Lastly, with the existence of PISKABON, fishers have been more informed about the latest developments in terms of legislation, conservation measures, and sustainable fishing techniques. This knowledge has reached the fishers through Board members of PISKABON participating in regional conferences and workshops on fishery developments and management. Receiving the information directly from a source the fishers trust increases the credibility of the information (Röckmann, Leeuwen, Goldsborough, Kraan & Piet, 2015). Enhancing fishers' knowledge and awareness on the need for management measures through credible sources can in turn help to increase their support for and adherence to other measures being implemented (Cochrane & Garcia, 2009).

6.6 DISCUSSION

The findings I have presented, above, have showed how Bonaire's fishery co-management strategy through a fishery cooperative is affected by the small scale of the island, the constitutional reforms of 10/10/10, and notions of belonging. The influence of the latter

was mainly visible in the form of reputational concerns that existed among the fishers and the Board members, in particular. This concern was aggravated by both the small scale of Bonaire (and Bonaire's fishery community). Namely, Bonaire's fishers are well-known within Bonairean society. The actions of the Board members were thus not only closely observed by the fishing community, but, in fact, by a much larger contingent of Bonairean society.

In addition, most fishers, including the actively involved Board members, are not in a position to easily leave Bonaire, either due to financial constraints or their personal desire to stay on Bonaire due to their strong bond with the island. Thus, engaging in behaviour that is not condoned by the rest of the local community can have unfavorable effects for their reputation and place within Bonairean society. Not being able or willing to leave the island heightens the fishers' need to belong and thus decreases their willingness to engage in behaviours that could negatively affect this need. The small scale of Bonaire and its islandness were also clearly visible in the limited financial and human resources throughout the process. As noted, there were few fishers who were willing and able to fill a position as Board member of the cooperative. It should be noted, however, that small scale does not only have a negative implication. The fact that PISKABON and I were able to arrange all the minimal formal requirements for the approval of the subsidy of the grant was greatly aided by the small scale of the island and the related fact that almost everyone knows each other. Namely, the network and personal relations of the Board members with the Director of the bank, the employees at the notary, the managers, and the Chamber of Commerce allowed us to accelerate the procedures enough to get the paperwork done in time. Similarly, sizeable general member meetings could be organized with sufficient numbers of attendees within a short period of time as the members were able to contact all fishers directly and in person to ensure they would show up.

Being required to collaborate with the Dutch government and Dutch NGOs such as WWF-NL also contributed to the fishers' reputational concerns. This dynamic is also related to the constitutional reforms of 10/10/10 as well as the larger shared colonial past of Bonaire and the Netherlands. Since 10/10/10 the Dutch presence and influence have visibly increased and in some instances created even more negative sentiments among the Bonairean population towards the Netherlands, the Dutch government, and other Dutch organizations. In general, the perception is that these Dutch parties place more emphasis on nature conservation and tend to neglect the needs and concerns of the fishers. Moreover, the (perceived) increasing number of implemented and enforced protective measures and legislation for nature (thus limiting the freedom of fishing) has created reluctance on the part of the fishers to collaborate with the Dutch government and nature-oriented organizations.

At the same time, precisely because of these developments, the active presence of the Dutch government also created incentives for the fishers to organize themselves as they

increasingly felt the need to collectively voice their concerns to the government. Not only did the constitutional reforms affect the willingness of fishers to create a cooperative, it also had practical consequences for the establishment of PISKABON, particularly the perceived ambiguities regarding the roles and responsibilities for the sector related to the legislative changes. While the Ministry of LNV holds final responsibility for the fishery sector of Bonaire, there remains a lot of (political) debate regarding to what extent which entity (on a national or local level) is responsible for the execution of the managerial actions required to be taken.

The final question that remains to be answered is if a fishery cooperative can indeed help resolve the existing co-management challenges that are present in the fishery sector of Bonaire. What this study has shown is that effective co-management does not automatically result from having a cooperative. On Bonaire, the real incentive for the government to pursue co-management with the fishers is to effectively reduce the fishing pressures placed on the coral reefs. This is seen as a means to help better conserve this highly threatened, economically valuable, ecosystem. In response to this, the government tempted the fishers with the F.A.D. project and made the establishment of a cooperative a requirement for the fishers to receive the funding for the F.A.D.s. The willingness of fishers to accept this co-management offer was most likely due to their experience of declining fish catches and the ensuing decline in their revenues coupled with the additional concern that the fishing profession and Bonaire's fishing tradition is slowly disappearing. Even though these circumstances created the conditions for PISKABON's establishment and, indeed, enhanced the level of collaboration and interaction between a large, united, group of fishers and the government, many structural and psychological struggles remain between the stakeholders.

As Coglán and Pascoe (2015) concluded, including fishers in fishery management through co-operatives requires changes in both the ways fishers and the government operate. This is also the case for Bonaire's fishery and the PISKABON cooperative. Fishers are required to collectively collaborate with each other on aspects they have tackled on their own or in smaller networks in the past. They have had to realize that investing time in the cooperative (i.e., attending meetings, participating in project execution and management agreements such as monitoring and reporting their catch) and thus sacrificing their personal time will ultimately lead to greater benefits than is the case in the current system where personal freedom is central but the rewards are lower in the long run. In other words, fishers must shift their individualistic perspectives and ways of operating towards having a stronger cooperative spirit which transcend their direct family ties, friends, neighborhoods or fishing areas (Playa, Rincon, Lac) (McCay et al., 2014). Moreover, the fishers need to be willing to trust other parties — the government in particular — if they want to partake in management efforts as these efforts will require collaboration.

As I have already mentioned, with the existence of a fishery cooperative and the goal of achieving co-management, the government needs to adjust its usual ways of approaching management, as well. The government of the Netherlands, in particular, needs to be willing and able to adjust its expectations to the local realities of Bonaire's fishery and its fishers. Not only is there a substantial gap in terms of the local human and financial capacity and levels of education, the general historic relationship between the Netherlands and Bonaire should not be disregarded as playing a substantial role. All of these factors have led to substantial power differences between the stakeholders, as well as differences in how they operate, and how local parties perceive the Dutch government. In addition, the government needs to be willing to give up control over management. Moreover, it needs to be willing to be transparent about its expectations and management objectives in order to build the relationships of trust with the fishers which are essential for effective co-management. Even more so, all parties involved in fishery management need to realize and accept that the creation of co-management requires time and will experience many setbacks before becoming effective. All scholars who have studied co-management have stressed that co-management is a process and should not be considered to be an end in and of itself. It can take years before effective modes of co-management which are satisfactory to all parties involved are in place.

PISKABON is in its early stages and its success should only be stated with caution. Even though the prospects look promising and PISKABON is still standing despite the many challenges encountered, it is still too early to conclude or state that PISKABON has been a success for fishery management. There is no guarantee PISKABON will continue to exist as there are many challenges it will face. Only time can tell if PISKABON will succeed in overcoming the challenges it may encounter in the future.

6.6.1 A Fishery Cooperative as a Silver Bullet?

To summarize my findings presented in Chapters 5 and 6 and to answer the main research question of this section, I have used the CPR principles I presented in the Preface of Part 2. My analysis of whether fishery on Bonaire complies with CPR design principles is presented in Table 15.

In addition to the twelve design principles, I discussed in the Introduction of this section (see Appendix G), I can add a thirteenth principle based on my findings and experiences with Bonaire's fishery sector. This additional principle is the perceived urgency to effectively manage the sector. Here I refer to the urgency felt among government officials, fishers, and all other stakeholders to adequately invest in the development and implementation of effective management measures suited to the context. One of the main reasons both the government of the Netherlands and the public entity of Bonaire and, to some degree, also the fishers are reluctant to make the required investments is because they perceive the threats the sector faces to be of less importance than other challenges present on Bonaire. Based on the number and types of actions taken by the government

to protect the natural marine environment and the number of actions taken to better manage the fishery directly, it is clear that the (perceived) urgency to effectively manage Bonaire's fishery is minimal.

Consequently, insufficient financial resources and capacity were - and are - prioritized towards fishery management. In addition, this lack of urgency affects the speed with which action is taken to address fishery management challenges. Based on this it seems as though none of the stakeholders feel enough urgency to implement effective and collaborative management measures. Can PISKABON create this sense of urgency? I would argue they can do so, at least partially. With PISKABON, fishers can actively lobby the government and thus stress the need to take action on effective fishery management. However, this does not guarantee there will be an increased sense of urgency among all stakeholders to act.

The analysis presented in Table 15 shows that Bonaire's fishery sector still faces many challenges that cannot be resolved by a fishery cooperative alone. Except for enabling the participation of the fishers in the management process (design principle 5) and creating cooperation and leadership at a community level (design principle 8), PISKABON only partially contributes to meeting some of the design principles for effective fishery co-management formulated by Pomeroy and Williams (1994). It can thus be concluded that, in spite of what many stakeholders believed at the time, a fishery cooperative alone is not the silver bullet to resolve all of the management challenges Bonaire's fishery sector faces.

Table 15. Analysis CPR principles on Bonaire's fishery sector.

Design principle	Present in the management of reality of Bonaire's fishery sector?	Design principle present due to the existence of PISKABON?
<p>1. Clearly defined boundaries</p>	<p>No. The boundaries are defined, but the ocean is large, and the visibility of boundaries is difficult. E.g., 60-meter depth of the marine park, special equipment is needed and is difficult to control by enforcers at which depth a fish is caught. Bonaire's is a multi-species fishery and many of the targeted fish migrate. Thus, management that takes place only in, for example, the marine parks is not sufficient for maintaining healthy fish stocks. Moreover, there is insufficient enforcement capacity and management technology available to adequately manage their fishing grounds.</p>	<p>No. PISKABON can assist in terms of reporting violations and executing social control; however, they are not an enforcement body.</p>
<p>2. Membership is clearly defined</p>	<p>No. Everybody is allowed to fish. It is not clear how many commercial / professional fishers are present and the absence of permit- or registration system complicates this. There is a substantial difference between commercial and recreational fishers. Not clear how many people fish recreational, only that this group most likely places highest pressure on the coral reefs.</p>	<p>Somewhat. PISKABON wants to represent all fishers of Bonaire and is reluctant to make a distinction between the types of fishers. However, through membership of PISKABON fishers can be easily located and membership can in time come with terms. In the case of the use of the F.A.D.s the agreement will be that only members who paid the membership fee are allowed to make use of the F.A.D.s. While this provides some clarity, it does not address the fact that currently all residents are allowed to fish without a permit.</p>
<p>3. Group cohesion</p>	<p>Somewhat. As everyone is allowed to fish, a distinction must be made between commercial and recreational fishers in terms of group cohesion. Commercial fishers are a more homogeneous group and tend to have stronger degrees of group cohesion and they do help each other out when necessary. Recreational fishers are a very diverse group with big differences in social class, creating less group cohesion. Overall, there tends to be stronger degrees of group cohesion among Bonairean fishers when they encounter challenges with foreign fishers (which is rapidly increasing and linked to Bonaire's population growth). Foreign fishers can have different fishing habits and target other species than the fishers on Bonaire which they consider important for the ecosystem (e.g., Chinese fishers catching sea urchins and sea cucumbers).</p>	<p>Somewhat. As PISKABON strives to represent ALL fishers of Bonaire, there it could be possible that through their membership of the cooperative both commercial and recreational fishers will have higher degrees of group cohesion.</p>

Table 15. Continued

Design principle	Present in the management of reality of Bonaire's fishery sector?	Design principle present due to the existence of PISKABON?
<p>4. Existing organization</p>	<p>Somewhat. Despite the previous attempts to establish a fishery cooperative on Bonaire, PISKABON is thus far from the only cooperative that has actively existed and collaborated with the government for a period longer than 2 years. The current Board members, except for one, have no experience with community-based systems or organizations.</p>	<p>Somewhat. PISKABON is a new organization but if it continues to exist, this is an important party for the government and other stakeholders to structurally involve in management efforts. In this respect, the existence of PISKABON should be stimulated, encouraged, and supported.</p>
<p>5. Participation by those affected</p>	<p>Somewhat. Most individuals affected by the management arrangements are included in the group that makes and can change the arrangements. Divisions about management arrangements are made by the same people that collect information on the fishery. This is currently not fully the case. While the government and STINAPA are directly involved, other individuals affected by the management arrangements are not or only partially included. For example, the divers and the fishers. Even in cases the latter two are involved, their level of control over changes and arrangements made is still relatively minimal. Moreover, fishers are not (yet) included in data collection of the sector in which the management arrangements are based.</p>	<p>Yes. PISKABON can represent the fishing community and as an organization can therefore participate in management developments. However, PISKABON too requires a lot of assistance and currently the role of and degree to which PISKABON can be involved is not fully clarified. Moreover, PISKABON does not always have the means to actively participate and the existence of PISKABON does not automatically remove the potential reluctance of third parties to include the fishers in management developments.</p>
<p>6. Management rules enforced</p>	<p>Somewhat. Due to the large area of fishing waters surrounding Bonaire and the fact the enforcement tasks of the Coast Guard also entail the waters of Aruba, Curaçao, Saba, Sint Maarten & Sint Eustatius, Bonaire's fishery, and marine management has an overall scarcity in enforcement capacity, which makes it difficult for rules to be enforced. In addition, the STINAPA rangers who are responsible for enforcement of the fishing rules in the marine parks tend to be reluctant due to the lack of support for and awareness of fishing rules among the fishers and the argued ambiguity that exists in the current legislation. Moreover, currently the fishery of Bonaire is not structurally being monitored with the fishers which also creates a lot of debate among the stakeholders regarding the management measures that are required.</p>	<p>No. With PISKABON, it is easier to involve fishers in the development and inform fishers about the existence of management measures as they function as a central, representative point of contact for third parties and the fishing community. However, it is not a certain that this will happen.</p>

Table 15. Continued

Design principle	Present in the management of reality of Bonaire's fishery sector?	Design principle present due to the existence of PISKABON?
7. Legal rights to organize	<p>Somewhat. Fishers of Bonaire have rights to organize and are encouraged to do so by external governmental authorities, but also the actual organization of fisher is complicated due to the formal procedures that need to be adhered to before institutions can/will recognize them as an eligible co-management partner (i.e., chamber of commerce, by laws, bank account etc.).</p>	<p>Somewhat. The existence of PISKABON can form an incentive for and aid in the process by the government to identify the division of responsibility and authority of fishery management more clearly.</p>
8. Cooperation and leadership at a community level	<p>Yes. PISKABON was established and the Board members expressed and showed their commitment to represent the fishers in the management process. They form the core group and take some (but not all) leadership for the management process.</p>	<p>Yes.</p>
9. Decentralization and delegation of authority	<p>Somewhat. This is only partially the case. Currently the national fishery legislation is being revised and it is still unclear to what extent (new) local, non-governmental organization will receive management responsibilities and/or authorities. Currently only STINAPA has a legally grounded mandate from the government to manage the marine parks in which some fishing activities also take place. More recently, PISKABON has received the (not legally grounded) authority to manage the to be installed F.A.D.s. Moreover, and as mentioned, the division of roles and responsibilities is still heavily debated. This ambiguity is used as political leverage, meaning there seems to be no real desire to create full clarity in division of roles and responsibilities within the government.</p>	<p>Somewhat. The government could delegate more authority and responsibility towards PISKABON. However, this is not guaranteed nor is it something PISKABON can directly arrange itself.</p>
10. Coordination between government and community	<p>No. There is no coordinating body installed, external to the local group or organization and with representation from both the fishers and the government to monitor the local management arrangements, resolve conflicts and reinforce local rule enforcement. The bodies within the government (FCBES at the level of the Ministry of LNV, and LVV at the level of the public entity) are not adequately equipped nor suited to fulfil this role.</p>	<p>No. PISKABON provides representation for the fishers but cannot fulfil a mediating and coordinating role.</p>

Table 15. Continued

Design principle	Present in the management of reality of Bonaire's fishery sector?	Design principle present due to the existence of PISKABON?
<p>11. Benefits exceeding costs</p> <p>Somewhat. In terms of the different resource users: measures often directly benefit other stakeholders (e.g., tourists/divers) more than the fishers. Moreover, fishers are poor in comparison to most other stakeholders. This creates feelings of unfairness among the fishers and affects their willingness collaborate. In terms of co-management with the fishers, the Board members of PISKABON are all volunteers, while the policy officers, scientists, enforcers etc. all get paid for their management effort through stable monthly incomes. Fishers need to stop fishing for days and thus their income to do work for PISKABON. As co-management is a long-term process it requires a lot of negotiation and time before becoming truly beneficial to all parties.</p>	<p>Somewhat. PISKABON as a cooperative entity could in the future receive or generate funding to provide for its Board members. PISKABON's direct involvement and ability to receive subsidies to execute projects beneficial for the sector could lead to a situation where the benefits of co-management (e.g., higher and better-quality fish yields) start to exceed the costs (e.g. time investments of fishers to execute projects, attend meetings etc.).</p>	<p>No. This is not an issue that PISKABON can resolve, other than being an entity which in time could be able to create its own funding mechanisms (e.g., through membership fees) for the execution of basic fishery needs.</p>
<p>12. Adequate financing</p> <p>No. The absence of adequate financing is a large issue within Bonaire's fishery and is strongly related to coordination between governments and community. The existing debates on the division of roles and responsibilities between the Dutch government and its ministerial parties and the public entity of Bonaire directly affects the discussions on the availability of funding (i.e., who pays for what). Funding required for harbor maintenance, data monitoring, enforcement, education, and awareness programs etc.</p>	<p>No. This is not an issue that PISKABON can resolve, other than being an entity which in time could be able to create its own funding mechanisms (e.g., through membership fees) for the execution of basic fishery needs.</p>	<p>No. This is not an issue that PISKABON can resolve, other than being an entity which in time could be able to create its own funding mechanisms (e.g., through membership fees) for the execution of basic fishery needs.</p>

