

# MAS PISKA PA BONEIRU:

A social mapping study of the fisheries sectors of Bonaire,  
Saba and St. Eustatius

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## FOREWORD AND ACKNOWLEDGEMENTS

*"Fisheries management is not about managing fish. It's about managing people and businesses".*

Before you lies the social mapping study of the fisheries sector on Bonaire, Saba and St. Eustatius. This research has been done in assignment of the World Wide Fund for Nature – The Netherlands. The aim of this report is to provide some answers to the big question on how fisheries management should be approached on the Caribbean Netherlands and provide guidance on how to effectively achieve long-lasting desired results.

Prior to starting this project, I knew nothing about fisheries, let alone fisheries management. However, management – regardless of what is being managed – is about people and social relationships. As a social psychologist, I am quite familiar with people and their relationships. This project was meant to provide a fresh perspective on the sorts of social and psychological factors that inhibit effective fisheries management on Bonaire, Saba and St. Eustatius. Fisheries has the reputation of being one of the most complex sectors to manage. My experiences on Bonaire validated this assessment. Yet nothing is impossible. What was intended to be a 3-month examination of the social aspects of fisheries management practices, became a more far reaching and practice-based project that included the establishment of a fisheries cooperative on Bonaire. This cooperative has enabled the implementation of effective co-management practices – practices that most experts agree are imperative for achieving sustainable fisheries supervision.

I would like to thank each person who guided me through the matter of fisheries and its management on the islands. Countless individuals shared hours of their time and let me pick their brains to gain some understanding about the intricacies of fisheries management. This report would not have been possible without their tireless input, support and feedback.

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I would also like to thank Kalli de Meyer and the entire DCNA-team for their support, hospitality and encouragement throughout the process. Franklin 'Boi' Antoin and Giovanni de Gijs for their collaboration and interest in my project. Their help allowed me to gain unique access to the experiences and daily realities of fishermen on Bonaire. A big thank you to STINAPA, Paul Hoetjes and Yoeri de Vries for sharing their knowledge and insights, for their feedback and helping me move forward whenever I was stuck in the labyrinth also known as 'legislation'.

Last, but certainly not least, I would like to give my deepest thanks to the entire PISKABON crew: Ernest De Lanoy, Fabian Havedings, Jan-Hendrik Emerenciana, David Everts, Arthur Janga, Celcio Thielman, Nolly Oleana and, of course, Larry Gerharts. Your dedication to the fishermen is invaluable. Thank you for all your hard work, your perseverance, your patience, your commitment, but most of all your trust and support in me. The existence of PISKABON would not have been possible without you and is so important for Bonaire.

Stacey Mac Donald  
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## LIST OF ACRONYMS

BONHATA	Bonaire Hotel and Tourism Association
BOPEC	Bonaire Petroleum Company
CARMABI	Caribbean Research & Management of Biodiversity
CN	Caribbean Netherlands: Bonaire, Saba and St. Eustatius
CURO	Council of Underwater Resort Operators of Bonaire
DCNA	Dutch Caribbean Nature Alliance
DRO	Dienst Ruimtelijke Ordening
EEZ	Exclusive Economic Zones
F.A.D.	Fish Aggregating Devices
FCEO	Fisheries Community Engagement Officer
KITLV	Koninklijk Instituut voor Taal, Land en Volkenkunde
KOPIBON	Kooperativa Piskado Boneiru
LVV	Landbouw, Veeteelt, Visserij
Min EZ	Ministerie van Economische zaken
Min I&M	Ministerie van Infrastructuur en Milieu
Min LNV	Ministerie van Landbouw, Natuur en Voedsel / Ministry of Agriculture, Nature and Food Quality
NGO	Non-Governmental Organization
OLB	Openbaar Lichaam Bonaire
PAR	Participatory Action Research
RCN	Rijksdienst Caribisch Nederland
STCB	Sea Turtle Conservation Bonaire
STINAPA	Stichting Nationale Parken Bonaire
TCB	Tourist Bonaire
WWF-NL	World Wide Fund for Nature – the Netherlands

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## EXECUTIVE SUMMARY

### ***Why is it so difficult to manage the fisheries sector on Bonaire, Saba and St. Eustatius and how should this be tackled in the future in order to have long-lasting results?***

In the past, there have been several attempts to achieve more sustainable and better-managed fisheries practices on Bonaire, Saba and St. Eustatius, but they (partially) failed. Success has been achieved regarding conservation of certain species, for example, the sea turtles. There are several institutions responsible for, related to, or with an interest in fisheries management on the three islands. In the ideal situation, these institutions and stakeholders would collaborate to manage the sector. However, this is where it goes wrong: collaboration is not going smoothly, or is non-existent.

Since the constitutional change in 2010, the Netherlands is more prominently present on the islands in terms of policy, legislation, and management. Because the Government of the Netherlands has an international accountability concerning fisheries (i.e. contributing to global monitoring of fish stocks), has more capacity to and is in general more active in getting things done (i.e. cultural difference), more pressure has been put on the fisheries sector of the three islands to be managed. Since 2010, several projects have been executed (e.g. monitoring research, attempts to create a fishery cooperative, EEZ legislation, and implementation of a shark and marine mammal/cetacean sanctuary). However, on all three islands structural collaboration with the fishers remains an issue according to all stakeholders. The World Wide Fund for Nature – The Netherlands (WWF-NL) has been working on Bonaire, Saba and St. Eustatius for many decades and has an interest to develop economically viable and community-supported sustainable fisheries. As WWF-NL learned about the difficulties present on the islands regarding the fisheries sector, WWF-NL also became more involved in attempting to realize sustainable fisheries management on the islands.

Aware of the fact that managing the fisheries sector is as much a social as an ecological issue, WWF-NL asked Stacey Mac Donald (KITLV) to assist with identifying the social bottlenecks and specifically the come up with solutions for these bottlenecks. The question raised was under which circumstances it will be possible to engage fishers in an organized manner in the development of sustainable fisheries. To come up with workable solutions, WWF-NL set up the 'Social Mapping' project to get a better understanding of who the stakeholders are and what their position is regarding fisheries management. To do so, first a description of the fisheries sector on each island ([Chapter 3](#)) and the different institutions, organizations and stakeholders responsible for fisheries management on the three islands were identified ([Chapter 4](#)). This produced two key findings:

1. Of all the of stakeholders and organizations involved with fisheries, many often do not know who is responsible for what (or why);
2. Confirming what was already known: the fishers, who are the primary stakeholders, are not structurally or sufficiently involved in the entire process of fisheries management.

Because it was believed the issues are most pressing on Bonaire, an intervention study on Bonaire was conducted in which the researcher collaborated closely with the fishers. Initially the intervention aimed to identifying how to best organize a meeting with fishermen in order to involve them in fisheries management practices. This developed into establishment of a fisheries cooperative ([Chapter 5](#)). Based on the intervention study and interviews, the different views about fisheries and fisheries management of the stakeholders became evident ([Chapter 6](#)). These insights were used to develop several models to visualize and explain the existing social and psychological bottlenecks preventing the islands from achieving successful sustainable fisheries management ([Chapter 7](#)). The complexity and interconnectedness of these bottlenecks resulted into a few key solutions, developed into a roadmap to achieve widely supported sustainable fisheries management ([Chapter 8](#)).

The table below presents an overview of the bottlenecks on various stakeholder levels, the corresponding consequences and recommendations on how to overcome these bottlenecks. The repetitiveness that occurs illustrates the interrelatedness and the complexity of the social aspects regarding fisheries management.

Table 1. Overview of bottlenecks, contributing factors and proposed solutions

Series	Bottleneck / reality	Causes / contributing factors	Solutions
Urgency	Urgency to manage fisheries < Urgency to manage nature	The government of the Netherlands is directly responsible for the fisheries sector of Bonaire but, the fisheries sector of the Caribbean Netherlands is smaller than the Fisheries sector of the Netherlands. (Binding) international conventions actively stress the threats of climate change and emphasize the urgency to act in terms of nature conservation. Civil servants in the public entity have little affinity with the fisheries sector. NGO's and scientists can actively lobby for environmental protection towards the government. Other environmental issues tend to be prioritized over fisheries management issues Fishers lack knowledge about and experience with formal bureaucratic systems, and are confronted with institutional barriers when trying to advocate for the fisheries sector. There is both a large physical and emotional/cultural distance between fishers and the Government of the Netherlands.	<ul style="list-style-type: none"> <li>- Establish a fisheries cooperative by means of highly skilled facilitation                             <ul style="list-style-type: none"> <li>- Install a fisheries engagement officer</li> <li>- Collective lobbying by NGO's &amp; fishers</li> </ul> </li> </ul>
	Urgency to manage nature < urgency to invest in development	Bonaire / St. Eustatius: political instability of the disables the public entities to develop well-defined, long term policy, including sustainable fisheries policy. The Caribbean Netherlands depends on a budget ('vrije uitkering') received from the Netherlands to execute their governmental tasks and responsibilities. It has been shown that this budget has a structural deficit (IdeeVersa, 2015), compelling public entities to choose between projects/areas to invest in. Due to the meagre economies and poverty that exists on the islands, the public entities are prone to priorities short-term projects focused around economic development. Fishers are confronted with institutional barriers when trying to advocate for the fisheries sector, due to limited knowledge about and experience with formal bureaucratic system.	<ul style="list-style-type: none"> <li>- A fisheries cooperative</li> <li>- Install a fisheries engagement officer</li> <li>- Collective lobbying by NGO's &amp; fishers</li> <li>- Identify Alternative financial investment (i.e. private sector)</li> </ul>
	NGO's have negative reputation within community	Communication from NGO's regarding legislation. Insufficient inclusion of fishermen regarding fisheries management.	<ul style="list-style-type: none"> <li>- Clarify roles and responsibilities</li> <li>- Install a fisheries engagement officer</li> </ul>
	No fisheries organization / representatives	Fishers feel less urgency to tackle fisheries issues. Fishers are individualists, and not used to working together. Fishers do not have (or make) the time to invest in setting up a fisheries-cooperative. Fishers have limited knowledge about or experience with bureaucratic system/ working methods. Fishers are fearful for reputational damage when joining the board of a fisheries-cooperative / taking the lead. Fishers fear that collaboration can lead to additional negative consequences.	<ul style="list-style-type: none"> <li>- Establish a fisheries cooperative by means of highly skilled facilitation</li> <li>- Install a fisheries engagement officer</li> </ul>
Roles, responsibilities and resources	Legislation has gaps / faults / is insufficient	Change in legislation due to constitutional change of 10/10/10. Urgency to protect nature is higher than urgency to manage fisheries. Availability of, and agreement about scientific knowledge. Legislation has gaps / is insufficient.	<ul style="list-style-type: none"> <li>- Establish a stakeholder-working group</li> <li>- Establish a fisheries cooperative by means of highly skilled facilitation</li> <li>- Install a fisheries engagement officer</li> </ul>
	Responsibilities for (daily) management are unclear	Fisheries management requires close collaboration with various governmental departments and other stakeholders. Urgency to protect nature is higher than urgency to manage fisheries: other issues have been more urgent to tackle than fisheries legislation. Urgency to invest in economic development higher than urgency to invest in fisheries sector or nature.	<ul style="list-style-type: none"> <li>- Establish a stakeholder-working group</li> <li>- Clarify roles and responsibilities</li> <li>- Install a fisheries engagement officer</li> </ul>
	Lack of resources: budget & capacity	Urgency to manage fisheries is lower than urgency to manage nature/other sectors. Urgency to invest in development is higher than urgency to manage nature. Responsibilities for management are unclear. Limited budget results in limited capacity: weak governmental departments	<ul style="list-style-type: none"> <li>- Identify Alternative financial investment (i.e. private sector)</li> <li>- A fisheries engagement officer</li> <li>- Collective lobbying by NGO's &amp; fishers</li> </ul>
	Lack of inclusion of fishers	NGO's tend to have a negative reputation within the community. Not having a fisher's representative / fisheries cooperative.	<ul style="list-style-type: none"> <li>- A fisheries engagement officer</li> </ul>
	No collective lobbying by fishers	Not having a fisher's representative / fisheries cooperative.	<ul style="list-style-type: none"> <li>- Establish a fisheries cooperative by means of highly skilled facilitation</li> <li>- Install a fisheries engagement officer</li> <li>- Establish a fisheries cooperative by means of highly skilled facilitation</li> </ul>
Management and governance support	No investment in fisheries sector development	Responsibilities for (daily) fisheries management are unclear. Lack of resources: Budget. Lack of resources: Insufficient capacity within the governmental departments.	<ul style="list-style-type: none"> <li>- Collective lobbying by NGO's &amp; fishers</li> <li>- Identify Alternative financial investment (i.e. private sector)</li> </ul>
	No fisheries policy or management plan	No investment in fisheries sector: no data monitoring / difficult to decide which measures need to be taken. Availability of, and agreement about scientific knowledge. Responsibilities for (daily) fisheries management are unclear. Insufficient capacity/budget within the government.	<ul style="list-style-type: none"> <li>- Install a fisheries engagement officer</li> <li>- Collective lobbying by NGO's &amp; fishers</li> </ul>
	No enforcement of legislation	Responsibilities for (daily) management are unclear. Legislation has gaps and is insufficient. No fisheries policy or management plan. Perceived insufficient communication about legislation to fishers. Affected by psychological factors: reputational concerns. Fisheries has a big cultural value: politicians reluctant to stress enforcement	<ul style="list-style-type: none"> <li>- Transdisciplinary, multi-stakeholder, long term, legally binding fisheries policy plan and management plan</li> <li>- Install a fisheries engagement officer</li> </ul>
	(Perceived) Insufficient communication of legislation	Insufficient capacity/budget within the government. No fisheries cooperation / representative	<ul style="list-style-type: none"> <li>- Install a fisheries engagement officer</li> <li>- Establish a fisheries cooperative by means of highly skilled facilitation</li> </ul>
	No governance support from fishers	Perceived insufficient communication about legislation. Perceived insufficient inclusion of fishers (and other stakeholders) in governance actions. No investments in fisheries sector development.	<ul style="list-style-type: none"> <li>- A transdisciplinary, multi-stakeholder, long term, legally binding fisheries policy plan and management plan</li> </ul>
		Affected by psychological factors, conflict of interest and negative past experiences.	<ul style="list-style-type: none"> <li>- Establish a fisheries cooperative by means of highly skilled facilitation</li> </ul>

Ultimately all the bottlenecks presented in the table lead to the issues the primary stakeholders – in varying degrees – are concerned with to begin with:

- Decline in biodiversity
- Declining fish stocks
- Declining coral reefs
- Dying culture and profession
- Decrease income of the fishers
- No compliance to legislation
- Unwillingness for behaviour change.

These issues are in turn closely related to each other. While it may seem a daunting task to resolve all the existing bottlenecks, this does not necessarily have to be the case as can be seen in the solutions presented. Stakeholder participation is a key element of successful fisheries management. Due to the complexity of fisheries management, there is not one optimal interaction approach: the initiators of, as well as participants in fisheries management processes should decide and negotiate on how much and what kind of interaction is necessary, appropriate and desirable. The responsibility for finding an appropriate degree of interaction lies with the initiator of fisheries management. Transparency about the chosen strategies (and limitations) to engage in the interaction processes is the key to reaching consensus about the degree of interaction. It is recommended that:

1. On all islands a fisheries cooperative must be established, by means of strong, continuous facilitation. This facilitation cannot be simply imposed on the fishermen, but must be wanted and accepted.
2. The fisheries departments of all public entities must be strengthened in terms of knowledge, urgency and capacity.
3. The urgency among both the local and national government to address and manage the fisheries sector must be enlarged through joint lobbying from NGO's and fishers.
4. A systematic stakeholder analysis should be carried out to ensure representative involvement of those stakeholders relevant to the fisheries management question. Clear objectives for the participatory process need to be agreed among stakeholders at the outset. It should be made explicit who are considered stakeholders in the issue at hand, which of these groups can participate and in which form, and who decides on all of this, in short: who is the owner of the participatory process.
5. Where relevant stakeholders should be involved as early as possible and throughout the process. The different contexts of departure (i.e. the interests of the different stakeholders) must be shared at the beginning of a participatory process.
6. A transdisciplinary, multi-stakeholder, long term, legally binding fisheries policy plan and management plan must be developed by a stakeholder-working group. The management plan should clearly define – in a legally binding way if possible – the roles and responsibilities of all stakeholders in fisheries management.
7. To ensure participation continuity, transparency and clarity throughout the development of a fisheries policy and management plan a fisheries engagement officer must be installed. Preferably by the National (and local) government. However, to ensure the position of the fisheries engagement officer remains as neutral as possible, a joint funding construction could be created (e.g. the salary of this officer is jointly funded by the key fisheries stakeholders: national & local government, NGO's and fisher representatives). A key prerequisite for a joint-funding construction is that clear and concrete agreements are made in advance among the stakeholders about the role, responsibilities, opportunities. Moreover, it should not be possible for the financing parties to (easily) deviate from or ignore these agreements.
8. A sustainable financial model must be developed for fisheries management for all three islands to prevent the sole reliance on perceived (political) urgency.
9. Throughout the development of the management and policy plan, pilot projects must be executed, the communities must be informed through public campaigns and the plans must be evaluated and adapted accordingly.

What this report illustrates, is that in fisheries management the focus must not lie solely on solving the final outcomes (i.e. decline in biodiversity, declining fish stocks, dying culture and profession etc.), but rather concentrate on the facets (i.e. bottlenecks) underlying the existence of these issues. In the case of fisheries management, this entails that a lot of focus and energy must be placed **on guiding and improving the process** of fisheries management.

# 1 INTRODUCTION

## 1.1 BACKGROUND

Fishing is one of the oldest professions in the Dutch Caribbean. Many families have lived and still live of the fisheries sector, passing on the tradition to their children. Over the years, however, the number of professional fishers has declined due to various reasons. It has become increasingly difficult to make a decent living from fishing. Both global developments (e.g. pollution, climate change, global overfishing and by-catch) and local pressures (e.g. coastal development, erosion, invasive species (lionfish), introduced diseases and uncontrolled fishing) have devastating effects on the health of oceans and coral reefs and consequently local fish populations.

Promoting sustainable fisheries practices is a key element in safeguarding healthy oceans and marine ecosystems, and this crucial role is highlighted in the World Wide Fund for Nature (WWF)'s ocean strategy. Part of WWF's strategy is to develop economically viable and community-supported sustainable fisheries. The World Wide Fund for Nature – The Netherlands (WWF-NL) has been working in the Caribbean Netherlands (Bonaire, Saba and St. Eustatius) for many decades and has an interest to develop economically viable and community-supported sustainable fisheries. Just like WWF-NL, many local fishers feel an increasing need to act to improve the fisheries sector. Fishers are facing changes in the sector, notably increased legislation and restrictions and declining fish catches which affects their livelihood.

As part of the strategy to develop economically viable and community-supported sustainable fisheries, WWF-NL contributes to sustainable fisheries in The Caribbean Netherlands by means of the following subprojects: historical fisheries research, market and chain analysis research, advising on legislation, education and awareness and supporting local organizations in their sustainability initiatives. More recently, WNF-NL also aims to empower fishermen to become an integral part of co-management

The success of WWF-NL's initiatives is dependent on participation and support from the fisheries community itself as well as from the legislators and policymakers. Participatory fisheries management models have been successfully implemented in several places around the world. Close collaboration between fishers, governments, industry and NGOs has led to effective and sustainable management, increasing fish stocks and economically strengthened fishing communities.

To understand how support can be leveraged among the stakeholders in the field to support sustainable fisheries within the Caribbean Netherlands, WWF-NL has initiated several fisheries related projects including a social mapping study of the fisheries sector on each island, beginning on Bonaire, followed by a (less extensive) study on Saba and St. Eustatius.

In collaboration with the Royal Institute of Southeast Asian and Caribbean Studies (KITLV), WWF-NL identified the bottlenecks regarding sustainable fisheries management, and developed a roadmap for the Ministry of Agriculture, Nature and Food Quality (Min LNV), the public entities of Bonaire, Saba and St. Eustatius, WWF-NL itself and other interested parties with ways to overcome these bottlenecks.

This approach matches:

- the [Nature policy plan Caribbean Netherlands 2013-2017](#), in which strategic goal demands that the Kingdom *“promotes relevant guidelines and best practices for sustainable fisheries”*
- the policy plan [LVV Bonaire 2014-2029](#), in which the OLB states as a goal to *“Develop an implementation plan for development of sustainable reef and pelagic fisheries”*
- the international [Sustainable Developments Goal #14](#) *“Conserve and sustainably use the oceans, seas and marine resources for sustainable development”* to which the Netherlands committed itself
- The management recommendations from the FAO, [WECAFC/15/2014/4](#) that *‘management plans should be prepared in a participatory way’*.

- The management recommendations from the evaluation of the fisheries legislation of the BES-islands as performed by Ecovision.
- WWF's global ocean goal to double the world's sustainable fisheries by 2020

## 1.2 PROBLEM STATEMENT

Throughout this report, fisheries management is defined as “the process that has evolved to ensure that fisheries operate in a manner that not only provides the immediate benefits but also does not result in excessive or irreversible damage to the exploited fish stocks or the diversity, integrity and structure of the ecosystem, so that the stocks and ecosystem will continue to provide the full range of benefits in the future” (p. 21; Cochrane, & Garcia, 2009).

Effectively implementing sustainable initiatives within the fisheries sector has proven to be difficult on Bonaire. Fisheries legislation is outdated and deficient and, more importantly, there is much debate among fishers, government officials and NGOs whether the fishing community has been (sufficiently) involved in the development of this legislation. Despite attempts to manage and improve the fisheries sector, several basic elements for effective management are missing.

On Bonaire, there is no fisheries monitoring, no permit obligation for most fishers, existing laws and regulations are minimally and sporadically enforced and there is little participation from the fishers in developing of implementing management measures. All these issues contribute to a steady decline of fish stocks, and consequently, a loss of income for the fishers as well as the deterioration of the ecosystem.

The need to achieve strong and effective co-management of the fisheries sector has become even more pressing considering recent changes in fisheries legislation and evidence of declining fish stocks. Attempts by the National government (Rijksdienst Caribisch Nederland), local government and the park management organization, STINAPA Bonaire, have so far not succeeded to adequately and lastingly engage the fishing community. Meetings organized to discuss regulatory changes or to find joint solutions for harmful fisheries practices have often led to heated discussions and resistance to cooperate or act. On the other hand, fishers have not pro-actively inform(ed) themselves about the latest developments of fisheries management practices. Much research over the past few years, notably on Bonaire, has focused on the fisheries sector (e.g. De Graaf, 2016; Johnson & Jackson, 2015; Johnson & Saunders, 2014). While these works helped enhance knowledge and understanding of fish catch as well as fishers' views and attitudes, and even though these studies did not have the intention to create successful co-management of the sector, the ways in which they were carried out and findings were presented intensified reluctance among both fishers as well as (local) institutions to work towards a participative fisheries management model.

## 1.3 AIMS AND DELIVERABLES

The central goal of this project was to identify one or more methods that, when applied by organizations responsible for fisheries management, can break through the current impasse related to participatory fisheries management, and lead to support within fisheries to jointly manage the sector.

Specifically, the following deliverables were formulated:

- Develop a visual map showing various socio economic layers (geographic spread of fishing community, 'movers', 'bottlenecks', opportunities, etc.)
- 'Review' existing models on participative engagement from the Caribbean and their success
- Identify incentives for fishers that can lead to collaboration
- Document which knowledge is missing among the different stakeholders and provide recommendations on ways to successfully get the missing knowledge across
- Development of roadmap detailing practical steps, overcoming identified bottlenecks, to be taken to successfully implement sustainable fisheries initiatives

- Propose, implement and process sustainable fishing test-case
- Give presentations to National Government / Public Entity Bonaire / STINAPA / PISKABON and other stakeholders

The output formulates concrete steps that management organizations or external parties can follow to create broad support across the entire sector for matters such as catch monitoring, enforcement, setting up co-management agreements, unifying fishers and boat owners and other issues which stimulate sustainable and profitable management. In the end the main shared objective among all stakeholders is to get more fish in the ocean around the island.

This report is by no means a report presenting a comprehensive successful management strategy for the BES islands. However, the well-known comprehensive fisheries model ‘Ecosystems Approach to Fisheries (EAF, figure 1; Garcia & Cochrane, 2005)’ is used as the basis to understand the complexity of fisheries and its management. This model:

- Incorporates the interactions between fishery and the ecosystem (both human well-being and target species);
- Creates awareness about the knowledge gaps and uncertainties in information available for decision-making and the need to take them into account;
- Recognizes the fundamental need to involve the stakeholders in all aspects of management.

The current report focusses on a crucial element that inhibits successful fisheries management on Bonaire, Saba and St. Eustatius, namely the **social and psychological bottlenecks**. Overall, these bottlenecks (roughly) regard the highlighted segment of Figure 1.

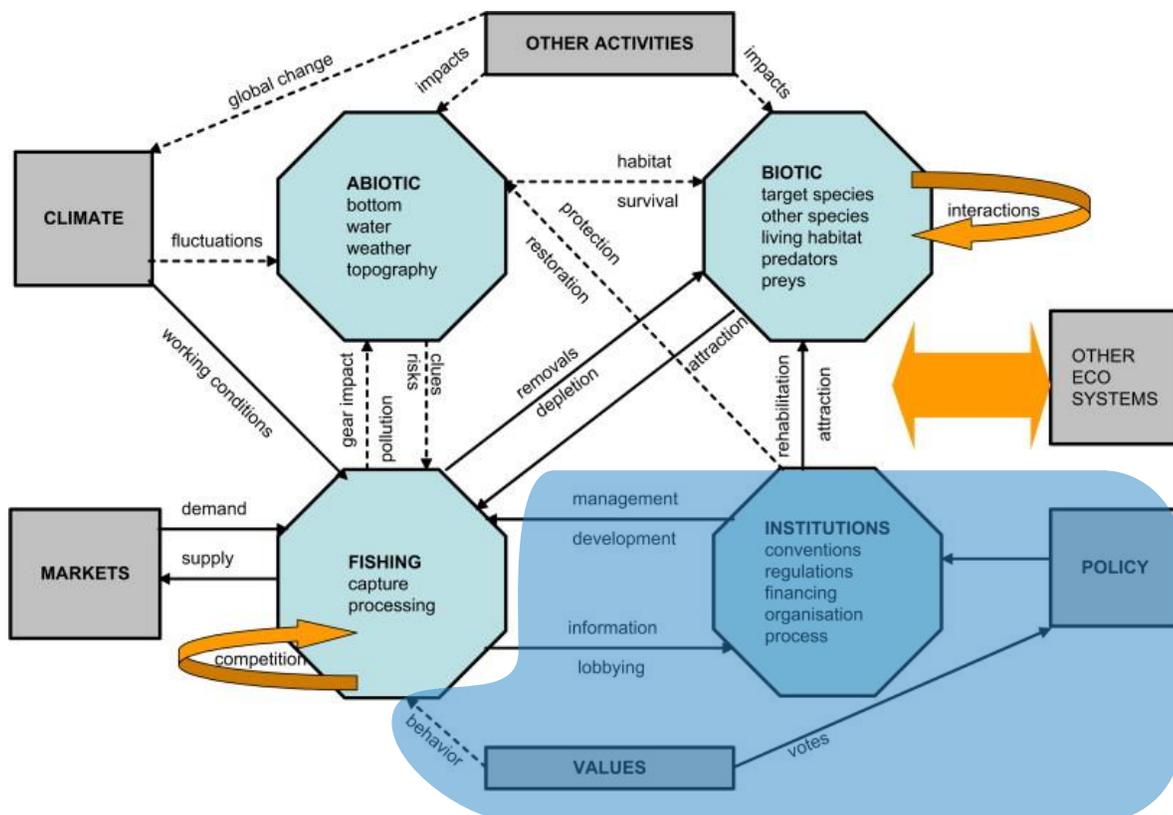


Figure 1. EAS model

#### 1.4 STRUCTURE OF THE REPORT

Before going into the findings, the research design, ethics and methodology are described in chapter 2. Next, the results of the research are presented. First the social context of the fisheries sector is discussed (chapter 3), followed by a description of the institutional framework and stakeholders relevant to the fisheries sector (chapter 4). To illustrate the practical issues

of fisheries management the case study of PISKABON is discussed and evaluated (chapter 5). In chapter 6 the different views about fisheries and fisheries management of the stakeholders are presented. Next, the social and organizational complexities are visualized and explained by means of several models (chapter 7) after which a roadmap to achieving successful fisheries management is presented (chapter 8). This roadmap includes concrete steps to overcome the most pressing bottlenecks present in the sector. The report is concluded in chapter 9 where recommendations for the future are made.

## 2 RESEARCH DESIGN

### 2.1 RESEARCH QUESTIONS

The main research questions of this project were:

***Why is it difficult to manage the fisheries sector on Bonaire, Saba and St. Eustatius? What steps need to be taken, and in which order, to break the current impasse towards sustainable participatory fisheries management on Bonaire, Saba and St. Eustatius? How can support for participative fisheries management within the fisheries communities be achieved?***

This main research questions were divided into the following sub-questions:

1. Who are the different stakeholders in the field of fisheries management on Bonaire, Saba and St. Eustatius?
2. What do the different stakeholders believe to be the main problems and solutions concerning the management of the fisheries sector on Bonaire, Saba and St. Eustatius?
3. What are the different stakeholder's perspectives towards (participatory) fisheries management?
4. What has been done (by who) in the past to manage the fisheries sector on Bonaire, Saba and St. Eustatius? Why did these efforts succeed or fail?
5. Who are the fishers of Bonaire, Saba and St. Eustatius what do they need and (how) do they want to be included in debates and projects concerning fisheries management on Bonaire?

### 2.2 RESEARCH STRATEGY

Throughout a period of three months (October - December 2017), fieldwork was conducted on Bonaire. In addition to in-depth interviews, the central focus of this fieldwork was the execution of participatory action research (PAR) with regards to the newly established fisheries cooperative of Bonaire (called PISKABON, which stands for Fish (piska) Bonaire and at the same time for good (bon) fishing (piska)).

The goals of this project were formulated in collaboration and discussion with the primary stakeholders responsible for fisheries management on Bonaire<sup>1</sup>. The purpose of these conversations was to inform stakeholders about, and create support for, the project proposal and to receive targeted feedback on the content. Ultimately, the goal is for the Government of the Netherlands, the National Office for the Caribbean Netherlands (RCN), the Public Body of Bonaire (OLB) and local nature organizations to apply the findings of this research to the management of the fishery. These conversations were also intended to concretize the design of an intervention.

#### 2.2.1 RESEARCH TEAM

Stacey Mac Donald (KITLV, Ph.D. candidate) was the main researcher within this project. Arjan de Groene (WWF-NL, Caribbean Netherlands Program Coordinator) and Pieter van Baren (WWF-NL, Caribbean Netherlands Program Advisor) were regularly consulted by Stacey to discuss and (re)define the research goals and questions. In addition, Pieter van Baren introduced Stacey Mac Donald to the main stakeholders and gatekeepers in the field of fisheries management on Bonaire.

#### 2.2.2 RESEARCH ETHICS

Other than more traditional forms of scientific research (e.g. surveys, interviews, observations), the goal of action research is to facilitate change within a community regarding a shared social issue. In collaboration with stakeholders, the researcher aims to develop and realize a goal that meets the needs and goals of the community on an individual and a collective level.

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<sup>1</sup> Ministry of Agriculture, Nature, and Food Quality, the National Office for the Caribbean Netherlands (RCN), Public Body of Bonaire (OLB) and Stichting Nationale Parken Bonaire (STINAPA).

In this case, it is the higher goal of establishing a fisheries co-operative. Consequently, collecting data and writing are secondary goals of action researchers, and facilitating change the primary goal.

Throughout the project, the researcher (Stacey Mac Donald) was aware of the fact she was fulfilling multiple roles: a researcher based in a Dutch Institute, who was executing a consulting project for WWF-NL assisting a fishing community on Bonaire. Having these many, at times, conflicting roles can impede the creation of trust among stakeholders. Aware of the opinions and sentiments expressed towards past research(ers) by the fisheries community on Bonaire, the researcher focused on remaining transparent throughout the process. From the onset, the researcher stated to her respondents that indeed she was fulfilling many roles, but that all support given to the fishers would be based on their expressed need. Also, she emphasized that she did not have any expert knowledge about the marine ecosystem or fisheries. To ensure full and meaningful participation, the researcher continuously demonstrated she was willing to put in the extra hours and effort to support the cooperative in achieving its goals. This was necessary because of the multiple, at times conflicting, roles the researcher fulfilled during her stay on Bonaire.

This project is part of the researcher's Ph.D. dissertation, in which she will reflect extensively on her position as a researcher with in a Dutch Institute, her personal Dutch Caribbean background and executing a consulting project funded by the WWF-NL and KITLV.

## 2.3 METHODOLOGY

By means of literature research, interviews, and PAR, the social structures within the fishing community have been identified to create a step-by-step plan based on which sustainability initiatives will have a greater chance of success.

### 2.3.1 *INVENTORY: CONTEXT ANALYSIS AND LITERATURE REVIEW*

A literature review was conducted to identify and examine examples within the region that illustrate the factors necessary for successful (participatory) fisheries management in the region. (Online) archival resources of the government of the Netherlands and the Public Body of Bonaire were consulted to get an overview of work that has been done regarding fisheries management on Bonaire.

### 2.3.2 *PARTICIPATORY ACTION RESEARCH: FISHERIES COOPERATIVE PISKABON*

Action research 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 2).

Aware of the need to include fishers in the management of the sector, the action research focused on setting up a fisheries cooperative. The strategy was chosen on the base of the literature review and insights derived from the preliminary interviews. Initially the intervention aimed to identify how a meeting with fishermen can best be organized to involve them in fisheries management practices. Because several successful meetings were quickly realized, and the desire to have a fisheries cooperative was expressed by various stakeholders it was decided to focus the action research on helping fishermen set up a fisheries cooperative.

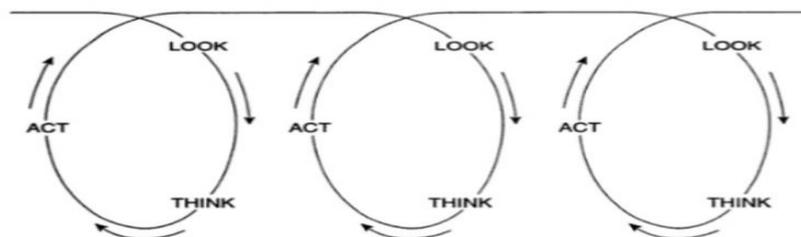


Figure 2. Action Research Interacting Spiral (Springer, 2007).

This approach was chosen for several reasons:

1. Having a fisheries cooperative in the view of WWF-NL is essential to ensure that the fishermen as a group are properly represented in fisheries management decisions and discussions;
2. Several attempts had been made in the past to set up a fisheries cooperative, but had been unsuccessful thus far. Thus, it was crucial to find out what is needed to effectively organize the fishers.
3. Working closely with the fishers and particularly the board of the cooperation would give in-depth insights into the bottlenecks and create the opportunity to experiment with solutions to achieve a management climate in which the fishers are structurally and equally involved;
4. Researchers who in 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' have expressed a need for 'real' action to be taken in order to improve the sector.

### 2.3.3 INTERVIEWS

Semi-structured interviews were held to identify the social context and the bottlenecks in the field of fisheries management on Bonaire. Interviews focused on the following topics:

- Perceptions / attitudes with respect to:
  - Declining on fish stocks / size of catch
  - Importance of sustainable fishing
  - Importance of fisheries management
  - Importance of having a fisheries cooperative
  - Opinions about existing rules and regulations and enforcement
  - Importance of fishing on the island
  - The roles and responsibilities of the different stakeholders: National Government, public entities, NGOs, fishers.
  - (Possible) future interventions including F.A.D.'s, educational programs / knowledge sharing from the region, monitoring, changes in legislation etc.
- If, or why, they consider policy and regulations regarding fisheries to be important
- What the stakeholders consider to be the problems and the causes of these problems in fisheries
- Under what conditions the stakeholders are prepared to participate in sustainable fishing initiatives.

Questions were formulated in an open-ended format to reduce the chance that important information was missed. In addition, interviewees were continuously asked to explain their reasoning (the 'why' question), to reveal underlying interests and motives that guide opinions and perceptions. By systematically collecting this information from the different stakeholders the differences in perceptions and attitudes can be compared with each other.

Initially it was also the intention to interview the fishers themselves. However, during the project it was decided to deviate from this approach for the following reasons:

#### Saba & St. Eustatius

Because the bulk of the data collection took place on Bonaire, the report uses Bonaire as the main point of reference.

To get an idea of the social and psychological bottlenecks on Saba and St. Eustatius, semi-structured interviews were conducted with individuals from the different fisheries stakeholders.

Although interviews revealed that social inhibitors of fisheries management on Saba and St. Eustatius are often similar as to those on Bonaire, there are also several important differences.

Because the collected data of Saba and St. Eustatius is less extensive, separate, colored text boxes address the cases of Saba and St. Eustatius.

- Fishers have become more and more suspicious of researchers in general over the course of time. Furthermore, they have been interviewed frequently and their participation has, according to them, not led to visible improvement of their situation.
- Interviewing the fishers could tamper with the successful establishment of the fisheries cooperative PISKABON. Because the researchers assisted the board of the cooperative with their establishment, interviewing fishers could raise suspicions about the intentions of the researcher.
- The researcher could receive substantial input from fishers, in addition to the information gathered through the board of the fisheries cooperative, by collaborating with a local historian Franklin 'Boi' Antoin who worked on a documentary about the culture of the Bonairean fishers.
- Lastly, because fishers have been interviewed by several researchers over the past years, and the data collected from these interviews can provide insight into the research questions of the current projects, the need to fatigue fishers with a long set of questions was not deemed necessary.

Gathered data was supplemented and substantiated with findings from previous reports (e.g. Dilrosun, 2004; de Graaf et al. 2016; Johnson & Jackson, 2015). To verify the validity and accuracy of the findings, discussions with and presentations to WWF-NL and the other stakeholders were organized. For an overview of all informants see Appendix II.

## 3 A DESCRIPTION OF THE FISHERIES SECTORS

### 3.1 BONAIRE

#### 3.1.1 TYPES OF FISHERS

There are different types of fishers on Bonaire. Distinctions are made between professional fishers and recreational fishers and charter boat fishers. With regards to techniques and targeted species, the most important distinction is made between shore based and boat based fishers and, at times, the ethnicity of the fishers is considered regarding targeted species. While most fishers are male, there are also women who fish recreationally. Moreover, the women often play an important role within the fishing community: they help with the cleaning and selling of fish. The following paragraphs describe the most commonly made distinctions, both by fishers as well as authorities (i.e. scientists, the government) on Bonaire.

##### 3.1.1.1 Professional fishers

Professional fishers are fishers whose income is (partially) depended on their caught and sold catch. Based on the number of hours people fish and their dependency on the sector for their income, a division is made between full time (more than 20 hours a week or 100-200 fishing days a year) and part time (less than 20 hours a week or 13-100 fishing days per year) professional fishers (Beleidsvisie LVV 2014 – 2029, 2014; Johnson & Jackson, 2015). Full time professional fishers go out to sea almost daily and their income is completely dependent on their catch. Part-time fishers are fishers who also have a second job in, for example, in construction. In periods (estimated average of three months a year) when there is little work on the land, they go out to sea (Dilrosun, 2004).

Another distinction made between the professional fishers in between those who own a boat and those who do not. Fishers who do not own a boat usually work with (or for) boat owners. Moreover, boat owners do not all necessarily fish themselves. Fishers who do not own a boat hire a fishing vessel and usually go out to sea with a crew of two people. Earnings (caught and sold fish) are shared according one of the following four agreements (van Baren, 2018):

- 1/3 of the earnings to the boat owner, 1/3 of the earnings to the first fisher, 1/3 of the earnings to the second fisher;
- 1/3 of the earnings to the boat owner, 2/3 of the earnings to the fisher (if there is only one fisher who does all the work);
- 2/3 of the earnings to the boat owner if the boat owner is also a fisher, 1/3 of the earnings to the first fisher.
- ½ of the earnings goes to the boat owner and the remaining half is equally divided among the fishing crew. This division is less common, but used because nowadays it is no longer profitable not to be on board and fish as a boat owner.

Before the earnings are divided, the costs of the boat (i.e. fuel, ice) are settled. If no fish is caught, the fishers do not have to pay the boat owner immediately but he/she does keep track of outstanding costs. This means that the costs will be settled the next time the fishers do catch fish. Boat owners accept the risks that no fish might be caught during a trip and give an advance on costs made (e.g. fuel), seeing that not going out to sea means no earnings are made at all. In general, fishers who work on a boat of a fish trader or boat owner, usually get paid on weekly basis (Leendertse & Verbeek, 1987).

It is difficult to draw any conclusions about the income level of fishers, due to various reasons. The general belief is that professional fishers are relatively poor – however, because it is not monitored, how much fish is being caught and sold, nor have not been controlled for paying their income taxes, it is quite difficult to estimate the average income levels. Recreational fishers, on the other hand, are believed to fall in the middle- to high-income level categories. Schep, Johnson, van Beukering and Wolfs (2014) tried to estimate the yearly incomes of professional fishers based on different types of self-reported data from a study by Jonson (2011) who extensively interviewed 51 professional part-time and full time fishers of Bonaire. Based on various calculations, they estimated an income of professional fishers to lie between and average of 24.122,00 and 35.511,00 Antillean guilders (ANG) (equivalent of 13.551,69 and 19.950,00 US Dollars).

As mentioned, there are no exact statistics available on the number of professional fishers. Several previous studies and reports have attempted to count or estimate the number of fishers and fishing vessels and made estimates about the fishing activities taking place on the island. Table 1 presents an overview of the available statistics. It must be noted that numbers presented are mostly estimates or aggregations and the different reports often obtain different definitions for the types of fisheries. While some reports state that the number of fishers and boats have remained relatively constant over the years (i.e. De Graaf et al, 2016), a general feeling among the (professional) fishing community of Bonaire is that over the years the number of professional fishers has declined due to various reasons. It has become increasingly difficult to make a decent living from fishing (Interviews, 2017). Thus, it remains inconclusive how many (professional) fishers are active on Bonaire.

**Table 2 Overview of number of fishing vessel and fishers on Bonaire (adapted from De Graaf et al, 2016).**

Year	Fishing boats		Fishers		Source
	Small (<7m)	Large (>7m)	Full-time	Part-time	
1903			93	275*	
1904	60	25	105	305*	Zaneveld, 1961 and references therein
1959	90**		40	60	Zaneveld, 1961 and references therein
1979	100	18	-	-	Archive LVV Bonaire
1985	170	23	52	-	Leendertse & Verbeek, 1987
2004	64	25	53	-	Dilrosun, 2004
2007	99	32	-	-	Steneck et al., 2007
2009	108				Beleidsvisie LVV, 2014-2029, and references therein
2010	-	-	30***	50***	Jonshon, 2011
2014	-	-	20****	-	Beleidsvisie LVV, 2014-2029
2014	78-98	27-31	-	-	De Graaf, 2016

\*in 1903 and 1904 all person registered as “seaman” were included under part-time fishermen.

\*\*no information on boat type, probably a mixture of small rowboats and large sailboats;

\*\*\* Estimate of total professional fishers

\*\*\*\* rough estimate of LVV department, no estimate given for part-time (or recreational) fishers

### 3.1.1.2 Recreational fishers

In addition, to professional fishers, there are a lot of people who fish recreationally on Bonaire (12 or less fishing days per year (Johnson & Jackson, 2015). Recreational fishers do not make any earnings from fishing, but some recreational fishers do use it as a way to reduce food expenses (Schep, Johnson, van Beukering & Wolfs, 2014). FAO (2015) defines recreational fishery as fishery conducted for reasons other than to satisfy essential nutritional needs and where fishing products are generally not sold or otherwise traded on markets.

While recreational fishers are difficult to identify and quantify because of their irregular activities (Dilrosun, 2004; de Graaf et al, 2016), research by Laclé (2011), estimated that 15-20% of the local population practice recreational or subsistence fishing and that 80% of recreational fishing is done from shore and 20% from small (mostly rowing) boats. Based on this data, it seems that the number of recreational fishers seems to increase as the population of Bonaire is rapidly growing.

### 3.1.1.3 Charter boat fishers

Fishers who work on charter boats are also placed in a different category, mainly because of the different ways income is generated through and risks attached to this business. Charter boats offer a fishing trip service to tourists. Tourists pay for the fishing trip, without a guaranteed catch. This means that fishers on these boats have a more stable and secure source of income, if there are sufficient tourists. When fish is caught, the tourists can take their catch home. Often the amount of fish caught is so substantial that the boat owners can sell the remaining fish. Lastly, depending on the generosity of the tourists and the quality of the trip, fishers also receive a tip. According to one of the fishermen working on a charter boat, this means these fishers have three sources of income: a salary (or fee) for working on the charter boat, earnings from sold fish (that tourists leave behind) and at times an additional tip from the tourist (Interviews, 2017). Charter boat fishing is one

of the few businesses that directly profits from and contributes to tourism and fisheries sector of Bonaire. Currently there are six charter boats active on Bonaire.

#### **3.1.1.4 Ethnic and cultural differences**

On Bonaire, fishers are sometimes also distinguished based on their ethnicity or nationality. For example, they consider Bonairean local fishers different from Chinese, Latino and Surinamese residents on the islands who also participate in recreational fishing activities. The latter often fish for different species than the local fishers (e.g. sea urchins, mussels, shrimps), on different locations (e.g. directly on the reef, in the salt pans), using different fishing techniques (e.g. fishing nets).

### **3.2 FISHING METHODS, FACILITIES, TECHNIQUES AND SPECIES**

#### **3.2.1.1 Shore based and boat based fisheries**

When it comes to fishing methods and targeted species, an important distinction is made between shore based and boat based fisheries. The **shore-based fishery** on Bonaire is mostly done by for recreational or subsistence (i.e. food provision) purposes. It requires little investments, no fishing licenses and is easily accessible to all. Consequently, shore-based fishing is an important cultural and social activity. Lacle et al. (2012) estimated that about one third of Bonairean households participate monthly in recreational shore-based fishing. With shore-based fishery, reef fish are caught most. Shore-based subsistence fishing has a long history on Bonaire. Fishers would go to so-called “banki’s”, small areas of smoothed out lime-stone rock, along the east coast of the island. The small platforms allowed for fishing to take place from the otherwise steep and sharp cliffs. It is believed these “banki’s” date back for several decades or centuries (De Graaf et al 2016).

One interviewee shared how fishing would be a very common family pass time on Bonaire for years. Families would gather on the coast and at the pier during weekends, throw out a line and enjoy each other’s company. According to several interviewees, this type of fishing behavior declined after the passing of a coral disease in the 90’s and fish were no longer caught. During another interview, for example, a respondent recalled her grandmother sharing stories about how she would go fish almost every day from the pier for herself. The frequency with which she did this decreased over the years as it became increasingly more difficult to catch a decent size fish within a reasonable amount of time. Fishing usually takes place from the shores surrounding the main town (Kralendijk), at the end of the day using hand lines.

In terms of **boat based fishing**, this is mostly done by professional fishers, but does not exclude recreational fishing. Fishing boats are divided into two types – big boats or *Boto Grandi*, or small boats, *Boto Chiki* - based on their length and propulsion. Small boats are smaller than 17 ft. and have an outboard gasoline engine with a power range of 6 to 25 HP (Dilrosun, 2004; de Graaf, 2016). Not all small boats have an outboard motor and some still make use of oars. The small boats are minimally equipped, usually only stocked with several hand lines, a rope and a large coral stone that serves as an anchor. The smaller boats focus predominantly on reef fish by means of hand lines, close to the shore of Bonaire. Big boats are at least 17 ft. and have an inboard diesel engine with a power range between 52 and 135 HP. These big boats are usually equipped with a Very High Frequency (VHF) radio, Global Positioning System (GPS), live-well, safety gear and an anchor with chain and rope. Big boats also have a cabinet (*Kabinèt*) and steering hut with a hood that provides some protection against the sun. Big boats venture a bit further out to sea, and predominantly target pelagic fish, caught by trolling several hand lines at once. While small boat fishing mainly takes place near the shore (<400m) due to the relative small size and relatively high fuel costs, some big boats venture towards the Aves islands right off the coast of Venezuela. Fishing on the open sea or closer near the coast is also dependent on the season (Dilrosun, 2004).

The latest count of fishing vessels done by de Graaf et al. (2016) recorded a mean of 84 small boats and 26 big boats during monthly frame surveys<sup>2</sup>. Fishing trips on big boats lasted on average 9.5 hours and on small boats 5.5 hours. According to the researchers, all big boats together make approximately 2100 trips a year and small boats about 4000. Again, while it is difficult to say much about historical developments of the number of boats, it seems that the number of big boats has remained relatively consistent over the past century (see table 1). In the past, boats were propelled with oars or sails. Apart from boats now being motorized and most big boats being equipped with electronics such as GPS and fish finders, the main fishing techniques have remained traditional.

### **3.2.1.2 On shore facilities and harbors**

Boats are moored at nine harbors, namely BOPEC, Bonaire Nautico Marina, Playa Frans, Harbor Village Marina, Playa Pabou, Plaza Marina, Sorobon, Lac Cai and Lagun. Three of these harbors (Harbor Village, Plaza Resort, Bonaire Nautico Marina) are privately owned and six are public (BOPEC, Playa Frans, Playa Pabou, Sorobon, Lac Cai and Lagun). The public harbors are free to use, however the facilities available for the fishers are limited and maintenance of facilities takes place very rarely, if not only when the damage is extreme due to for example passing storms. Several fishermen shared that fishers have distinguished cultures and networks which can be categorized based on the harbor their boat is situated. This has to do with the fact the harbors represent the adjacent neighborhoods where fishers live. The harbors have the most distinctive cultures and largest networks and are, Playa Frans (fishers of oldest neighborhood of Bonaire, Rincon), Playa Pabou (fishers living in the neighborhoods surrounding Kralendijk), and Lac (Interviews, 2017).

### **3.2.1.3 Techniques & species**

Although the type of fishing for pelagic and reef fish has relatively stayed the same over time technological innovations have entered the fishery giving fishermen more and more advantages such as having to be on the water less time, going out further offshore, more effective gear, better possibilities to preserve catches, improved communication, etc. The pelagic fishery is seasonal and mostly done by (large) fishing vessels by means of towing hand lines. Here, migrating species such as King Mackerel (Mula, Wahoo; *Aconthocybium solandri*), Dolphinfish (Dradu; *Coryphaeru hippurus*) and Tuna (Bonito, Yellowfin Tuna, Blackfin Tuna; *Thunnus* spp) are caught. Reef fish are caught both from boats and from the coast. Common reef fish that are caught are yellowfin mojarra (*Gerres cinereus*), French grunt (*Haemulon flavolineatum*), graysby (*Cephalopholis cruentata*), coney (*Cephalopholis fulva*) and yellowtail snapper (*Ocyurus chrysurus*) and is done from smaller fishing vessels or from the shore by means of hand lines (De Graaf et al, 2016; Dilrosun, 2004).

Various types of relatively cheap fishing gear are used. Gears used are the hook and (hand)line, beach seines (or *Reda*), fish traps (canasta), and snorkel fishing with hook and line. The hook and line are most common and used for both for shore and boat based fishing. Some fishers use beach seines to catch bait and the seasonal *Masbangu* (Bigeye scad, *Selar crumenophthalmus*). While fishing gears and methods have changed little over time (de Graaf et al, 2016), the catch of certain species did change or disappeared throughout the years. The use of fish traps, for example, used to be a common method, nowadays they are only used by a few fishers at Lac bay. The reason being that divers used to destroy deployed fish traps whenever they would encounter them (Dilrosun, 2004; Interviews, 2018). In the past spearfishing also used to take place, but this was banned in 1971. In addition, sea turtles would be a highly targeted species in the past. Since 1961, eggs and nests of sea turtles have been protected on Bonaire since 1961 and since 1991 full protection of the species at all life stages was established (Willis, Nava, Schut & Stapleton, 2015). This also accounts for the Queen Conch (karko). Lac Bay was a popular spot for conch fishing due to the easy access to the sea creatures. It was an important source of income for the fishers and a staple in local cuisine. As the demand for conch increased, the shellfish became rapidly overfished, despite

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<sup>2</sup> A Frame Survey is a census-based approach in which data is collected on all fishing vessels and gear (at all homeports/fishing sites), which could be potentially operating within the estimation context or stratum. ([FAO](#))

the legislation to protect the species. The “Conch Restoration project” in Lac Bay was launched in August 2010 by STINAPA to help restore the conch population.<sup>3</sup>

### 3.2.2 *SELLING AND BUYING OF FISH*

Not only is fishing a popular activity, the consumption of fish is too. It seems as though almost everybody eats fish on Bonaire. If you do not fish yourself, you can buy fish from a neighbor or a fish trader (Abel, 2000). Fish is an important part of the Bonairean diet (Oleana, 2018). In the past, the fish would be primarily sold via informal routes. Nowadays, there are several (semi) professional, commercial fish vendors on the island. Fish vendors are often also boat owners and have fully equipped selling areas at home (Dilrosun, 2004). They often collaborate with a fixed group of fishers (suppliers) and a set client base (e.g. hotels and restaurants). Fish traders started to professionalize circa 2010. The shop Zarpin L.V.V. Paradijs, for example, was one of the first stores professionally selling local produce, including iguana, goat meat, eggs and mostly fish. Inspired by a visit to an old fish market in the fishing village of Breskens, The Netherlands, the founder opened up his own shop using refrigerated counters to display and sell freshly caught fish. He also wanted to help improve and maintain the quality of fresh local produce for his clients<sup>4</sup>.

Fishers who do not work with a fish vendor are responsible themselves to buy materials to maintain the quality of the fish: they should buy their own jugs, ice and be in possession of a freezer. Due to the small scale of the island, there are only a few providers of fishing gear and other necessary materials. Consequently, the costs of these are very high and often too expensive for fishers, which makes it very appealing for fishers to collaborate with fish vendors. That way, they do not have to focus on the sales after a long day at sea. Abel (2000) reported that selling fish to hotels is preferred, because hotels often buy up the whole fish, which saves the fisher or fish vendor time and yields more money. While the exportation of fish is not a formal market, several fishers do sell their catches to traders on Curacao. People on Curacao say to prefer the fish from Bonaire, because this fish is of better quality than the fish caught by Curacaoan fishers (Leendertse & Verbeek, 1987; Dilrosun, 2004).

Selling through word of mouth still occurs today. Almost daily locals and tourists would walk by the fisher’s pier in the afternoon to see if there were fishermen who had anything for sale. It is also common that residents directly approach fishers and place informal requests, asking fishers to call them when they caught a certain species of fish. What is new is the use of social media, such as Facebook, but also WhatsApp, through which both fishers and vendors share their daily catch to promote the sales.

### 3.2.3 *THE ECONOMIC VALUE OF THE SECTOR*

On Bonaire, the fishing sector does not keep track of its landings, nor do fish markets keep track of their sales in terms of species. This makes it almost impossible to say anything about the monetary value of the sector. However, to gain some insights into the socio-economic value of reef fisheries an extensive willingness to pay study was conducted by the Institute for Environmental Studies of the Free University of Amsterdam (VU) commissioned by the Ministry for Economic Affairs, Agriculture and Innovation. The findings were intended to assist decision-makers in understanding and managing reef fisheries. The study looked at both recreational and commercial reef fishing activities to estimate the total socio-economic value of reef fishing on Bonaire.

In total, the reef-related commercial fishing was valued at circa \$400.000 a year, and the recreational reef fishery was estimated to have an economic value of \$700.000 per year. While the authors claim that their data represents the most thorough assessment that has yet been conducted on Bonaire’s fisheries (Schep, Johnson, van Beukering & Wolfs, 2014), it must be said that these values are based on a lot of estimates and assumptions which cannot be controlled due to the lack

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<sup>3</sup> <https://www.dcnanature.org/projects/conch-restoration/>

<sup>4</sup> <http://bonaire.tv/fuhikubo-ta-presenta-zarzinio-josephia-i-lucia-schoop-2/>

of data of fish catch composition, the number of fishers and reliable market prices of caught fish. More importantly, this is only an estimate for the reef-related fisheries, and not the pelagic fisheries which also make up a significant amount of the catch of fishers. Thus, it remains unclear what the actual economic contribution of the fisheries sector is to the sector of Bonaire.

In terms of ecosystem and eco-system services (i.e. goods services that human beings derive from ecosystem) and fishing being a “provisioning service” from the marine ecosystem might be in potential conflict with other services from this same ecosystem, diving and snorkeling in particular. Healthy fish stocks are essential for healthy reefs which in turn are essential to attract divers and snorkelers to the island. If fish stocks are overexploited by local fishers, this can affect ecosystem services such as diving and snorkeling activities. Considering that the resources fisheries pulls from is the same resource that is central for the main economic pillar of Bonaire – the tourism industry, and diving and snorkeling in particular – much debate exists in terms of the relative economic contribution of fishing compared to other ways the resource can be monetized.

### 3.3 SABA

Sabans traditionally fished on the Saba as far back as 1907, but increasing foreign fishing pressures on the Bank in the 1970s and 1980s forced many Saban fishermen out (Hoetjes & Carpenter, 2010). Currently, there are circa 10 -15 professional fishers (de Graaf, 2017), ranging from 20 to 70 years old (Egberink, 2016). Fishers participate in either or both lobster trap fishery and “redfish” trap fishery. The two fisheries account for almost all commercial landings. Lobster trap fishing is the more prevalent and economically significant Saba Bank fishery (Toller, 2008). Saba has the most professional fisheries sector of all three Caribbean Netherlands islands. The fisheries sector is an import economic pillar on Saba (Framhein, 1995 cited in Meesters et al., 1996, Dilrosun, 2000). Because of the small population of Saba, most of the catch is exported to St. Maarten. From here, the fish is distributed to other surrounding islands as well as Europe, Hong Kong and Mainland China (Van Baren, 2011).

The fleet size of Saba involved in fishing on the bank has generally fluctuated between eight (2012) and ten vessels (2007) (Toller & Lundvall, 2008). All boats are fiberglass, imported New England-style lobster boats. Vessels are 30 to 40-foot long and powered by inboard diesel engines. Most vessels have live wells. Vessels are also outfitted with modern electronics including radio, GPS, and depth sounder. All the boats are well maintained and relatively new, and operate from the Saban territorial waters till the outer edges of the Saba Bank. Cost for the fishermen is made up out of boat maintenance, fuel, bait (Japanese bait for redfish and cow hides for lobster) and labor costs for deck hands. Apart from the rent of sheds for their gear practically all harbor facilities are free of charge for the fishermen (Dilrosun, 2000; Van Baren, 2018). Saban fishers make single-day trips to fishing grounds on Saba Bank. Crew consists of vessel captain and usually one deck hand. Fishing trip duration ranges from 5.3 to 14.5 hours, being strongly influenced by distance to fishing grounds, prevailing weather and fishing activities (Toller, 2008).<sup>5</sup>

### 3.4 ST. EUSTATIUS

St. Eustatius has a small-scale coastal fishery which, according to de Graaf (2015), remained stable over the past 25 years. Currently, it is estimated there are circa 3-5 active, full time fishers and circa 15 part-time/occasional fishers. Several stakeholders stated that full-time fishing entails approximately 4-5 hours of fishing a day, but that the definition is based on whether the individuals’ income is fully dependent on their fishing activities. The age of fishers ranges between 30 – 65 year, with most (if not all) full time fishers being around the age of 65. The St. Eustatius fishermen primarily fish on the narrow

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<sup>5</sup> For a brief history of the development of the fisheries sector on Saba and its management, see Dilrosun, 2000 and Toller, 2008.

shelf surrounding the island (Dilrosun, 2000b). The fishery sector is a limited economic factor on the island, . The sector provides employment and income for residents and taxes are generated from fuel, fishing gear etc. The spiny lobster is the most important fishery on the island (Dilrosun, 2000b; de Graaf, 2015). Fishermen are more focused on reef fish than on pelagic fish.

Since the implementation of the Marine Park Ordinance in 1996, fishermen have been restricted in their fishing activities: fishing is restricted to trolling in the two marine park reserves, only when returning from their fishing grounds and fishers are restricted to catching a maximum of 20 queen conch (*Strombus gigas*) per year in the marine park area. These restrictions were implemented by local government but to be managed by St. Eustatius National Parks (STENAPA), which led to conflict between the fishers and STENAPA and overall distrust of the fishers in the government and STENAPA. Some sources shared that in practice the catch limit is not adhered to by the fishers, nor that is being enforced by the management. Due to incidents in the past during which Saban fishermen accused Statian fishers of destroying fish traps. Another big constraint Statian fishers need to deal with is Ciguatera or fish poisoning. Because of this, fishers refrain from catching certain demersal predatory fish (Dilrosun, 2000b; van Baren, 2011).

The fishers have some facilities from the government (e.g. Slipway, a fisheries department in the harbor containing fishermen sheds for gear storage, an ice machine, a cleaning / selling table, sanitary and fresh water provisions, an office selling fishing gear, and several freezers (currently not running)), and fresh water). Despite there being some Statian fisher who admire Saban fishers, Statian fishers have lagged on the regarding development, innovations or improvements of the sector, their fishing gear and techniques (van Baren, 2011). According to several stakeholders, fisheries on St. Eustatius is underdeveloped, meaning that fishermen could theoretically catch more fish and make a bigger profit.

## 4 INSTITUTIONAL FRAMEWORK AND STAKEHOLDERS

*RQ: Who are the different stakeholders in the field of fisheries management on Bonaire?*

On all islands effectively implementing sustainable initiatives within the fisheries sector has been challenging. Fisheries legislation does not match the current realities of the island disabling adequate enforcement. This has led to the execution of a review of the National Fisheries legislation (see EcoVision Report, 2017). Moreover, there is much debate over whether the fishing community has been sufficiently involved in the development of local legislation. Despite attempts to manage and improve the management of fisheries sector, the lack of participation of fishers in the decision-making process is a significant issue as their involvement is a pre-requisite to the efficient management of the sector.

In the first phase of this research, several organograms of the existing organizations responsible for the management of Bonaire's fisheries sector were created (see Appendix V). These provide some understanding of the way in which the sector is (**not**) being managed and reveals the absence of fishers within the decision-making process. In the following section the different organizations or institutions responsible for the management of the fisheries sector are presented. The descriptions provided are based on publicly available documents (e.g. official websites, policy documents) as well as interviews and personal communication with representatives of these organizations. Aside from providing a stakeholder description, a first look is given in to the organizational bottlenecks present regarding fisheries management on the three islands.

The most important finding being the following:

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*There exists very little clarity regarding the (legal) roles and responsibilities of the different stakeholders in terms on fisheries management on Bonaire, Saba and St. Eustatius. This ambiguity exists both within and among the different fisheries stakeholders. This status quo has been in place since 2010 and is the main driver for ineffective fisheries management.*

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### 4.1 THE GOVERNMENT OF THE NETHERLANDS

Since the 10<sup>th</sup> of October 2010, Bonaire, Saba and St. Eustatius became special municipalities of the Netherlands. Consequently, the governmental responsibilities are now formally divided among the national Dutch ministries and the island governments (i.e. public entities). This division resulted into a lot of ambiguities regarding the roles and responsibilities, among others regarding the management of the fisheries sector. Formally, the government of the Netherlands, specifically the [Ministry of Agriculture, Nature and Food Quality \(Min LNV\)](#), previously, Ministry of Economic Affairs) holds the final responsibility for the fisheries sector. However, it is not clear who is responsible for the daily management of the sector and how this should be executed.

The Government of the Netherlands (i.e. Rijksoverheid) consists of the twelve ministries (based in The Hague). In the Caribbean Netherlands, the ministries of the central government in the Netherlands are responsible for the introduction and implementation of policy of the respective ministry. For the correct execution and support, they call on the shared service organization called National Office for the Caribbean Netherlands or Rijksdienst Caribisch Nederland (RCN). RCN is maintained by the Ministry of Internal and Kingdom Affairs (BZK) and provides facilities and office space for the various ministries. The ministries work on legislative proposals, rules and policy plans using the information and advice provided by their local extensions working out of RCN<sup>6</sup>.

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<sup>6</sup> <https://www.rijksdienstcn.com/over-de-rijksdienst-caribisch-nederland>

As mentioned previously the [Ministry of Agriculture, Nature and Food Quality](#) is responsible for fisheries, both in the EEZ as well as in the territorial waters. However, up till now compared to nature relatively little investments have been made regarding fisheries. The Government of the Netherlands regulates the fisheries sector on the three islands according to the [Fisheries Act BES](#) and the [Fisheries Decree BES](#) <sup>7</sup>. This legislation serves as the primary instrument for fisheries. Although this is one of the most straightforward direct governmental responsibilities the Government of the Netherlands has regarding the three islands, and the fisheries legislation is considered one of the more developed sets of legislations compared to that of other sectors, it is still unclear who is responsible for the daily management of the fisheries sector.

Granting that legislation is needed, this does not automatically result in a necessary corresponding management plan (i.e. a document which includes the (long-term and short-term) goals, schedule, timeline, budgets and clearly defined stakeholder roles and responsibilities). The lack of requirements for fisheries management plans, the limited range or scope and the ongoing review and reform of the legislation complicates enforcement of existing legislation and the development of a comprehensive fisheries management plan for the Caribbean Netherlands.

Although nature conservation differs from fisheries management, there does exist overlap in the Nature Policy Plan Caribbean Netherlands (NPP) 2013-2017 and the fisheries legislation <sup>8</sup>. Namely, when these instruments refer to internationally protected species or special areas that must be protected (e.g. marine parks). According to the NPP 2013-2017, the Government of the Netherlands has final responsibility for the protection of special areas and species referred to in the international treaties and the conventions signed by the Kingdom of the Netherlands. This entails promoting the implementation of the relevant regional and international treaties and conventions. There exist two types of international agreements that affect fisheries. First, there are agreements that are specifically relevant for international nature conservation (e.g. CITES<sup>9</sup>, SPAW Protocol<sup>10</sup>, CMS<sup>11</sup>, CBD<sup>12</sup>). These strongly affect fishing activities by, for example, prohibiting the catch of certain endangered species. Second, there are international and regional fisheries bodies (such as WECACF<sup>13</sup> and ICCAT<sup>14</sup>) that directly affect fisheries policy at the national and local level. The obligations under the international agreements are incorporated in national legislation. For the Caribbean Netherlands, this is the Nature Conservation Framework Act BES (Wet grondslagen natuurbeheer en -bescherming BES). This Act also provides for the division of roles and responsibilities between the National Government and the public entities (NPP 2013-2017). The government of the

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<sup>7</sup> See also appendix I for a complete overview of fisheries (related) legislation

<sup>8</sup> See: Strategic Goals and Action #12: Promote relevant guidelines and best practices for sustainable fisheries

<sup>9</sup> An international agreement between governments with the goal to prevent extinction of wild animals and plants in international trade (e.g. sharks, rays).

<sup>10</sup> The Protocol Concerning Specially Protected Areas and Wildlife (SPAW Protocol) seeks to take the necessary measures to protect, preserve and manage in a sustainable way, areas that require protection to safeguard their special value, and threatened or endangered species of flora and fauna. It is a legally binding convention, signed by 25 countries, including the Kingdom of the Netherlands. STINAPA is registered at the SPAW protocol and needs to meet the requirements in terms of protecting listed endangered species listed, including several shark and ray species and the Nassau Grouper.

<sup>11</sup> Memorandum of Understanding on the Conservation of Migratory Sharks (MOU CMS) is a global instrument to protect migrating sharks.

<sup>12</sup> Convention on Biological Diversity

<sup>13</sup> Western Central Atlantic Fishery Commission (WECAFC). The general objective of the Commission is to promote the effective conservation, management and development of the living marine resources of the area of competence of the Commission, in accordance with the FAO Code of Conduct for Responsible Fisheries, and address common problems of fisheries management and development faced by members of the Commission.

<sup>14</sup> The International Commission for the Conservation of Atlantic Tunas is an inter-governmental fishery organization responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and its adjacent seas. The (Caribbean) Netherlands is not yet part of ICCAT. If they become a member, this can have consequences for the obligation to monitor (tuna) fishery data.

Netherlands supervises the management of nature on the islands to ensure the proper protection of species and areas and can assist the islands' governing bodies with implementation at their request.

Lastly, the Minister of LNV is directly responsible for the management of areas that fall outside the island's jurisdiction but within the Kingdom's, such as the Exclusive Economic Zone (EEZ)<sup>15</sup>. The EEZ agreement was drawn up in collaboration with Aruba, Curacao and St. Maarten to jointly manage biodiversity and fisheries in the EEZ waters of all Dutch Caribbean territories with nature management as a vantage point<sup>16</sup>. Although this might affect fisheries, the sector is **not** managed by the EEZ- commission. Fisheries is (partially) jointly managed for the BES islands through the Fisheries Commission BES. (e.g. fishing permits are discussed in the Fisheries Commission BES and advices to the Minister (see also [paragraph 4.1.1.](#)).

Blue: EEZ waters  
 Green: Territorial waters  
 Red: Marine park  
 Yellow: Marine reserves

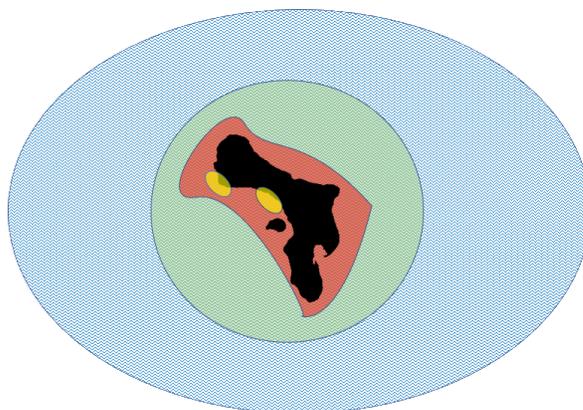


Figure 3. Example of a Simplified, Schematic Illustration of Maritime Zones on Bonaire. **IMPORTANT NOTE: This illustration is NOT a realistic, scale-based representation of the different maritime zones.**

Table 3. Overview of Maritime Zones and Respective Responsible Parties and Legislation on Bonaire

Area	Name	Resp. parties	Applicable policy / legislation / agreements	Applicable international treaties	
Blue	EEZ-waters	Min LNV	Fisheries Act BES Fisheries Decree BES Decree on tasks and procedures for Fisheries Commission	CITES SPAW CMS	CBD WECAFC
Green	Territorial waters	Min LNV Public entity	Fisheries Act BES Fisheries Decree BES Decree on tasks and procedures for Fisheries Commission	CITES SPAW CMS	CBD WECAFC
Red	Marine park	Min LNV Public entity STINAPA	Fisheries Act BES Fisheries Decree BES Decree on tasks and procedures for Fisheries Commission (for boats > 12 m)	CITES SPAW CMS	CBD WECAFC
Yellow	Marine reserve	Min LNV Public entity STINAPA	Fisheries Act BES Fisheries Decree BES Island Resolution Marine Park Bonaire	CITES SPAW CMS	CBD WECAFC

Table 4. Overview of Maritime Zones and Respective Responsible Parties and Legislation on Saba

Area	Name	Resp. parties	Applicable policy / legislation / agreements	Applicable international treaties	
Blue	EEZ-waters	Min LNV	Fisheries Act BES Fisheries Decree BES Red fish agreement Decree on tasks and procedures for Fisheries Commission	CITES SPAW CMS	CBD WECAFC

<sup>15</sup> Nature Policy Plan Caribbean Netherlands 20013-2017; pp 15

<sup>16</sup> <https://www.rijksdienstcn.com/landbouw-natuur--voedselkwaliteit>

			Decision of the State Secretary on time restriction for fisheries in waters near Saba		
Green	Territorial waters	Min LNV Public entity	Fisheries Act BES Fisheries Decree BES Fishery Ordinance Saba Red fish agreement Decree on tasks and procedures for Fisheries Commission	CITES SPAW CMS	CBD WECAFC
Red	Marine park	Min LNV Public entity SCF	Fisheries Act BES Fisheries Decree BES Fisheries Ordinance Saba Saba Marine Environment Ordinance Red fish agreement Decree on tasks and procedures for Fisheries Commission (for boats > 12 m)	CITES SPAW CMS	CBD WECAFC
Yellow	Marine reserve	Min LNV Public entity SCF	Fisheries Act BES Fisheries Decree BES Fishery Ordinance Saba Saba Marine Environment Ordinance Red fish agreement	CITES SPAW CMS	CBD WECAFC

**Table 5. Overview of Maritime Zones and Respective Responsible Parties and Legislation on St. Eustatius**

Area	Name	Resp. parties	Applicable policy / legislation / agreements	Applicable international treaties	
Blue	EEZ-waters	Min LNV	Fisheries Act BES Fisheries Decree BES Decree on tasks and procedures for Fisheries Commission	CITES SPAW CMS	CBD WECAFC
Green	Territorial waters	Min LNV Public entity	Fisheries Act BES Fisheries Decree BES Fishery Ordinance Decree on tasks and procedures for Fisheries Commission (for boats > 12 m)	CITES SPAW CMS	CBD WECAFC
Red	Marine park	Min LNV Public entity STENAPA	Fisheries Act BES Fisheries Decree BES Marine Park Ordinance Decree on tasks and procedures for Fisheries Commission (for boats > 12 m)	CITES SPAW CMS	CBD WECAFC
Yellow	Marine reserve	Min LNV Public entity STENAPA	Fisheries Act BES Fisheries Decree BES Marine Park Ordinance	CITES SPAW CMS	CBD WECAFC

In sum, Min LNV is responsible for the proper management of fisheries in both the EEZ around the three islands and, together with the island authorities is responsible for the territorial waters. According to the official [government website](#) their tasks include the following:

- Provide inventories of fish stocks, fishers and fishing vessels to coordinate catch capacity and fishing opportunities. Measures include the registration of boats and the issuing of fishing permits;
- Ensure that third parties cannot use the islands as a transshipment site for illegally caught tuna;
- Cooperate with the other Kingdom countries in the Caribbean through a Memorandum of Agreement (MoA). The Government of The Netherlands regulates fisheries according to the Fisheries Act BES and the Fisheries Decree BES.<sup>17</sup>

<sup>17</sup> <https://www.rijksdienstcn.com/landbouw-natuur--voedselkwaliteit/visserij>

Another ministry that affects the fisheries sector is the **Ministry of Infrastructure and Water Management (Min I&W)**. Together with the island territory and local organizations (e.g. STINAPA, STENAPA, SCF), Min I&W works on the following matters relevant to [fisheries](#): safe harbors, secure transports, wastewater purification, clean bottom, [spatial development plans](#), [maritime disaster management](#), inspections. In addition to Min I&W, the Ministry of Defense, Ministry of Justice and Security and Ministry of Health, Welfare and Sport have certain responsibilities (indirectly) affect the fisheries sector (see also legislation overview in Appendix I). The figure below illustrates the overlap that could exist between the responsibilities of these ministries and how this can lead to ambiguity who needs to take the lead in the various aspects of fisheries management on the three islands<sup>18</sup>:



Figure 4. Schematic Illustration of (possible) overlap between different Ministries regarding fisheries management responsibilities.

#### Tasks & responsibilities affecting fisheries

- Develop, implement and enforce legislation (Fisheries Act BES / Fisheries Decree BES)
- International accountabilities (see also overview De Graaf et al, 2016)
  - Data monitoring (not legally bound, but financed through nature funds)
    - Bonaire: **No** Data Monitoring officer (DMO)
    - Saba: DMO based at SBMU/SCF
    - St. Eustatius: DMO based at the [CNSI](#)
- Subsidize research and projects
- Inform public about legislation

#### 4.1.1 FISHERIES COMMISSION BES

The Fisheries Commission BES was installed by the Ministry of Economic Affairs, Agriculture and Innovation (now Min LNV) in 2012. It consists of one representative from Bonaire, one from Saba, one from St. Eustatius and an independent chair.

<sup>18</sup> rijksdienstcn.com / Social Mapping Interviews (2018)

The Minister assigns the chairperson and the public entities of the three islands assign the representatives. The representatives act in accordance with the standpoint of their Executive Council. In addition to the chairperson, the minister appoints a secretary.

The members of the fishing commission have two yearly meetings. According to several stakeholders, local fishers have not been structurally informed (nor included) about the content or outcome of these meetings. Among other reasons, this is mainly due to the lack of feedback given by the members of the Fisheries commission to the sector. When fishers were invited (i.e. on Saba), they did not show up to meetings. The [Fisheries Act BES](#) includes a brief description of the tasks and responsibilities; however, it is also stated that the Minister will make further agreements with the Fisheries Commission regarding their rules, tasks and working methods. Finally, the legal tasks of the fisheries commission are described in the [Fisheries Decree BES](#).

#### **Tasks & responsibilities affecting fisheries**

- Advise the minister of Min LNV on i.e. [the distribution of fishing permits](#); see also: [Besluit houdende taken, werkwijze, benoeming en vergoeding Visserijcommissie BES](#)

## 4.2 PUBLIC ENTITIES

The public entities of Bonaire, Saba and St Eustatius each consist of the Island council (i.e. the legislative body, voted for by and representing the citizens of Bonaire, Saba and St. Eustatius), the Executive council (i.e. the executive body, appointed and supervised by the Island Council) and the different management departments. The Island Council and Executive Council are chaired by the Lieutenant Governor (i.e. the head of the public entity). The Island Lieutenant Governors are appointed by the King, under responsibility of the Minister of the Interior and Kingdom Relations for a term of six years. Each lieutenant Governor is responsible for public order in their public entity. The Island Council controls the Executive Council by passing ordinances (policies and legislation) that must be executed by the Executive Council. The Island Council is also responsible for approval of the annual budget of the public entity and has the power to pass ordinances.

According to the Nature Policy Plan Caribbean Netherlands (NPP) (2013-2017), the public entities of the islands are primarily responsible for nature conservation, and –management on the islands. Specifically, the executive councils are responsible for providing the designated protected areas with the means and finance and that policy, planning, legislation and enforcement to protect the natural resources. The NPP (2013-2017) also states that the *Executive Council* is responsible that the demands of the international agreements and conventions are met.<sup>19</sup>

According to the NPP (2013 – 2017) the *executive councils* are responsible for drawing up nature plans, in accordance with the nature policy plan of the Caribbean Netherlands. These plans are supposed to contain specific goals regarding nature conservation, management and sustainable use. They are also required to include maps of the protected areas, lists of protected species and a management plan of the nature outside of the protected areas.

Lastly, the NPP (2013) advises that each island composes a platform in which non-governmental organisations (NGOs) that are concerned with nature conservation and representatives of the public entities can discuss and make agreements about the management of the protected areas and species. The Public Entity of each island appointed a national nature conservation organisation responsible for the management of nature (i.e. Stichting Nationale parken Bonaire (STINAPA), St. Eustatius National Parks (STENAPA) and Saba Conservation Foundation (SCF)). The mandate of these organisations is – to some degree - anchored in island regulations and management agreements (see also section 4.3).

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<sup>19</sup> [http://www.dcnanature.org/wp-content/uploads/2013/04/Natuurbeleidsplan-Car.Nederland\\_print.pdf](http://www.dcnanature.org/wp-content/uploads/2013/04/Natuurbeleidsplan-Car.Nederland_print.pdf) - p 15- 16

The commissioners are responsible for the different departments within the public entity. On Bonaire and St. Eustatius, there is a governmental Agriculture, Livestock and Fisheries (LVV) department. These departments are (partly) responsible for the implementation and enforcement of fisheries legislation and policy, however the extent of their (legal) role and responsibility with respect to fisheries to do so is unclear, and differs on each island. On Saba there is no governmental department or service within the public entity that is directly concerned with the fisheries sector.

On Bonaire fisheries fall under the department of Agriculture, Livestock and Fisheries (LVV), which belongs to the Directorate of Space & Development (R&O). The public entity of Bonaire also has a Supervision & Enforcement Directorate, which is relevant for fishing in the event of violations. The harbormaster also falls under that department. Among other things, he is responsible for the security of ports, registration and safety of boats and the maintenance of the piers and quays. The policy vision plan of LVV (Beleidsvisie LVV 2014 -2029, 2014) explains that since the abolishment of the Netherlands Antilles, the MinLNV became directly responsible for the fisheries sector of Bonaire. And that for the Public Entity of Bonaire, the rules related to fisheries in the territorial sea and the fishing zones are established in the Fishery Act BES and the Fisheries Decree BES.

Based on these policy plans, it seems that the public entity is responsible for the implementation and enforcement of fisheries legislation and policy. In the policy vision plan of LVV (Beleidsvisie LVV 2014 -2029, 2014), it is stated that while it might be the case the public entity has legal possibilities to manage fisheries, the possibilities and impossibilities of the relatively small administration should be taken into account. In 2014, merely two policy officials were in place to deal with the complex development and management of not only fisheries, but also agriculture, livestock and many other tasks. However, due to the absence of an overarching fisheries management plan, the extent of its (legal) role and responsibility with respect to fisheries remains somewhat unclear. In general, however, rules and regulations at the level of the public entities cannot be less stringent or in contradiction with the legislation put in place by the Government of the Netherlands. While rules can be more detailed and stricter, under no circumstance can they go against the Principle of Equality (e.g. permits cannot be exclusively issued to 'Statian' fishermen to fish in Statian waters, but should legally also be able to include other (non-Statian) individuals who reside on Statia and who want to fish).

The Executive councils have a big interest in keeping the fisheries sector on the three islands active, because this sector provides employment, generates income, helps reduce poverty, provide food and are integral parts of the islands' cultures. However, actual measures taken to protect and/or develop this sector have been sporadic and minimal if at all.

#### ***Tasks & responsibilities affecting fisheries***

Bonaire:	Unclear
Saba:	Issue export permits for fish/lobster * (EcoVision, 2017)
St. Eustatius:	Registers fishermen *
	Check lobster size before export *
	Issue export permits * (EcoVision, 2017)

#### ***4.2.1.1 Nature Management Commission Bonaire***

In the Island Ordinance of September 1, 2008, a Nature Management Commission Bonaire has been appointed for the protection and management of nature and the animal and plant species. The task of the Nature Management Commission is to provide the Executive Council with solicited and unsolicited advice on measures regarding the implementation of this Island Ordinance and nature conservation in general. At times the advice of the commission can be mandatory.<sup>20 21</sup>

<sup>20</sup> [http://bonairegov.com/sites/default/files/uploads/pdf/1044\\_Infoblad\\_Commissie\\_natuurbeheer\\_Bonaire.pdf](http://bonairegov.com/sites/default/files/uploads/pdf/1044_Infoblad_Commissie_natuurbeheer_Bonaire.pdf)

<sup>21</sup> [http://www.bonairegov.com/sites/default/files/uploads/pdf/1044\\_Infoblad\\_Evnb.pdf](http://www.bonairegov.com/sites/default/files/uploads/pdf/1044_Infoblad_Evnb.pdf)

Although this commission is not directly concerned with fisheries or fisheries management, its advice or decisions regarding the marine environment can affect the fisheries sector.

#### **Tasks & responsibilities affecting fisheries**

- Advise executive council on measures regarding nature conservation

### 4.3 NGOs

Besides the government, there are several non-governmental organisations who are partly (and indirectly) concerned with fisheries management on the three islands. First, there are the three national nature foundations: Stichting Nationale Parken Bonaire (STINAPA), St. Eustatius National Parks (STENAPA) and Saba Conservation Foundation (SCF). These three foundations - each to some degree - carry the responsibility to manage the nationally designated marine parks surrounding each island, which can also affect fishing activities. A fourth important foundation is the WWF-NL who is (morally) concerned with the state of the fisheries sectors on all three islands. The following paragraphs describe the extent to which each of these NGOs are (legally) responsible for or have an interest in fisheries management on the three islands.

#### 4.3.1 STICHTING NATIONALE PARKEN BONAIRE (STINAPA BONAIRE)

The Bonaire National Marine Park was established in 1979. The Island Government gave management of the Marine Park to STINAPA in 1991, which was already managing the island's land park and created a 'Begeleidingscommissie' made up of representatives of the tourism sector, conservation interests as well as local island interests to guide Park management (Bonaire National Marine Park Management Plan, 2006). STINAPA manages the marine park according to the [Island Resolution Marine Park Bonaire](#), which was implemented by the Executive Council in September 2010. The Executive Council designated two areas in the Marine Park as fish reserves, where it is forbidden to catch any marine life in any manner under any circumstances. The Marine Park includes all the waters surrounding Bonaire and Klein Bonaire, from the high-tide mark to 60 meters (200 feet) of depth. This is an area of about 27 km<sup>2</sup> (6672 acres) and includes the coral reef, sea grass and mangroves. The main categories of marine park management responsibilities include<sup>22</sup> :

- **Law enforcement:** In past STINAPA needed police assistance when dealing with infringement. Now most of the rangers employed at STINAPA have special police powers (BAVPOL) and can write out penalties for the offenders ourselves. STINAPA informs Park visitors about the rules, regulations and codes of conduct through brochures and websites.
- **Maintenance:** the maintenance of shoreline site information and moorings. Collect nature fees of marine park users.
- **Research and monitoring:** basic monitoring, of factors such as water temperature, water quality and nutrients.
- **Education and awareness:** STINAPA started a Ranger Training Program for her employees and high school students. The objective is to increase the skills and knowledge of the ranger and motivate students to seek the profession of STINAPA Ranger, to continue their studies in a nature and environment-related science. In addition to this training program, STINAPA collaborates with schoolteachers and the government to educate children, adults and visitors about the importance of the environment for Bonaire.
- **Advisory:** The Manager of the Bonaire National Marine Park is an advisor to the Nature Management Commission.

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<sup>22</sup> <http://www.dcnanature.org/wp-content/uploads/2012/08/BonaireNationalMarinePark2006ManagementPlan.pdf> ; retrieved in June 2018.

#### **Tasks & responsibilities affecting fisheries**

- Enforce legislation (see also [Island Resolution Marine Park Bonaire](#))
- Educate public
- Research and monitor marine park
- Maintenance of marine park (e.g. public moorings)
- Advice island government on requests for permits (e.g. construction, renovation, research)
- Develop and implement management plans.

#### 4.3.2 SABA CONSERVATION FOUNDATION (SCF)

Almost 10 years later than STINAPA, the Saba Conservation Foundation (SCF) was established in 1987. Just like STINAPA, the government designated the management of the national marine park, the terrestrial park (or the Saba Trail (network), and an Information Centre to SCF. The Saba Marine Park was established in the same year as SCF. The Saba Marine Park circles the entire island from the high-water mark to a depth of 60 m. A [zoning plan](#) divides the park for various recreational and commercial uses. A system of permanent mooring buoys facilitates diving and prevents damage to corals. The [Saba Marine Environment Ordinance \(1987\)](#) impacts the fisheries sector to some degree, for example, spearfishing and the use of chemicals, poisons or explosives for fishing in the Marine Park are prohibited. In addition, the Fishery Ordinance Saba (1996) regulates the economic exploitation of fish in the territorial waters of Saba (EcoVision, 2017). The main categories of marine park management responsibilities include<sup>23</sup>:

- **Law enforcement:** of the Saba Marine Environment Ordinance and the Fishery Ordinance<sup>24</sup>
- **Maintenance:** the maintenance of shoreline site information and moorings.
- **Research and monitoring:** data that supports nature management. Collect nature fees of marine park users.
- **Education and awareness:** about the importance of nature conservation through Snorkel Clubs, Junior Ranger Clubs, information brochures for divers and hikers, and a signboard for yachts.
- **General visitor information:** Management agency for the Saba trail network: promote eco-tourism and stimulate conservation awareness.
- **Advisory:** Advice on and collaborate with the islands government in developing policy and legislation for nature conservation and management.

#### **Tasks & responsibilities affecting fisheries**

- Law enforcement
- Collaborate with the islands government in developing policy and legislation for nature conservation and management
- Advisory body for the government
- Management agency for protected areas
- Management agency for the Saba trail network: promote eco-tourism and stimulate conservation awareness
- Administer Saba Marine Park

<sup>23</sup> [http://www.sabapark.org/about\\_scf/activities/](http://www.sabapark.org/about_scf/activities/)

<sup>24</sup> SCF is reluctant to engage in law enforcing practices as this competes with their aim to collaborate with the fishers. Fisher will for example be very reluctant to continue to share catch data if they feel they run the risks of receiving penalties from the organizations they share this data with. See also [bottleneck box 13](#).

### **Saba Bank Management Unit (SBMU)**

In 2007, a Saba Bank Management Plan was developed, but it took until 2012 before the Saba Bank Management Unit (SBMU) was established by the Dutch Ministry of Economic Affairs, in close co-operation with the Saba Conservation Foundation and the Saba Island Government. The SBMU is responsible for day-to-day management of the Saba Bank. It is operated by three fulltime staff (Becking & Meesters, 2017).

#### ***(Legal\*) Tasks & responsibilities affecting fisheries***

- Surveillance and reporting shipping or fishing violations (employees do not have a BAVPOL and are required to collaborate with the police and coastguard in case of infringement)
- Facilitating and conducting scientific research
- Monitoring of fish landings
- Liaising with local resource users

### **4.3.3 ST. EUSTATIUS NATIONAL PARKS (STENAPA)**

The Island Government of St. Eustatius initiated national parks, including a marine park, in 1996. The Island Council of St. Eustatius approved the Marine Park Ordinance 1996, and STENAPA received the legal mandate to manage the park. STENAPA therefore has the effective control over the island shelf from the high-water mark to the 30-meter (100 ft.) depth contour (Dilrosun, 2000b). In addition, 2 marine park reserves were put in place to be managed by the STENAPA foundation, where fishing and anchoring is prohibited. According to their website, STENAPA engages in the following activities<sup>25</sup> related to the management of the marine park:

- **Maintenance:** Installation and maintenance of 42 dive, snorkel, and yacht moorings. Collect nature fees of marine park users.
- **Education and raising awareness:** about the importance of marine conservation through Snorkel Clubs, Junior Ranger Clubs, Mini-guides for divers and yachters, Signboard for yachts, talks and tours for visitors.
- **Research and monitoring:** including Reef Checks, Fishery Assessments, Coral Watch (to monitor bleaching), Turtle Conservation and Monitoring, Tanker Impacts, Recreational Use. This entails close collaboration with local dive operators and live-aboard vessels.
- **Law enforcement:** Patrolling and enforcement of park laws and regulations. Rangers are responsible for ensuring environmental laws are upheld. Rangers need to collaborate with the police when dealing with infringement.
- **Diving and fishery enhancement** through creation of artificial reefs.
- **Advisory** role to government for coastal development, tourism, and pollution.

#### ***Tasks & responsibilities affecting fisheries***

- Enforce legislation (until recently employees did not have a BAVPOL and were required to collaborate with the police and coastguard in case of infringement)
- Educate public
- Research and monitor marine park
- Maintenance of marine park (e.g. public moorings)
- Advice island government
- Diving and fishery enhancement

<sup>25</sup> <http://www.statiapark.org/activities/index.html>

#### 4.3.4 WWF-NL

Promoting sustainable fisheries practices is a key element in safeguarding healthy oceans and marine ecosystems, and this crucial role is highlighted in WWF's ocean strategy. Part of WWF's strategy is to develop economically viable and community-supported sustainable fisheries. WWF-NL has been working in the Caribbean Netherlands of Bonaire, Saba and St. Eustatius for many decades and has an interest to develop economically viable and community-supported sustainable fisheries. Regarding the Caribbean Netherlands, WWF-NL appointed one project coordinator (1 FTE) and one locally based consultant (0,8 FTE) responsible for the execution, support promotion of sustainable fisheries projects.<sup>26</sup>

While WWF-NL has no legal responsibilities in terms of fisheries management on Bonaire, it takes on several tasks to support management efforts.

##### ***Tasks & responsibilities affecting fisheries***

- Lobbying for and influence sustainable fisheries policy development
- Support local NGO's in their conservation efforts to manage fish stocks and biodiversity in marine parks
- Initiate and support research aimed to making marine resource management more sustainable
- Generate awareness programs (in schools, for public, for government) to leverage support for sustainable development of fisheries
- Train conservation personnel
- Financial support (e.g. assist with finding subsidies/funding for specific fisheries projects)

#### 4.4 THE FISHERS

Dilrosun (2004; 2000a; 2000b) made a stakeholder analysis, presenting an overview of the different stakeholders in the fisheries sector. He identified fishers being the primary stakeholders. It must be stated that fishers do not have a legal responsibility to manage the fisheries sector. However, they must be considered as the primary stakeholder regarding their interest in the sector and considering that are most likely to be most confronted with the consequences of any form (or nonexistence) of fisheries management.

While this is certainly the case, the fishers participated minimally in the management of the sector on none of the three islands. This predominantly is because of the relatively large, diverse, divided and unorganized group of fishers active on the three islands.

Until recently there was no active/functioning organization of fisher's representatives (see also chapter 3.3) on Bonaire. Although the fishers of Saba have collaborated with each other on fisheries management issues (e.g. Red Fish Agreement (Eelderink, 2016)), and attempts were made on St. Eustatius to start a fisheries organization (Interviews Social Mapping, 2018) in the past, there has never been an operational fishery cooperative or representative organization on either island.

##### ***Tasks & responsibilities affecting fisheries***

- Advocacy towards government
- (Non-)compliance
- Collaborate with NGO's and government institutions

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<sup>26</sup> WWF-NL also has a locally based coordinator of the Boneiru Duradaro (Sustainable Bonaire) platform, funded by the WWF-NL. Boneiru Duradero is a small-scale initiative focusing on sustainable awareness and activity on Bonaire.



Figure 5. Perceived responsibility of fishermen regarding fisheries according to Saban and Statian fishermen presented in order of frequency (Social Mapping Interviews, 2018).

#### 4.5 OTHER STAKEHOLDERS

There are many other (governmental) stakeholders that are (indirectly) related to the fisheries sector and who consequently could be affected by management efforts. These stakeholders, their role and/or responsibility and interest in the fisheries sector are illustrated in the table below.

Stakeholder	Role	Interest	Island
<b>Harbor Master</b>	Boat registration Boat safety control	Safety	All
<b>Department of Public Health</b>	Safeguard public health	Monitor quality of sold fish	All
<b>Coastguard<sup>27</sup></b>	Safeguard public	Enforcement of fisheries legislation Prosecute illegal activities	All
<b>Customs</b>	Safeguard public	Control illegal fish export/import	All
<b>Police</b>	Safeguard public	Enforcement of legislation Public safety	All
<b>Tourist Center</b>	Resource user and island promotor	Promote ocean, reefs, fish and fish use/consumption among tourists; Deliver an exceptional experience with seeing, catching and eating local fish.	All
<b>Sea Turtle Conservation Bonaire (STCB)</b>	Protect sea turtles of Bonaire	Protection of sea turtles	Bonaire
<b>Dutch Caribbean Nature Alliance (DCNA)</b>	Trust Fund and network organization	Sustainable environmental interactions	All
<b>Mangrove and Kayak Center</b>	Resource user; Educator	Conservation of mangroves, lac bay, fish population	Bonaire

<sup>27</sup> In the seventies, Saba Bank became a refuge for foreign fishing vessels, since there was no control in the Netherlands Antillean waters, in contrast to most of the Caribbean nations who declared an EEZ. In 1993, the fishery law of the Netherlands Antilles became effective. Three years later, the Coast Guard of the Netherlands Antilles (founded in 1995) started to modestly patrol the Saba Bank. In 1999, the Coast Guard was equipped with a larger patrol boat, and consequently started to patrol the Saba Bank on a more regular basis (Dilrosun, 2000).

Stakeholder	Role	Interest	Island
<b>Dive Operators</b>	Resource user	Healthy reefs and plenty of fish for divers to see; minimal to no fishing;	Bonaire
<b>The public</b>	Consumer	Availability of fish; Fishing is an important part of local culture	All
<b>Tourists / residents</b>	Consumer	Want to eat locally caught fish; Want to see fish when diving/snorkeling	All
<b>BOPEC</b>	Harbor / resource user	Mooring / Shipping lanes	Bonaire
<b>NUSTAR</b>	Harbor / resource user	Mooring / Shipping lanes	St. Eustatius
<b>Yachts, tankers, freighters</b>	Resource user	Mooring Shipping lanes	All
<b>Cruise ships</b>	Resource user	Mooring; ensure a unique one-day experience	Bonaire
<b>Fish vendors</b>	Preparing and selling fish to the community	More fish, more work, more income	All
<b>Boat owners</b>	Agreement with fishers for boat use	More fish, more income	All
<b>Restaurants/Hotels</b>	Consumer	Availability of fresh local fish for a decent price; Healthy reefs and plenty of fish for divers / snorkelers to see.	All
<b>Supermarkets</b>	Buy and distribute fish	Constant availability of fresh local fish.	All
<b>Boat makers / mechanics</b>	Build, repair, maintain boats	More fishers (with income) equals more jobs	All
<b>Shops</b>	Sell / rent gear / materials		All

#### 4.6 WHO IS RESPONSIBLE FOR FISHERIES MANAGEMENT IN THE CARIBBEAN NETHERLANDS?

Based on the descriptions of the different stakeholders in the previous paragraphs, it becomes clear in this overview is that no entity seems to have or take the (legal) responsibility for the daily, hands on, execution of fisheries management on the three islands. The only thing can be concluded with certainty is that the Government of the Netherlands (or Min LNV) holds the full final, legal, responsibility for the fisheries sector on the islands, and should therefore be the entity who is consequently responsible for proper management of the sector.

Another conclusion that can be drawn is that currently fishers are not structurally involved in the development or execution of fisheries management activities.

## 5 CASE STUDY: A FISHERIES COOPERATIVE ON BONAIRE

*RQ - Who are the fishers of Bonaire, what do they need and (how) do they want to be included in debates and projects concerning fisheries management on Bonaire?*

*RQ - What are the different stakeholder's perspectives towards (participatory) fisheries management?*

Aware of the importance to include the fishers in the management process, attempts have been to support and encourage the fishers to organize themselves by means of a fisheries cooperative (Interviews Social Mapping, 2018; The Bonaire Reporter <sup>28</sup>). After 10/10/10 fishers also realized that there is a need to act after being confronted with new legislation. However, these past attempts to set up a fisheries cooperative did not last. The National Government of the Netherlands tried to (help) organize the fishers. Two fishermen of Bonaire joined the fisheries policy advisor to a regional fishery conference (GCFI) to educate them about the importance of sustainable fishing and the need to organize the fishermen. These actions helped to dismantle the former, inactive fisheries cooperative. However, despite these efforts, the fishermen were unable to get the fishers to appoint an executive board for a fisheries cooperative through which the fishers could be formally represented and included in the management of the sector.

Different reasons were given to explain why a fisheries cooperative was not yet successfully established on Bonaire (Social Mapping Interviews, 2017):

- Initiators at the level of the government lacked the time to provide (full-time) necessary support to the fishermen to mobilize them to form a co-operative;
- Initiators of the co-op were not able to find individuals who were willing and able to form a board;
- Fishermen who are willing to take a seat in the board lack experience and knowledge on how to run a cooperative. Or have a somewhat negative reputation within the fisheries community;
- Those in charge of organizing meetings or mobilizing fishermen didn't follow through. Some say because they fear how this might affect their reputation among their peers/family/friends. Others say because they do not have the time or interest. Another reason was that those who were in charge lacked the support within the fisheries community;
- Fishermen do not show up when a meeting is organized. Fishermen work all day at sea and have no interest in attending meetings after a long day of work at sea. When fishermen do show to meetings they are often drunk and unable/unwilling to collaborate;
- Fishermen do not want to collaborate because they do not trust each other;
- Most fishermen do not understand the need for or the benefits of having a fisheries cooperative. Fishermen do not want to be 'controlled'. Most fishermen fish because they like the sense of freedom the profession has, which they fear they will lose once they form a cooperative;
- Fishermen do not want to get political – they tend to distrust those who want to help when they have a political affiliation.

To further identify and understand the struggles fishers are faced with when setting up a fishery cooperative and with the need to have strong fishermen representation to support the road towards sustainable fisheries, WWF-NL decided to directly facilitate the fishers with their attempts to set up a fisheries cooperative, PISKABON. This intervention was set up in collaboration with the individuals (both professional and recreational fishers) who were already trying to unite the fishers,

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<sup>28</sup> <http://bonairereporter.com/news/2000issues/07-05-00/page4.htm>

but were stuck at the point where a board had to be elected. During this time, fishers were hesitant to organize themselves, mostly out of a **fear of having to pay taxes or being cut in their income.**

Based on previous experience from these fishermen and the WWF-fisheries expert the researcher approached potential candidates for the board and a first meeting was set up to discuss their interest in formalizing their role as board members.

There were two big incentives for these potential candidates to agree to form the board and represent the fishers, as opposed to earlier attempts. First, the **national government agreed to subsidize a project for the fishers (Fish Aggregating Devices)** that would immediately improve the fishing conditions of the fishers. Most fishers were aware of the success of these devices because the local government placed four of these in 2003 - 2005. Second, **timing** played a crucial role, because just before these future board members were approached, the government and STINAPA had 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. Naturally, this had a direct impact on the fishers who were angry, which according to the fishers, was made worse by the fact that the protected species list was never explained to the fishers. In other words, **a third party was now directly affecting the income of the fishers, which creates a common interest for all fishers to tackle this problem**

Working closely with the fishers and particularly the board of the cooperation resulted in in-depth insights of the bottlenecks and created the opportunity to experiment with solutions to achieve a management climate in which the fishers are structurally and equally involved. The following chapter describes the intervention study in detail and its outcomes.

## 5.1 PAST FISHERIES CO-OPERATIVES ON BONAIRE

In 2000, there had been an attempt to form a fishing co-op among the fishers on Bonaire, KOPIBON (Cooperation among Bonairean Fishers)<sup>29</sup>. At the time, the cooperative presumably had about 75 members of which 60 had small boats, and 15 larger ones. Although the co-op was presumably acknowledged by the government, aside from meetings with the Governor, BONHATA, TCB, CURO, STINAPA, STCB and Dutch research institutes, few visible and lasting changes to improve the conditions for the fishers were realized. Moreover, the cooperative never fully formalized its establishment.

Although their efforts to organize the fishers had not been successful, the Public Entity (formerly island territory Bonaire) continued to emphasize that to be able to successfully manage the sector, the fishers need to be included. Moreover, local politicians encouraged and obliged STINAPA and the responsible government departments (DRO/ LVV) to include the fishers in the development of fisheries legislation (Social Mapping Interviews, 2018). **Politicians are aware they are dependent on the votes of local fishers, and their families and network.** After 10/10/2010 the policy advisor of Agriculture and Fisheries of RCN encouraged fishers to once more organize themselves. Again, attempts were made, but this time the initiators were stuck at the point where a board for the fisheries cooperative had to be elected.

Several meetings were organized for the fishers with different goals (e.g. informing fishers about new legislation, sharing research findings, motivating the fishers to form a cooperative). According to many respondents including (former) government officials, STINAPA employees and fishermen, these **meetings often ended up in heated debates without any constructive outcome** (Social Mapping Interviews, 2018). During this time, the fishers were hesitant to organize themselves due to various reasons:

- The previous unsuccessful attempts to establish a fisheries cooperative left the fishers feeling demotivated and sceptic as to why fisheries management is needed or even desirable.
- Fishers felt that there were hidden agendas involved and that the previous cooperative wouldn't help all fishers equally.
- 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 disadvantage. Attempts to

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<sup>29</sup> <http://bonairereporter.com/news/2000issues/07-05-00/page4.htm>

improve the monitoring of fish catches, for example, created concern amongst fishers that this would result in them having to pay taxes.

- Fishers currently do not pay income tax, and have never been prosecuted to do so. Consequently, the fishers are unfamiliar with the reasons why this is of importance as well as the procedure of tax returns (e.g. financial administration, registration). If tax controls would now be done on fishers to pay their income taxes, through the eyes of the fisher this would mean that they would lose their freedom. This is one of the main reasons why they choose to become fishers in the first place.

## 5.2 LESS TALK AND MORE ACTION

Building on the efforts made prior to the involvement of WWF-NL for PISKABON, the first step was to form a group who could form the board for the fisheries cooperative. Based on previous experience, **potential candidates for the board were individually approached** and a first meeting was set up by the researcher to discuss their interest in forming a board. Specifically, **neither the initiative nor the board members should be politically associated**. Also, being a “true fisher” was not an important criterion for board members, compared to more useful assets such as being available, willingness and commitment, a generally positive or neutral social status, and knowledge of the different types of fishers and fisheries practices on Bonaire (see box 1).

### Box 1. Board member criteria.

- No political affiliation or history.
- Willing and able to invest the time to establish the co-operative.
- Have a positive social reputation.
- Able to represent different types of fishers/ have broad network within the fishing community.
- Aware of expectation management: do all board members must understand the aims and capabilities of a fisheries cooperative.
- Able to represent the new and old generation of fishers.

Based on these criteria, potential candidates were approached and asked whether they would be willing to form a board for the fisheries co-operative. **Fishers were approached and asked if they would be interested in forming (or having) a fisheries co-operative on Bonaire**. At the time, most fishers expressed their disappointment with previous attempts made on Bonaire to set-up a fisheries co-operative. Despite these disappointments, some fishers still believed in the importance of have a co-operative to facilitate and represent the fishers in management debates (Social Mapping Interviews, 2018).

Once the board members were identified and agreed to participate, **the next step was to organize a well thought out general member meeting** (see Box 2). The success of the meeting was critical, because of the reputation meetings with fishers had and because during the meeting the first substantial support among the fishers had to be realized for once again establishing a fisheries cooperative. **To emphasize the importance towards the fishers, the Governor was invited and asked to share some opening words to encourage the fishers to come together**. The following goals were set for the first meeting:

- ✓ Fishers had to agree that a fisheries co-op was desired;
- ✓ Fishers had to approve of the candidates who would form the board and trust that this board would be able to represent the fishers for at least the first year;
- ✓ Fishers had to sign up and become members of the fisheries co-op.

**Box 2. Checklist for organizing a successful fisher meeting (i.e. a general member meeting).**

- Fishers should be invited by other fishers/PISKABON: Invitations should be handed out personally and directly to the fishers (on paper to emphasize the formality) and spread via word-of-mouth.
- Call key fishermen one day ahead to make sure they will attend and ask them to bring as many fishermen as they can
- Make sure to include big boat owners, as they have the highest level of responsibility and can represent the fishers that work for them/on their boats. However, do not actively exclude fishers.
- Choose a neutral, non-intimidating location (such as a community centre)
- Make a PowerPoint presentation with simple, clear slides
- Ensure there are snacks and drinks available. Do NOT serve alcoholic beverage during the meeting and before the set goals are met.
- Make sure all necessary forms, equipment etc. are present
- Focus on keeping the meeting structured: discuss and decide on the content and order of topics beforehand with all board members
- The presentation should be given by a member of the fisheries co-op
- Collect signatures of attendance (keep this as simple as possible – (nick) names are sufficient).

Within a couple weeks a board was elected by the first newly registered members of the cooperation. In the following weeks, the cooperation was formalized (e.g. elected board of directors, twenty registered members, registered at Chamber of commerce, opened bank account) and secured its first funding from the Government of the Netherlands for the placement of Fish Aggregation Devices (F.A.D.'s). In the second and third month, the beginnings of a strategic plan and communication plan were put in writing, amendments were being made to the by-laws and introductory meetings with the most important stakeholders (Public Entity, Min LNV, and STINAPA) were arranged. In addition, several interviews with local press and media took place to inform the community about the cooperative, its goals and activities thus far. Even though not all goals were fully accomplished during the time of the intervention study (see box 3 and 4), a lot of goals were reached during a relatively short period of time. The following paragraph will explain how these successes were achieved.

**Box 3. What worked when setting up PISKABON.**

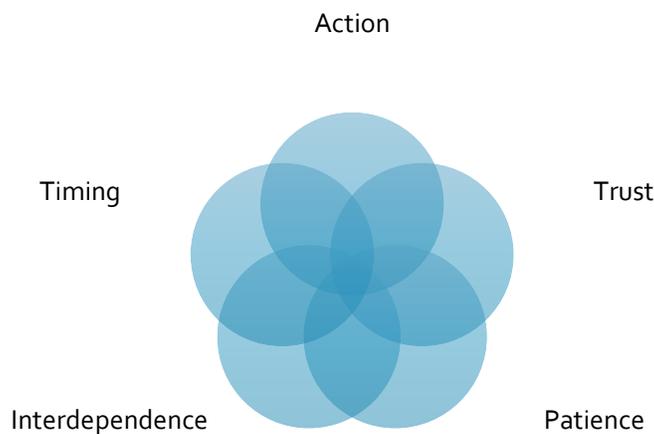
- A board was formally selected by the fishers
- The co-op was formalized (by-laws, registration at the chamber of commerce, opening of bank account)
- Ministry of LNV, granted subsidies for the instalment of Fish Aggregation Devices (FADs).
- During the three months, weekly board meetings were held discussing and preparing the strategic plan of the cooperation
- Circa eight meetings with stakeholders were organized (Commissioner, DROB-OLB, policy developers OLB/LVV, STINAPA, Ministry of LNV/RCN, and WWF-NL).
- Media appearances promoting the establishment of the fisheries cooperative to create support within the community.
- Stakeholders like STINAPA and the Ministry of LNV immediately started contacting PISKABON to collaborate with the fishermen as a group, which had not been possible.

#### Box 4. What did not work when setting up PISKABON

- Although many meetings were set up with the different stakeholders, not all (board) members were able to attend all these meetings.
- It was very difficult to act quickly. Even with full-time, trusted support, progress was made slow regarding the final steps to formalization of the co-operative, finalizing the strategic plan, organizing a general member meeting, finding and employing long-term (secretarial/managerial) support.
- It was difficult to structure the meetings. Many ideas were discussed during long meetings but little was subsequently put into action. The board wanted to see things happen quickly, thus requesting its members to be assertive, pro-active and certain about their actions. Realizing the time and effort (e.g. do the research, attend meetings, file requests) it takes to achieve these goals was a struggle, as the board members felt they had other priorities (e.g. attending their day jobs and their families). Moreover, because of their inexperience and unfamiliarity with certain knowledge, the board members were hesitant to act.

### 5.3 WHY IT WORKED: ACTION, TRUST, PATIENCE, AND INTERDEPENDENCE.

Five key elements led to successful interactions with the fishers and the realization of the fisheries cooperative:



#### ***Action: Support and mediation***

While the previous attempts to establish a fisheries cooperative were unsuccessful, they did provide crucial knowledge of do's and don'ts which were used throughout the process (see Box 1 and 2). In addition, **the new board members received full time, practical support**, which was not the case in the past. Currently, the fisheries cooperative is still made up out of volunteers with limited time and in some cases limited knowledge about the procedures needed to follow to succeed if running a fisheries cooperative. **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.**

Removing these obstacles by adding someone to support them full time allowed board members to share their input, experience successes and motivate them to increasingly prioritize their efforts for the cooperation. **The support provided should be given by someone who is driven, proactive, patient, a fast learner and able to mediate between different stakeholders with different needs and interests.** Moreover, **the fishers always remained in the lead**: they made the decisions and support was provided accordingly. For a full overview of support needed for PISKABON see Box 5 and Appendix VII.

## ***Trust and confidence***

Throughout the process, the researcher remained **neutral and transparent**. The researcher focused on building trust by:

- **thoroughly daily informing** all involved stakeholders
- remaining **honest and open** about her role
- **sharing information in a clear manner**, whilst strategically **guiding new information** in such a manner that excessive fear or distrust remained minimal
- **encouraging criticism** among the fishermen towards her own role and others
- **making sure people felt heard and supported**
- **acting quickly to show immediate results of the hours invested in the cooperative by the board members**

Putting in the time and effort by doing what had to be done did not only help to build trust among the fishers, but also helped other stakeholders gain confidence in the possible success of a fisheries cooperative. To gain trust, **tireless communication and transparency** is key. **Keeping all parties, particularly the board members, informed about the latest developments proved to be a crucial ingredient to ensure a sense of fairness and understanding.**

### **Box 5. Overview of support provided to the Board members of PISKABON**

- Organize board and stakeholder meetings
- Organize member meetings
- Prepare meetings: provide members with written minutes, agenda etc.
- Start-up formalization process: notary, chamber of commerce, bank account – pay costs tied to formalization (from WWF budget)
- Inform stakeholders
- Create templates: membership forms, attendance lists, logo, member registry
- Write project proposal to respective ministry, write annual plan, Write budget
- Send reminders for meetings and deadlines
- Keep online-file/administration
- Set up and manage WhatsApp groups, Facebook page and PISKABON email account and shared document drive
- Consult advisors, notary, bank, NGO platform, experts

## ***Patience: step by step***

One of the main insights gained during the process is that **board members must be given the opportunity to gain knowledge and understanding, formulate their opinions and come up with workable solutions**. This factor was stressed amongst stakeholders such as the Min LNV, STINAPA Bonaire, WWF-NL and other individuals eager to collaborate with PISKABON. Simultaneously the researcher **remained focused on supporting, informing and pushing the board members to act**. Leaving **too much room for discussion and discovery might lead to non-action, which in turn can lead to missed chances and opportunities**. In other words:

The person supporting the board needs to be able to find the right **balance between intervening and leaving room** for the board to do their research and decide on their course of action. Similarly, while the other stakeholders must have patience with the cooperative, **the board members have a task to regularly inform other stakeholders about the status of projects on which they are collaborating for the sake of expectation management**.

## ***Interdependence***

The more experienced individuals in fisheries management often feel that their views or knowledge should carry more weight than the views of fishermen. While their experience is important, it is also **crucial for these experts to consider the ideas and insights of fishers themselves. Fishers must also understand and accept the protocols and procedures that must be followed to achieve certain goals, and that these require persistence, communication and a lot of action.** Throughout the project, it became clear that **board members as well as many fishers have a strong desire to collaborate.** Successful participatory fisheries management requires that all stakeholders are aware of their interdependence to each other.

**Timing: incentives**

There were two big incentives for these potential candidates to agree to form the board and represent the fishers. First, timing played a crucial role/incentive. Just 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. Naturally, this had a direct impact on the market of the **fishers who were angry.** This action had direct consequences for the income and fishing habits of the fishers. Moreover, the fishers felt it is unclear which fish are 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 **F.A.D. project** catapulted the formalization and served as an important incentive. The Ministry of Agriculture, Nature and Food Quality agreed to subsidize a project for the fishers (FAD-devices) that would immediately improve the fishing conditions of the fishers. Most fishers were aware of the success of these devices because the local government (LVV) placed several F.A.D.s in the past, of which at least one was rewarding. Right after the board was chosen by the new members of the co-operative, a letter was received from the ministry to hand in a proposal for the execution of the project within one week, for which specific requirements had to be met (e.g. opening a bank account, registration at the Chamber of Commerce).

A final factor leading to success of the intervention, related to timing, was that **previous attempts created awareness and made the fishers more conscious.** This meant we were dealing with a new, better educated group of fishers. In combination with the administrative and strategic full time support the fishers received, these factors were crucial for the success of the establishment of the cooperative.

**5.4 CHALLENGES**

Despite the success achieved during the three months, many challenges also presented themselves. The main challenges disabling action were:

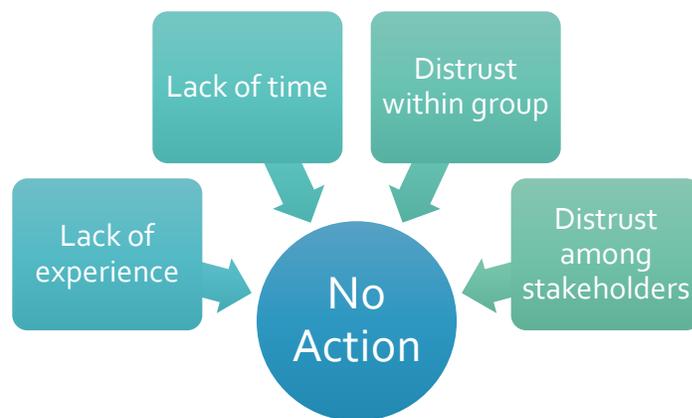


Figure 6. The four elements inhibiting action in PISKABON.

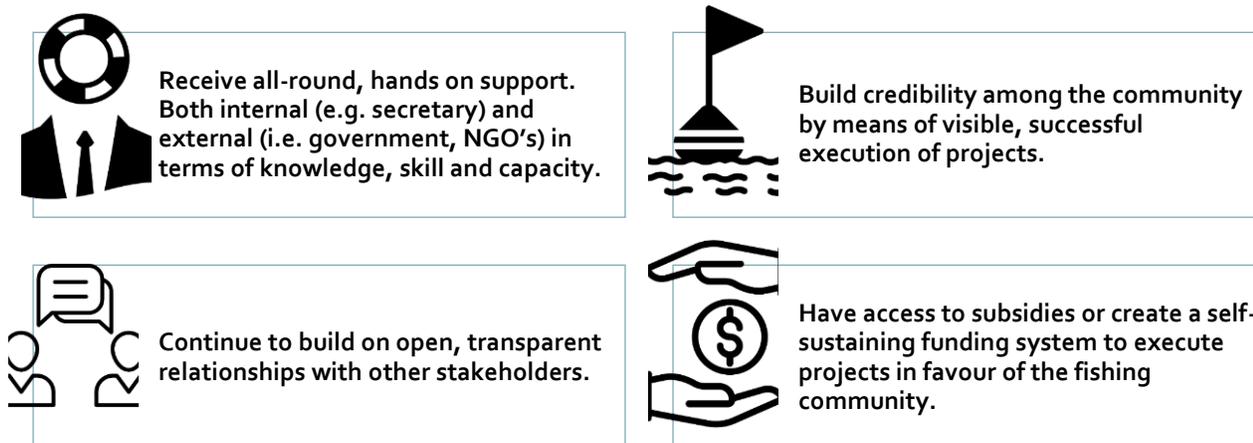
Setting dates with the different stakeholders while taking the irregular and changing schedules of the board members in to account was an ongoing struggle. Because most board members lacked experience with filling a position on the board, board

meetings were long and lacked structure and clear outcomes. The lack of trust in combination with a lack of experience meant that the board members in general were hesitant to make quick decisions. For example, the board members had no legal experience which meant that the bylaws were not finalized during the period of the action research.

## 5.5 THE FUTURE OF PISKABON

The current board members possess several strong and important qualities that will help build trust among fishers. However, several important steps must be taken to ensure the long-term success of the cooperation. Crucial is that board members must continue to receive support and coaching so that they can excel in their role. Gaining more trust from the fisheries community should also help ensure that PISKABON truly represents the fishers of Bonaire. This can be achieved with the successful execution of tangible (small) projects that favor the fishers.

Lastly, all stakeholders must be made aware that the inclusion of fishers in participatory fisheries management practices is not PISKABON's sole purpose. PISKABON is a fisheries cooperative which aims to facilitate the fishers' needs in a broad sense. In addition, PISKABON can inform, educate and represent the fishers about and during (sustainable) management initiatives. If approached in a transparent manner and with rigorous communication, PISKABON can also facilitate the collaboration of fishers in monitoring research and the implementation of new sustainable fishing practices or techniques, provided that the different stakeholders' common values are fostered. In sum, to guarantee its future, PISKABON must:



These recommendations are further elaborated in chapter 8.

PISKABON's ultimate success will depend on the cooperation between stakeholders and the realization that they are very much interdependent. If successful, PISKABON could be the missing link in the co-management of the fisheries sector. This could result in more sustainable fishing practices where everybody wins. Like one of the board members repeatedly said:

'If all parties make the effort, PISKABON can do great things for the fishers, the entire community and perhaps even become an inspiration for the region.'

### Tasks & responsibilities

- Represent fishers, particularly professional fishers
- Facilitate (all) fishers who are
- Provide material and immaterial support for fishers
- Lobby towards government
- Collaborate with NGO's and other local stakeholders (research, sharing information)
- Gather information on new fishing techniques and (sustainable) fishing methods for promotion in their community
- Inform and educate fishers

Table 6. Overview with Do's and Don'ts regarding collaboration with PISKABON.

Action	Do	Don't...
<i>Collaborating on projects</i>	<ul style="list-style-type: none"> <li>- Include as soon as possible in decision making processes</li> <li>- Treat PISKABON as equal stakeholder</li> <li>- Remain flexible</li> <li>- Invest in educating and explaining whenever experience / knowledge is lacking among the board members</li> </ul>	<ul style="list-style-type: none"> <li>- ... (give the impression that you) manipulate the board in projects / decision making processes</li> <li>- ... expect (all) board members to be available always</li> </ul>
<i>Providing support to PISKABON</i>	<ul style="list-style-type: none"> <li>- Thoroughly inform all involved stakeholders regularly</li> <li>- Remain honest and open about intention</li> <li>- Share information in a clear manner,</li> <li>- Guide new information in such a manner that excessive fear or distrust remains minimal</li> <li>- Encouraging criticism among the fishermen towards projects and stakeholders</li> <li>- Making sure board members feel heard, supported and respected</li> <li>- Act quickly to show immediate results of the hours invested in the cooperative by the board member</li> </ul>	<ul style="list-style-type: none"> <li>- ... make decisions for the cooperative</li> <li>- ... (give the impression that you) manipulate the board in projects / decision making processes</li> </ul>
<i>Organizing member meetings</i>	<ul style="list-style-type: none"> <li>- Fishers should be invited by PISKABON: Invitations should be handed out personally and directly to the fishers (on paper to emphasize the formality) and spread via word-of-mouth.</li> <li>- Make sure to include big boat owners.</li> <li>- Choose a neutral, non-intimidating location</li> <li>- Make a PowerPoint presentation with simple, clear slides</li> <li>- Ensure there are snacks and drinks available.</li> <li>- Make sure all necessary forms, equipment etc. are present</li> <li>- Focus on keeping the meeting structured: discuss and decide on the content and order of topics beforehand with all board members</li> </ul>	<ul style="list-style-type: none"> <li>- ... actively exclude fishers</li> <li>- ... serve alcoholic beverages during the meeting and before the set goals are met</li> <li>- ... have more than 3 topics for discussion on the agenda</li> </ul>
<i>Sharing information</i>	<ul style="list-style-type: none"> <li>- Explain and discuss to the board members first.</li> <li>- Share new insights (e.g. research / developments) simultaneously with PISKABON as with other stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>- ... inform fishermen in hindsight</li> <li>- ...withhold information from the fishermen</li> </ul>

## 5.6 A FISHERIES COOPERATIVE ON SABA AND ST. EUSTATIUS?

The interviews conducted on Saba and St. Eustatius were used to get a first impression of the bottlenecks regarding setting up a fisheries cooperative on Saba and St. Eustatius. Stakeholders were asked would be interested in setting up and/or joining a cooperative. Questions were also asked about how this should be set-up, by who and for what reasons.

### 5.6.1 THE CASE OF SABA

There has never been a fisheries cooperative on Saba. According to the interviewed stakeholders, the elder fishermen are not all open to the idea and the discussions about setting up a fisheries cooperative never went beyond discussions. All non-fishermen interviewed agreed a fisheries cooperative would be beneficial. One disadvantage mentioned was that it could lead to collective resistance from the fishermen.

Among the fishermen opinions about having a fishery cooperative were more divided. Younger fishermen do show some interest, and would like to be member. However, they also stated that the **fishing community on Saba is too small which leads to too much competition and distrust among the fishermen**. Fishermen are especially **reluctant to take a seat on board or take the lead due to fear of social repercussions**.

### 5.6.2 THE CASE OF ST. EUSTATIUS

All non-fishers interviewed on St. Eustatius agreed there is need for a fisheries cooperative. There has been one attempt to set up a fisheries-coop in the past, however, other fishermen never registered themselves as members and no activities have taken place. The main reasons mentioned why the fishermen did not register as members are:

- The fishermen are not aware of the (economic) benefits of a cooperative on St. Eustatius and therefore do not feel the need to have a cooperative.
- The fishermen do not have the knowledge or capacity to run a cooperative by themselves.
- The fishermen are not used to collaborating with each other in general. The concept of collaborating and running a cooperative is foreign to them.
- The meetings that were organized with the fishermen to discuss the possibilities of setting up a cooperative in the past did not result in anything. Consequently, the fishermen have lost faith in the possibility to do so.
- Fishermen do not trust that those taking the lead have their best interest at heart and are therefore reluctant to collaborate or join the cooperative.
- One fisher who could've run a cooperative was no longer willing due to years of resistance and struggles experienced within the fisheries sector on St. Eustatius.

#### **Proposed solutions to convince fishermen to join the co-op:**

- A **neutral, outsider** should be hired to set up a cooperative, preferably someone from the region.
- Fishermen should be presented with **tangible, financial incentives** of having a cooperative:
  - Create a better market.
  - Educate the fishermen through exchange of information with peers in the region.
  - Create tangible or financial incentives for fishers. For example, implement a system in which each fisherman has his own buoy-color, to reduce and prevent discussions about fish traps ownership and responsibilities.

The mentioned benefits of not having a fisheries cooperative is that fishermen can do whatever they want, as is it harder for other stakeholders to come to agreements or enforce legislation. However, this also means that fishermen are less able to push back when new legislation is or will be implemented.

## Perceived benefits of having a fisheries cooperative

Saba

### Non-fishers

- One point of contact
- Enables organized, collective actions
- Allows for more inclusion of fishermen: they are able to be more reactive to policy and more cooperation and enforcement
- Greater chance of acceptance of rules and legislation due to inclusion of fishermen
- Problems can be addressed directly
- Reduce costs for fishermen
- Can help achieve collaboration between fishermen and other stakeholders in order to achieve sustainable fishing
- Can lead to more/better sales
- Can provide protection from foreign fishermen

### Fishers

- Can help solve concerns regarding fisheries sector through collective effort / voice and because it's easier to structurally include fishers in management decisions.
- Can help fishermen get access to information
- Collective voice against rules and regulations
- One representative / point of contact
- Can provide protection from foreign fishermen

St. Eustatius

### Non-fishers

- One point of contact
- Enables organized, collective action
- Allows for more inclusion of fishermen: they are able to be more reactive to policy and more cooperation and enforcement
- Greater chance of acceptance of rules and legislation due to inclusion of fishermen
- Better representation and stronger voice towards other stakeholders
- Reduce costs for fishermen (e.g. equipment)
- Can help achieve collaboration between fishermen and other stakeholders in order to achieve sustainable fishing
- Collective voice has better chance of being heard and considered
- Can lead to more/better sales
- Provide protection from foreign fishermen
- Can help manage the fisheries sector and promote the profession (for future generations)
- Access to better funding and opportunities (e.g. FADs)

### Fishers

- Can help solve concerns regarding fisheries sector through collective effort / voice and because it's easier to structurally include fishers in management decisions.
- Can help fishermen get access to information
- Collective voice against rules and regulations
- One representative / point of contact
- Can provide protection from foreign fishermen
- Can help cover the risks involved with fishing.
- More recognized as a board compared to an individual when dealing with the government.
- Allows information sharing, both in terms of fishing practices and rules and legislation regarding fisheries on St. Eustatius.
- Encourage collaboration among fishermen

**Mentioned reasons for there not being a fisheries co-op:**

Saba

Non-fishers
<ul style="list-style-type: none"> <li>•The elder fishermen were not open to the idea.</li> <li>•Never went beyond discussion - never really attempted.</li> <li>•Disagreement among the fishermen</li> </ul>

Fishers
<ul style="list-style-type: none"> <li>•Fishermen reluctant to form a board or take the lead due to fear of social repercussions.</li> </ul>

St. Eustatius

Non-fishers
<ul style="list-style-type: none"> <li>•No capacity among fishermen to run a cooperative</li> <li>•Fishermen do not see the economic benefits a cooperative can offer</li> </ul>

Fishers
<ul style="list-style-type: none"> <li>•Fishermen do not trust each other. They do not believe other people have their interest at heart and that those who try to help want to take over fisheries on St. Eustatius.</li> <li>•Fishermen do not believe this will succeed due to past failures.</li> <li>•Boardmembers would have to attend to the needs of fishermen which is hard, ungratifying work.</li> </ul>

**Opinions about how the cooperative should be initiated / managed:**

Saba

Non-fishers
<ul style="list-style-type: none"> <li>•Fisherman should represent the group</li> <li>•Informal setting for meetings</li> <li>•Be specific and realistic about expectations</li> <li>•Initiative should come from the fishermen</li> <li>•The cooperative should be led locally, and not by an outsider.</li> </ul>

Fishers
<ul style="list-style-type: none"> <li>•Create an incentive for fishermen: have proof that sustainable measures (such as closed seasons) benefit the fishermen</li> <li>•Younger fishermen should take the lead</li> <li>•A common urgent problem for all fishermen can motivate fishers (e.g. rapid declining fishstock)</li> <li>•Approach fishermen individually and stress their common interest</li> <li>•Through one, preferably local, representative who all fishermen trust and can give advice.</li> </ul>

St. Eustatius

Non-fishers
<ul style="list-style-type: none"> <li>•Need fulltime, external, preferably regional, leader (or manager) should initiate and support the cooperative.</li> <li>•Fishermen need to see results /benefits of having a cooperative quick.</li> <li>•The (economic) benefits must outweigh the drawbacks.</li> <li>•The government and NGO's need to be included.</li> <li>•Cooperative should include at least one fulltime fisherman.</li> </ul>

Fishers
<ul style="list-style-type: none"> <li>•Be specific on about the ways the fishers are required to collaborate.</li> <li>•Be specific about short-term and long term benefits.</li> <li>•Include a third person (not the government) to support the fishermen with visible needs (e.g. provision of ice machine).</li> <li>•Work in favor of the fishermen to build trust.</li> </ul>

**Ideas about how to include and collaborate with fishermen (on sustainable fishing practices):**

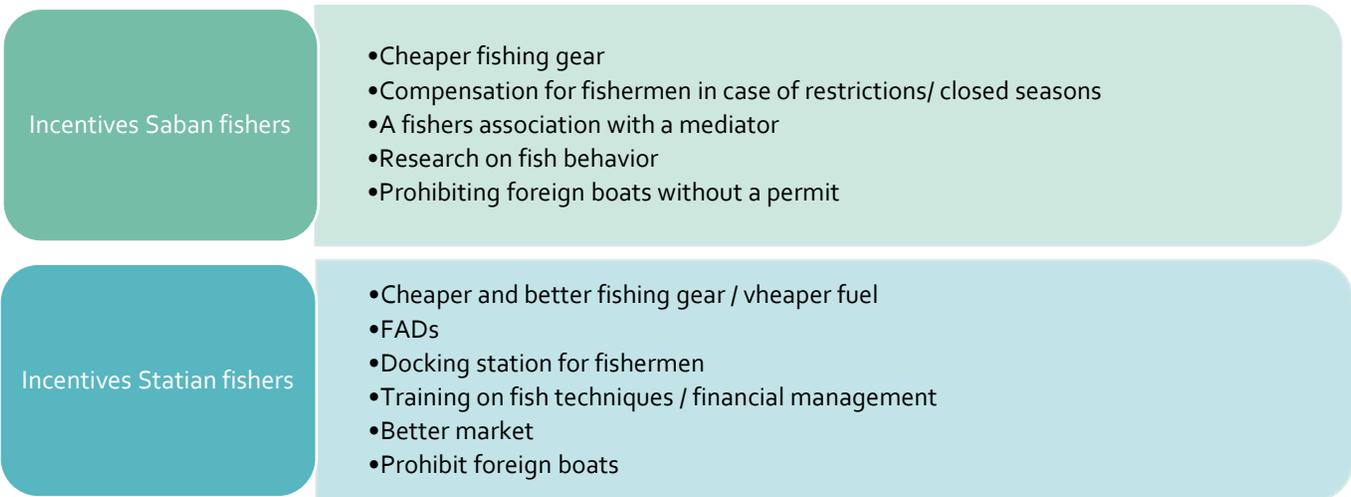
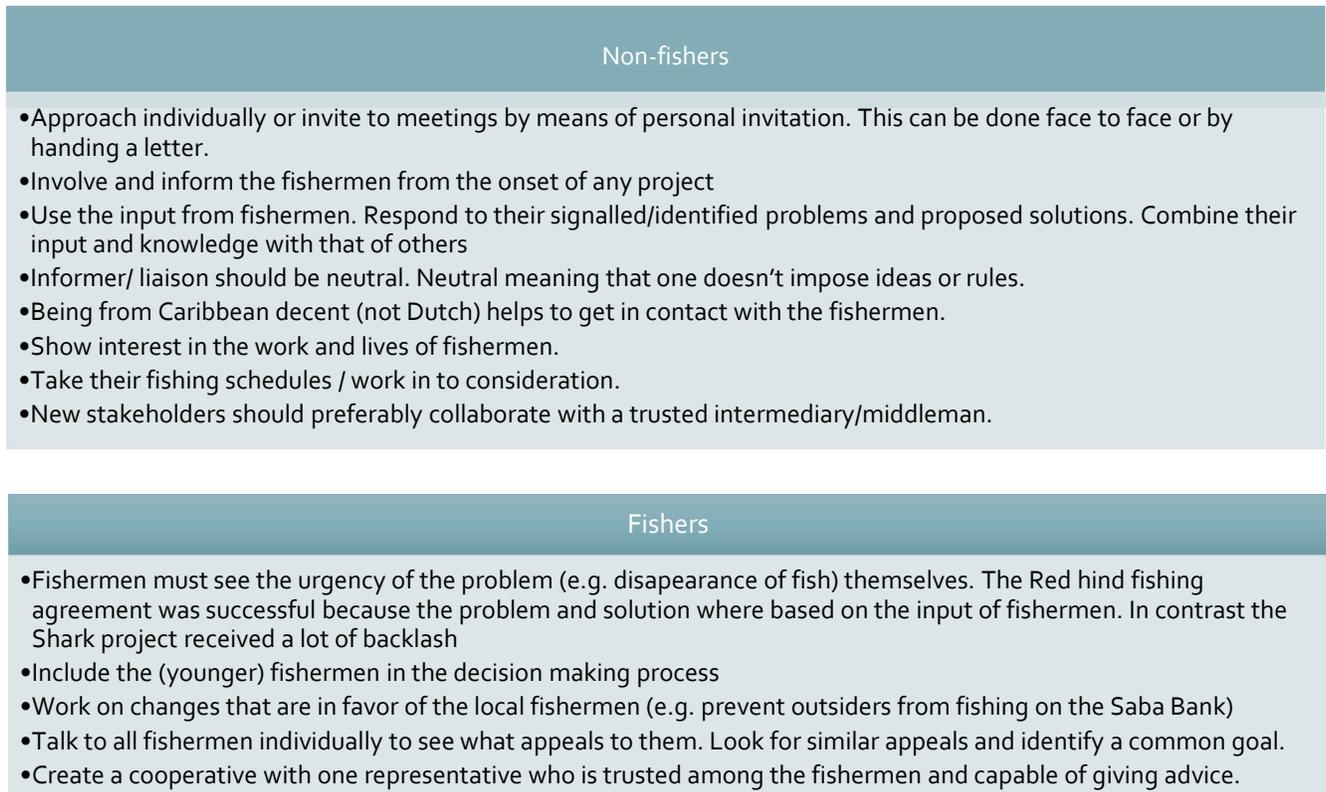


Figure 7. Incentives to join a fisheries co-operative mentioned by Saban and St. Eustatius fishermen presented in order of frequency (Social Mapping Interviews, 2018).

## 6 DIFFERING PERSPECTIVES AND CONFLICT OF INTERESTS.

*RQ: What do the different stakeholders believe to be the main problems and solutions concerning the management of the fisheries sector on Bonaire, Saba and St. Eustatius?*

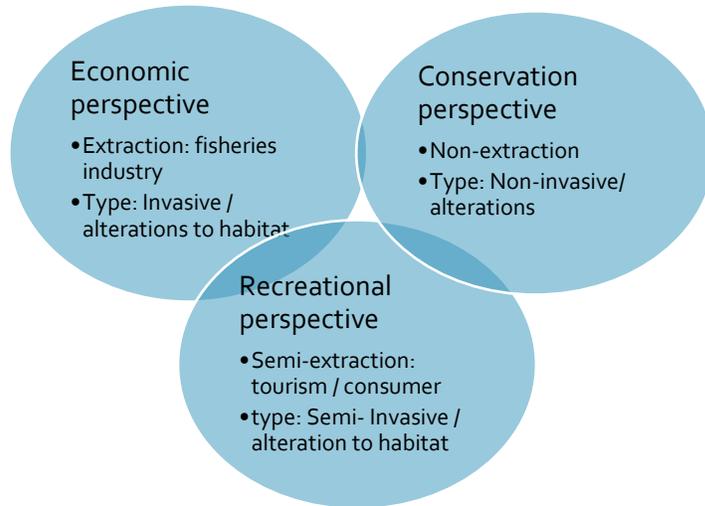
How stakeholders perceive fisheries, their relationship with the sector, and how they view the sector in relation to other sectors (i.e. tourism) affects which measures are taken in terms of its management and development. While in practice, the management and development greatly overlap and are used interchangeably, the terms imply something different among fisheries stakeholders on the islands. This became evident during the process of identifying and categorizing the different measures that were taken over the years in relation to the fisheries sector on Bonaire, Saba and St. Eustatius. It became clear that on the three islands the concepts were defined by fishers and at times also by the government and NGO's, as follows: *management* is refers to measures taken (by (semi)private organizations, government, institutions, and individuals) towards sustainability, environmental protection, the prevention of or reversing exploitation. *Development*, in contrast, is viewed as investments made (by (semi)private organizations, government, institutions, individuals) to promote growth, increase economic profit, improvement of working conditions (i.e. efficiency, safety, quality). Thus, among the island fisheries stakeholders, management has more restrictive connotation and tends to imply that are actions taken in direct favor of the natural environment, while development implies expansion, which gives a sense of freedom or opportunity and benefits in direct favor of the fishers (i.e. more fish caught, more income).

While fisheries stakeholders on the islands might (unconsciously) make a distinction between management and development, the two (can) go hand in hand. However, making concessions is unavoidable in terms of short term and long term goals, and the consequences of management or development actions pan out differently for the diverse stakeholders and/or eco-systems. For example, from the perspective of management, the implementation of the prohibition to catch a highly popular but overfished species (e.g. the Nassau grouper), might feel as a limitation to the fishers, which directly affects their income. However, groupers play a vital role in maintaining the balance of the reef ecosystem. The fact that they are overfished has affected their ability to reproduce and restock as well as the health of the reefs, which in turn affects the presence of other fish as well. Consequently, fishers must spend longer days at sea to catch the amount of fish needed to generate their required income. Similarly, from the perspective of development, for example, the placement of Fish Aggregating Devices (F.A.D.) right of the coast of Bonaire, can help attract pelagic fish which in turn can reduce fishers required hours spent at sea to haul in a decent catch. Simultaneously, this can also help reduce the pressure placed on the reefs, as it becomes more attractive for fishers to aim for pelagic fish instead of the reef fish – pelagic fish are larger and often favored among consumers. However, while the pressure on reef fish might be reduced, F.A.D.'s also introduce new pressures and risks. The chances of fishers overfishing pelagic fish increases and without proper management of the F.A.D.'s, there are risks of fishers getting into fights with each other at sea (FAO<sup>30</sup>; Beverly, Griffiths & Lee, 2012).

Over the years, the fisheries sector has been approached from and affected by multiple, shifting points of departure in the vast amount of policy- and management plans (see Figure 8 below for an overview). The earlier versions focused more on the economic development of the sector. This is followed by a shift towards a more recreational and conservation focus. Nowadays, the focus tends to lie primarily on the need for conservation. However, the economic opportunities are not completely dismissed: the common term being used is sustainable development of the fisheries sector. While focus tends to lie on conservation, the government also views the sector as a means to improve food security on the island. Keeping the fisheries sector active provides employment, generates income, helps reduce poverty and is an integral part of the island's cultures. This implies the awareness of the cultural value of the sector and the fact that it is undesirable to diminish the sector completely even though this would be the most effective measure for the natural environment.

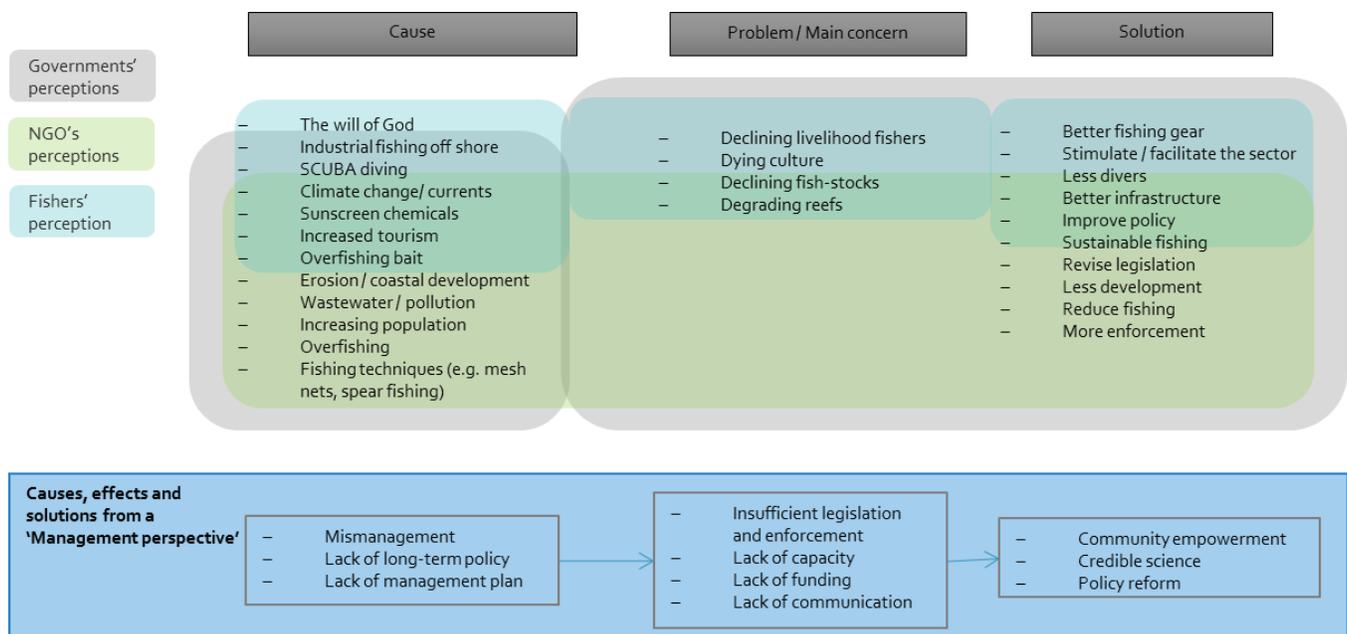
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<sup>30</sup> <http://www.fao.org/fishery/equipment/fad/en>



**Figure 8. Three perspectives towards fisheries management and development. The extent to which these perspectives (can) overlap differs depending on the interest of the stakeholder and the willingness to compromise. Regarding the fisheries sectors on the Caribbean Netherlands, economic development and conservation tend to be seen as less compatible than the combination of economic development or the combination of recreation or Conservation and recreation.**

Throughout the project, 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” as stated by Smith, Sainsbury and Stevens (1999; p. 965). This is typical for fisheries management, and thus not unique for Bonaire, Saba or St. Eustatius. In addition to providing insights in to how these perceptions differ among the local stakeholders, identifying these differences can help detect solutions for the bottlenecks. Figure 8 summarizes the perspectives of the three main stakeholders in this study: the government, the NGOs and the fishermen.



**Figure 9. Overview of differing perspectives of main stakeholders.**

It is important to understand that there is not one 'correct' perspective, as a complex social-ecological system cannot be captured using a single perspective (e.g. Berkes, 2009; Rockmann et al, 2015). However, as can be seen in the model, these different perspectives illustrate where the priorities lie of the stakeholders. For example, fishers focus on their livelihoods, whereas NGOs focus more on the implications use of this resource has the health of the environment (i.e. healthy fish stocks, balanced ecosystems). This despite the fact that nowadays most NGO's do consider the livelihood of the resource user of equal importance as the resource itself, driven by the fact that if the livelihood is affected, the management of the resource will not be accepted and therefore not implemented.

Johnson and Jackson (2015) extensively researched fishers' (and divers') perceptions towards (causes of) declining fish stocks, degrading reefs and support for management (see box X for a complete overview). They found that most fishers perceived catching fewer and smaller fish than previous generations and that older fishers, in particular, believed there are fewer fish in the ocean now compared to ten years ago. As causes for these changes, the researchers found that fishers often blame fishers from other cultures and divers for causing more damage than they do themselves. They also seemed to be more concerned about the impact of industrial fishing and diving on the declining fish stock and dying reefs than to their own impact through fishing. Although most fishers admit that certain species are caught less, hardly any were willing to limit the number of fishers (Jonson & Jackson, 2015). These findings illustrate that fishers do not believe they (the fishers of Bonaire) are responsible for the decreasing amount of fish.

Box 6. Summary of fishers' perceptions towards fisheries management from Johnson and Jackson (2015).

- Most fishers perceived catching fewer and smaller fish than previous generations.
- (Older) fishers do believe that there are fewer fish in the ocean now relative to 10 years ago.
- Fishers (circa 48%) reported abandoning some fishing or diving locations due to reef or fish population degradation.
- 96% of fishers with over five years of local experience reported that some species they used to catch or see are rare or missing. Both large pelagic fish (i.e., tunas, wahoo, dorado), and reef fish (i.e. coney, groupers (especially Nassau groupers), and yellowtail snappers) were mentioned as disappearing.
- Fishers often blame fishers from other cultures and divers for causing more damage than they do themselves.
- Fishers appear less concerned with small-mesh nets, spearfishing, and overfishing, and more concerned with the impacts of industrial fishing and SCUBA diving.
- 11 % of fishers agreed that their fishing reduces the number of fish that will be in the ocean next year or that it damages the reefs.
- Support of gear restrictions and assorted conservation measures increased with age
- Fishers on Bonaire with lower baseline scores (i.e. perceived more strongly that the amount and size of fish is less than in the past) were more likely to support gear restrictions and assorted conservation measures.
- 2% of fishers were willing to limit the number of fishers.
- fishers were more supportive of no-diving areas compared to no-fishing areas.
- 71% of fishers, believed there should be more management of fishing.

During my interviews, one respondent explained that some fishers do not want to admit that there is less fish, because once they admit to this they need to agree with conservation measures. However, if you approach and talk to fishers within their comfort zone in a non-threatening way, they are more likely to admit that species are not there anymore. One respondent shared the following:

'Ta tin un piska ku ta yama {number di piska}. E ta riba lista di proteha, bo no tin mag di piska. Un {piskado} a hiringa dikon e tin ku proteha e piska ei. El a zundra, el a rabia den un reunion. M'á keda ketu i bai un biaha na su kas. Nan ta bende piska na mochi ku funchi. Anto m'a bai pa kumpra piska, djis pa hanja sa si mi ta hanje den un otro ambiente pa mi papia kune. Anyway, m'a sinti i kombersa anto m'a bisa: "Bo sa kiko mi tin gana di kome swa? Un {number di piska}! Hombu, piska dushi swa! Moli e piska ta, dushi piska!" E di ku mi: "Ku gana bo ta keda paso no niun hende no ta kue". M'a di "Dikon no?" E di "Bo sa kuantu ten m'a bai sin mira un {number di piska}?" M'a kue e serbes i má kling e kune, pensa yes! Awor e ta admiti.'

'There is one fish called [fish name]. It is on the protected species list; you are not allowed to catch it. One [fisherman] argued about why he needed to protect that fish. He scolded and was angry during a meeting. I remained calm and one day passed by his house. They sell fish, in moots with cornmeal. I went to buy some fish and to see what would happen if we talked in a different setting. Anyway, I sat and talked and said: "You know what I want to eat? A [fish name]! Man, that fish is really tasty! Super soft, delicious!" He responded: "You won't be satisfied because nobody catches that fish". I asked: "Why not?!" to which he replied, "Do you know how long it has been since I've seen a [fish name]?" I grabbed my beer and clinked with his, thinking "Yes, now he does admit it".'

Lastly, and most importantly, this model reveals that there are certain causes, problems and solutions on which all three stakeholders agree on. This finding can be seen in Tables 7 – 9 in which there are clear similarities between the perceptions of non-fishers and fishers on Saba and St. Eustatius. This finding is also supported by the work of Johnson and Jackson (2015) who found that the great majority of fishers and divers on Bonaire support more management of both fishing and diving.

Similar outcomes were found on Saba and St. Eustatius: there were differences, but also similarities in the perceived concerns and proposed solutions regarding fisheries and fisheries management on Saba and St. Eustatius. The tables presented on the following pages give an overview of the perceptions of fishers and other fisheries stakeholders on Saba and St. Eustatius regarding fisheries and fisheries management (see Tables 6 to 8).

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*Despite the differing perceptions of stakeholders, there is one thing most can agree on and support, namely that more management must take place.*

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In addition to the perceptions of the three stakeholders, the figure presents a so-called 'management perspective' which illustrates how the effects of mismanagement and a lack of long term policies taking the interest of all stakeholders into account. The management perspective also presents three solutions that can resolve the problems caused by mismanagement – these solutions will be discussed in depth in chapter 8:

1. Community empowerment: equal stakeholder involvement, increased capacity.
2. Credible science: knowledge legitimacy.
3. Policy reform: sector management, improved legislation and capacity building.

Even though the recommendations are primarily based on the research conducted on Bonaire, many of the recommendations are applicable to the fishery context of St. Eustatius and Saba.

Table 7. Concerns and proposed solutions regarding fisheries management on Saba expressed by stakeholders. The tables make a distinction between expressed concerns by fishers and non-fisher stakeholders. These concerns and solutions refer to both management of the sector and the profession in itself. (Social Mapping Interviews, 2018).

Concerns regarding fisheries and it's management

<p><b>Non-fishers:</b></p> <ul style="list-style-type: none"> <li>•Management responsibilities of stakeholders are unclear</li> <li>•Inconistance and insufficieites communication between stakeholders regarding management</li> <li>•Lack of capacity to execute management</li> <li>•Existance of a conflict of interest between stakeholders: conservation vs profit</li> <li>•Lack of cooperation from fishers towards management</li> <li>•Lack of enforcement / control: capacity and execution</li> <li>•Abence of fisheries department responsible for management: the government does to prioritize management</li> </ul>	<p><b>Fishers:</b></p> <ul style="list-style-type: none"> <li>•The fisheries sector needs better management and control</li> <li>•Concerned about the requirement to pay taxes if more rigid magement is implemented</li> <li>•Overfishing is currently taking place due to lack of management</li> <li>•Fishing activities taking place outside of marine reserves</li> <li>•Natural disasters negatively affect the local market</li> <li>•Insufficient information about research, legislation shared with fishers</li> <li>•Rules getting to strict</li> <li>•Foreign boats in Saban waters destroying pots and fishing on 'our' bank</li> <li>•Fishers are in need of a fishers representative (i.e. through a cooperative)</li> <li>•Currently there is no closed season for lobster and there should be</li> </ul>
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Proposed solutions regarding fisheries and it's management

<p><b>Non-fishers:</b></p> <ul style="list-style-type: none"> <li>•Control / enforcement</li> <li>•Monitoring</li> <li>•Research of target species</li> <li>•Cooperation among fishermen</li> <li>•Support from local NGO's</li> <li>•Support from government</li> <li>•Seasonal fishing</li> </ul>	<p><b>Fishers:</b></p> <ul style="list-style-type: none"> <li>•Better management</li> <li>•Regulation on how often one can fish</li> <li>•Trap limits</li> <li>•Yearly quotum</li> <li>•Manage local stock</li> <li>•Seasonal closure</li> <li>•Unite fishermen with a mediator/facilitator</li> <li>•Involve / inform fishermen via independent person</li> <li>•Reimburse fishermen (lost traps, closed seasons)</li> <li>•Use coastguard to patrol waters</li> <li>•Research</li> <li>•Prohibit foreign boats</li> <li>•Keep moratorium on fishing permits</li> </ul>
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Table 8. Concerns and proposed solutions regarding fisheries management on St. Eustatius expressed by stakeholders. The tables make a distinction between expressed concerns by fishers and non-fisher stakeholders. These concerns and solutions refer to both management of the sector and the profession in itself (Social Mapping Interviews, 2018).

Concerns regarding fisheries and it's management	
<p><b>Non-fishers:</b></p> <ul style="list-style-type: none"> <li>• Tanks destroy pots : no reimbursement for fishers</li> <li>• Resentment of fishermen towards STENAPA</li> <li>• No enforcement / non-compliance</li> <li>• No support or intervening from (local) government</li> <li>• No one designated to manage the sector (e.g. fisheires officer)</li> <li>• Responsibilities regarding fisheries management not clear</li> <li>• Lack of knowlegde regarding fisheries management</li> <li>• No fisheries cooperative / organized group of fishers</li> <li>• Focus lies on social and economic development, not the environemt</li> <li>• No access to/use of technology</li> <li>• Lack of and gaps in legislation</li> </ul>	<p><b>Fishers:</b></p> <ul style="list-style-type: none"> <li>• Loss of fishing grounds</li> <li>• Collaboration among fishermen is impossible</li> <li>• Not involving fishers in management decisions</li> <li>• Fear of fisheries becoming more industrialized</li> <li>• Not having management</li> <li>• Marine reserves not being seasonal</li> <li>• Natural disasters</li> <li>• Oil spills</li> <li>• Loss of traps and anchor damage due to tankers</li> <li>• Lack of cooperation with coast guard / harbour master</li> <li>• Dying culture / profession</li> <li>• Lack of harbor facilities for fishermen</li> <li>• Declining fish stock and coral damage due to NuStar and climate change</li> <li>• Fish dying in fishtraps</li> <li>• Expensive fisheries equipment</li> </ul>

Proposed solutions regarding fisheries and it's management	
<p><b>Non-fishers:</b></p> <ul style="list-style-type: none"> <li>• Knowledge of resource: research and monitoring</li> <li>• Enforcement</li> <li>• Improved market and control on market</li> <li>• Management and implementation plan</li> <li>• Compliance</li> <li>• Open Communication with stakeholders</li> <li>• Willingness to learn (among fishers)</li> <li>• A fisheries cooperative</li> <li>• Authorization for rangers or LVV to enforce (BAVPOL)</li> <li>• Seasonal fishing</li> </ul>	<p><b>Fishers:</b></p> <ul style="list-style-type: none"> <li>• Involve fishers, create dialogue</li> <li>• Monitor fish stock</li> <li>• Permanant mooring bouys for tankers</li> <li>• Improve / expand market</li> <li>• Shipping lanes indicating FAD and trap deployment</li> <li>• Patrol boat to control</li> <li>• Rotating reserves (seasonal reserves) instead of fixed marine reserves</li> <li>• Educate and inform coastguard about enforcement</li> <li>• Install a fishers representative (to facilitate fishermen)</li> </ul>

Table 9. Perceived responsible parties for fisheries management presented in order of frequency (Social Mapping Interviews, 2018).

Saba	Who is responsible for fisheries management	
	<b>Non-fishers:</b> <ul style="list-style-type: none"> <li>•Fishermen</li> <li>•National government</li> <li>•Local government</li> <li>•Everyone involved</li> </ul>	<b>Fishers:</b> <ul style="list-style-type: none"> <li>•Fishermen (to address the issues - united with assistance)</li> <li>•Government (to inform fishers)</li> <li>•Experts / scientists</li> <li>•Marine patrol boats</li> <li>•SCF (to warn &amp; involve)</li> </ul>
St. Eustatius	Who is responsible for fisheries management	
	<b>Non-fishers:</b> <ul style="list-style-type: none"> <li>•Local government (LVV)</li> <li>•Everyone involved</li> <li>•National government</li> <li>•Fishermen</li> </ul>	<b>Fishers:</b> <ul style="list-style-type: none"> <li>•Fishermen / Fishers co-op</li> <li>•Local government - LVV</li> <li>•National government (the one who implements the law)</li> </ul>



Figure 10. Perceptions of Saban and Statian fishers about current rules and regulations presented in order of frequency (Social Mapping Interviews, 2018).

## 7 THE SOCIAL BOTTLENECKS OF FISHERIES MANAGEMENT

*RQ: Why is it so difficult to manage the fisheries sector on Bonaire, Saba and St. Eustatius?*

### 7.1 FISHERIES MANAGEMENT MODELS

Based on the organizations and instructions present and responsible for fisheries management on Bonaire, Saba and St. Eustatius the models displayed in Figures 11- 13 were developed to:

1. Visualize the current (dysfunctional) management situation on each island
2. Illustrate the interdependency of the relationships between the different stakeholders.

These models portray the local realities and how the existing organizations and institutions currently function (or not) on each island. In an ideal situation considering the local contexts, each stakeholder should fulfill their roles and responsibilities, leading to a well-managed and balanced fisheries sector in which all needs and interests are attended to accordingly. Based on the research conducted for this report two examples are presented to illustrate the models. In the first example, from a bottom-up perspective, the following actions should (theoretically) stimulate proper fisheries management:

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The fishers and NGOs lobby towards the government regarding their needs and interests; the fishers and NGOs collaborate in research and monitoring to come up with joint solutions; the more lobbying takes place, the more important the fisheries sector becomes for the government, which increases the chance that the latter will make bigger investments (internally and externally) to strengthen this sector.

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Or from a top-down perspective:

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The government signs international agreements with which they commit to achieve sustainable fisheries on the islands; this commitment results in the implementation and enforcement of sustainable fisheries policy. The fishers and NGOs comply with or protest the existing policy in terms of their own interests; the government responds to the needs of both the NGOs and fishers.

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However, this is currently not the case on Bonaire, Saba or St. Eustatius. Based on the previous chapters, the models displayed in figures 10-12 summarize and visualize how existing bottlenecks impede the proper functioning of the fisheries management system on each island. Moreover, these models illustrate how these bottlenecks are interconnected: meaning that one problem leads to many others.

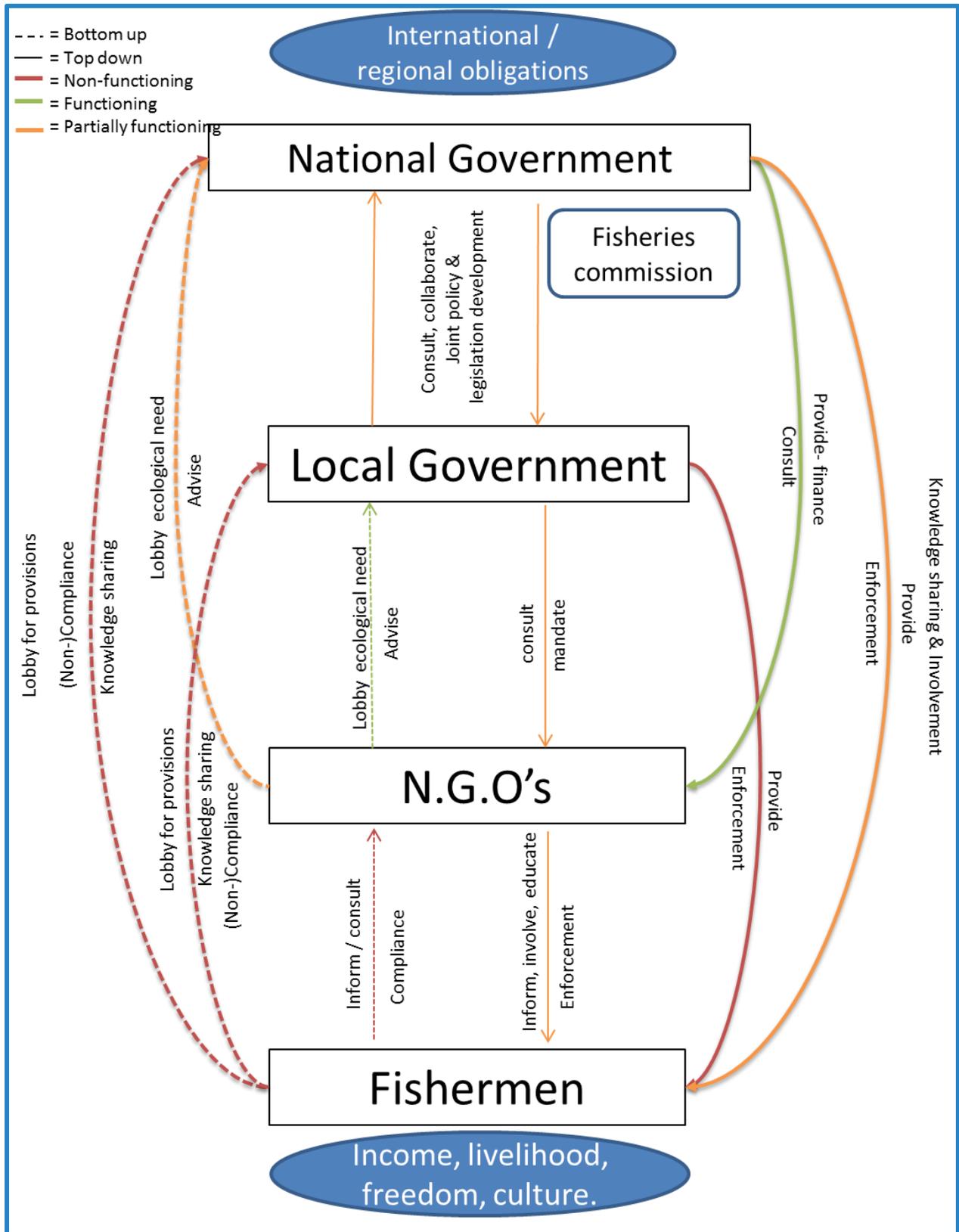


Figure 11. Schematic model presenting bottlenecks regarding stakeholder responsibilities on Bonaire. The model represents an ongoing process with a so-called feedback loop: policy and management measures need to be developed, implemented and adapted on the base of feedback received from the stakeholders.

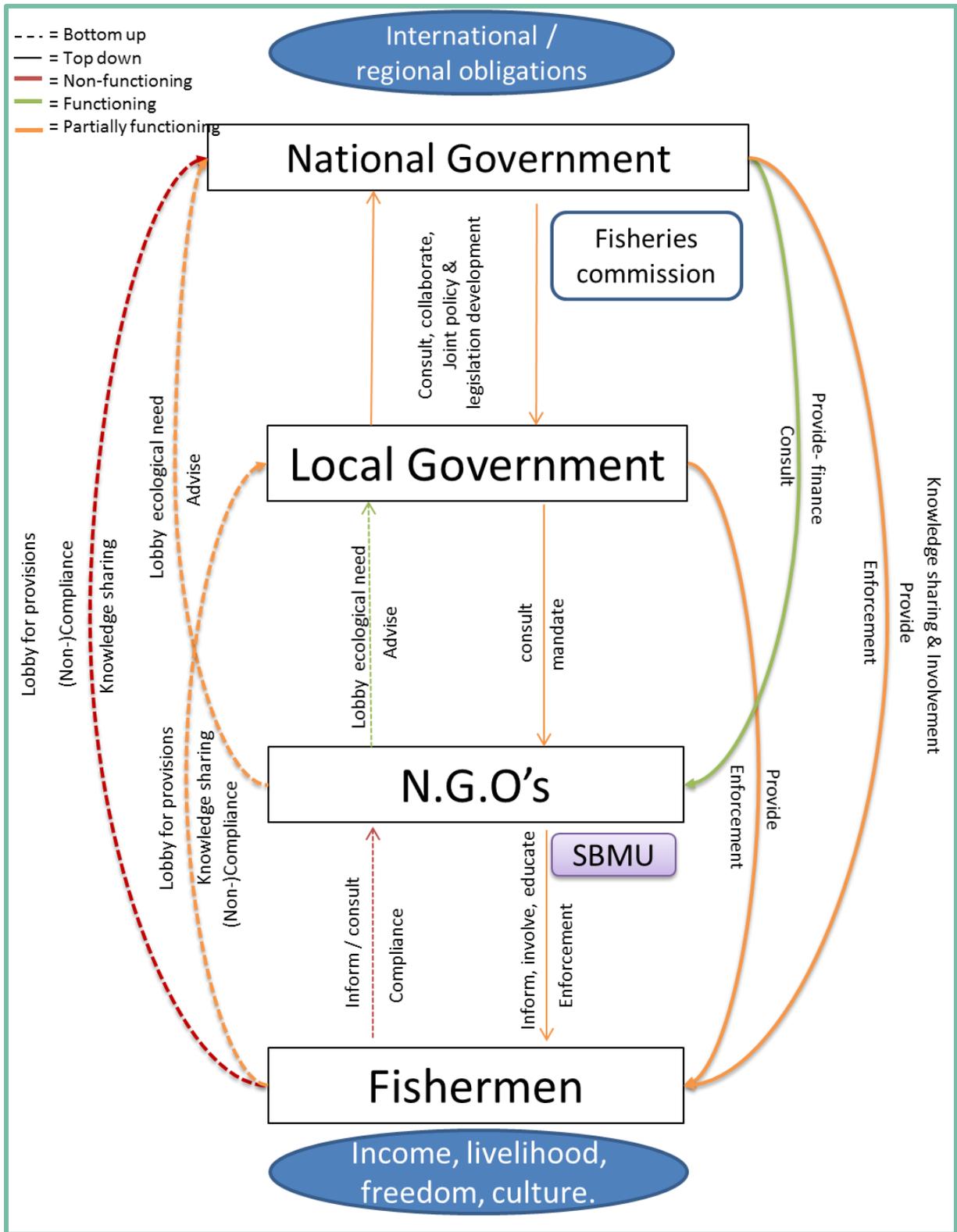


Figure 12. Schematic model presenting bottlenecks regarding stakeholder responsibilities on Saba. The model represents an ongoing process with a so-called feedback loop: policy and management measures need to be developed, implemented and adapted on the base of feedback received from the stakeholders.

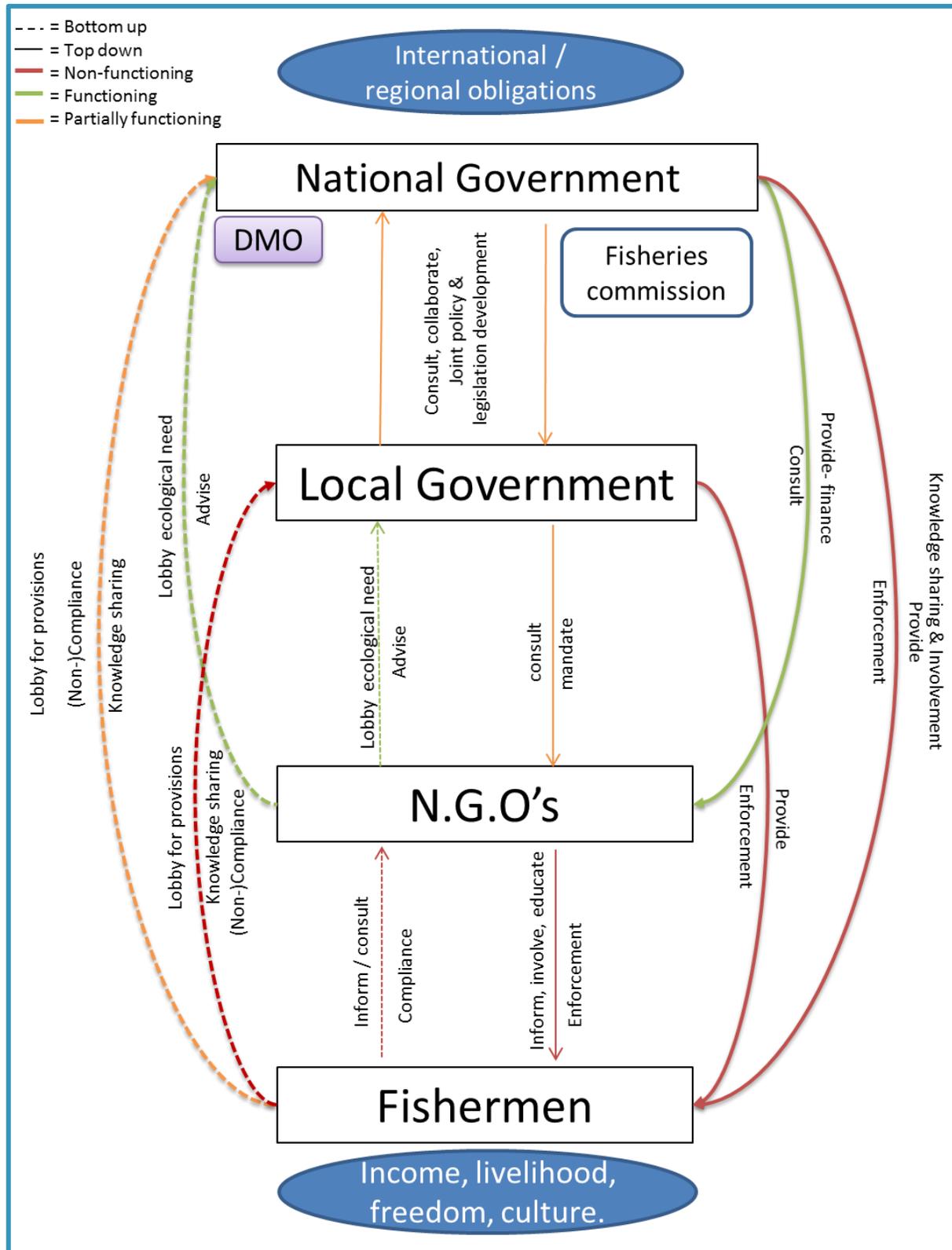


Figure 13. Schematic model presenting bottlenecks regarding stakeholder responsibilities on St. Eustatius. The model represents an ongoing process with a so-called feedback loop: policy and management measures need to be developed, implemented and adapted on the base of feedback received from the stakeholders.

## 7.2 THE SOCIAL BOTTLENECKS IN FISHERIES MANAGEMENT EXPLAINED

### 7.2.1 INTRODUCTION

The previous models illustrated the interactions between the different stakeholders and if they currently do (not) or partially function. To explain *why* the models in figure 11-13 function the way they do, an additional explanatory model (see Figure 14) was developed. This model provides a visual presentation of the bottlenecks and their respective consequences present at the level of each stakeholder. The model has three main objectives:

1. **Give a general representation of the bottlenecks present on the three islands:** This model is aware that not all factors or dynamics displayed in this model are of relevance to all three islands.
2. **Illustrate how certain factors or aspects (can) influence or contribute to a certain outcome:** This model does not claim to illustrate straight forward cause and effect relationships. Rather, it aims illustrate how certain factors or aspects *can* influence or contribute to a certain outcome or reality regarding the management of the fisheries sector of the Caribbean Netherlands.
3. **Illustrate the social complexities of fisheries and interlinked-ness of these complexities.**

It is crucial to understand that how bottlenecks or issues are formulated is highly depended on the point of departure from which this is done. For example, one can argue that from the perspective of the fishers a bottleneck regarding collaboration with the Government of the Netherlands is the formal procedures the government adheres to which most fishers do not have experience with. This is less of an issue for other stakeholders. Comparably, the government can find that fishers are a difficult group to get in touch with, while fishermen themselves do not perceive this as an issue.

The following paragraphs elaborate the explanatory bottleneck model presented in Figure 13. The so-called “bottleneck series” are used as a guideline to describe the many bottlenecks and issues incorporated in the model. Before explaining the specific ‘bottleneck series’, the broader contextual and psychological factors included in the model will be addressed. These factors help explain the (origin of) the perceptions of and attitudes towards fisheries management among the different stakeholders. They also help explain why little has improved over time regarding fisheries management on the islands, despite the various interventions taken. Lastly, these contextual factors help explain the differences of the bottlenecks between the three islands.

# Stakeholder Characteristics

## Bottleneck series I: Urgency

## Bottleneck series II: Roles, resources & capacity

## Bottleneck series III: Management & Support

## Problem definitions according to the different stakeholders

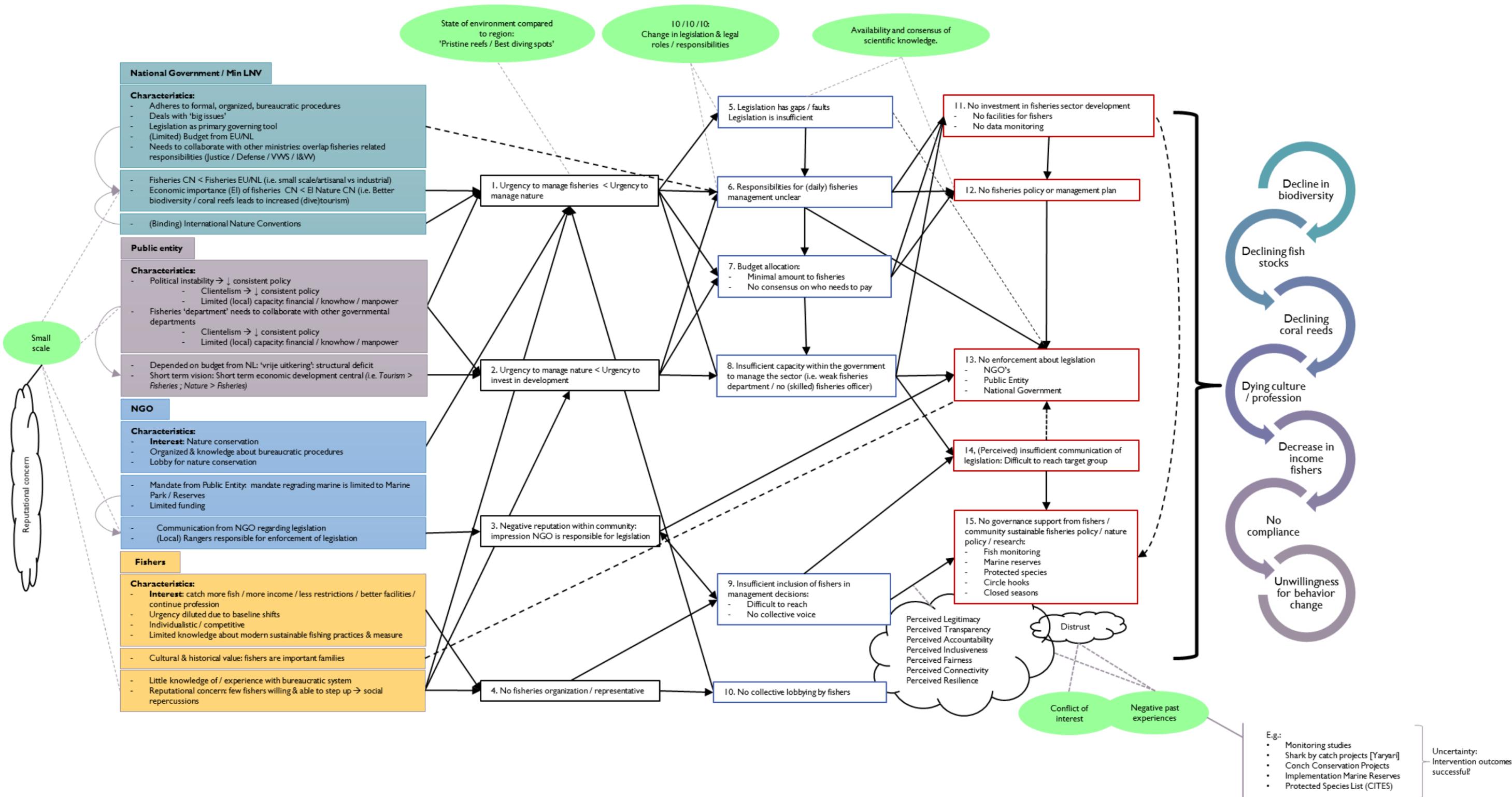


Figure 14. Bottleneck Model Fisheries Management Caribbean Netherlands.

## 7.2.2 CONTEXT SPECIFIC AND PSYCHOLOGICAL FACTORS

The following contextual and psychological factors influence and affect the existence of the bottlenecks and can strengthen or weaken their existence, depending on how they are experienced by the different stakeholders (e.g. fishers who do not know why sustainable fishing practices are of importance *and* are concerned about their reputation are least likely to support sustainable fishing efforts if these are not approved of by their peers). In addition, these contextual factors help explain the differences of the existence of certain bottlenecks between the three islands. To illustrate their relevance and presence, some examples of the Caribbean Netherlands context will be shared in this paragraph, however most will be addressed in the 'bottleneck series' -section.

### 7.2.2.1 Small scale.

A general, contextual characteristic of the islands that affects the extent to which fisheries is managed is the small scale of the islands. The small scale of the islands can (co-)determine the urgency of tackling an issue. In the explanatory model this becomes evident in various ways, namely:

- The small scale of the islands and the fisheries sector negatively affects the urgency of the National government to manage and develop the fisheries sectors of the three islands, as the fisheries sector of the islands is much smaller than the fisheries sector based in The European Netherlands. This, despite the fact that proportionally (in terms of GNP %) the fisheries sector of the Caribbean Netherlands is much larger than the fisheries sector of European Netherlands.
- The small scale of the islands results in there being a limited pool of capable people available for actual development or implementation of management. Moreover, this is exacerbated by the *brain drain* phenomenon (i.e. many educated residents immigrate to countries abroad to continue their studies or pursue their career due to the limited study and career possibilities for highly educated individuals on the island) (e.g. Veenendaal & Corbett, 2015).

Even though the role of small scale implies some general limitations, the impact of these limitations is strongly dependent on the context. For example, it seems that on Saba, the fisheries sector is better managed than on Bonaire, despite being much smaller. One explanation, for example, could be the fact that the fisheries sector on Saba has a big economic value, which could increase the urgency for both the local and national government to invest in proper management of the sector. In addition, the fishermen have a bigger voice due to their relatively large impact on Saban economy.

### 7.2.2.2 Constitutional change.

Since the constitutional change in 2010, the three islands became extensively integrated within the Government of the Netherlands system, making the Netherlands prominently present on the islands in terms of policy, legislation, and management. The new status of the islands within the Netherlands has led to many changes of which the following are particularly relevant for the fisheries sectors:

1. Because the Government of the Netherlands has an international accountability concerning fisheries (i.e. contributing to global monitoring of fish stocks), has more capacity and is in general more active in getting things done (i.e. cultural difference), more pressure has been put on the management of the fisheries sector on the three islands.
2. Since 2010, several projects have been executed (e.g. monitoring research, attempts to create a fisheries cooperative, EEZ legislation, and implementation of a shark and marine mammal/cetacean sanctuary).
3. The work of international NGOs, such as the WWF-NL, has intensified on the islands. As WWF-NL learned about the difficulties present on the islands regarding the fisheries sector, WWF-NL also became more involved in attempting to realize sustainable fisheries management on the islands.

4. There has been a rapid population increase and increase in the number of visiting tourists on Bonaire<sup>31</sup> (CBS, 2016). This has increased the amount of recreational fishers and created new groups (or types of fishers) who target different types of seafood and use different techniques than Bonairean fishers (e.g. increased catch of sea urchins).

### **7.2.2.3 State of the environment compared to the rest of the region.**

Compared to other islands in the region, the fishing pressure on Bonaire, Saba and St. Eustatius is relatively low: there are only small groups of professional fishers utilizing mostly traditional fishing practices. Even though fish populations in the Caribbean Netherlands have generally declined over the years, other islands in the region have experienced far more severe ecosystem crashes due to larger amounts of small scale fishermen per km<sup>2</sup> of fished reef (Hawkins & Roberts, 2004). However, low levels of artisanal fishing have been shown to already affect coral reefs (e.g. Ruttenberg, 2001; Hawkins & Roberts, 2004) indicating that fish assemblages and ecosystem functionality change even under low fishing pressure.

There is no big local fishing industry rapidly looting all the fish in the surrounding oceans. However, there are large purse seine vessels catching Tuna and Billfish in the Atlantic Ocean on their migratory route towards the Caribbean leading to a decline in e.g. Tuna catches by local fishers.

The coral reefs of Bonaire, Saba and St. Eustatius, although threatened and in decline, are still relatively healthy compared to the regional average (Jackson et al 2014). This is used as one of the main selling points in their tourism sectors and Bonaire has been rewarded every year for her pristine reefs<sup>32</sup>. This information might be seen as an incentive to make sure measures are taken to ensure the 'pristineness' of the environment. This need to maintain the good health of the local environment most likely only true for people who have an increased awareness of declining fish stocks and, for example, the effects and causes of climate change.

However, this information about the good health of the reefs compared to other regions can also backfire. Namely, that thinking that 'everything is good' can influence the urgency to take immediate action among the fishers, the public and even the government. This can help explain why fisheries management activities have only occurred sporadically, often in reaction to an immediate threat (such as a tropical storm), with little structural follow up. Moreover, one of the main reasons the state of the coral reefs on Bonaire, Saba and St. Eustatius are still relatively pristine is because of the small population residing on the islands. The explosive population growth and increasing number of tourists visiting Bonaire (i.e. cruise tourism) rapidly increases the pressure placed on the reefs making them much more vulnerable. This is less of an issue on Saba and St Eustatius.

### **7.2.2.4 Conflict of interest and the islands' colonial past.**

Lastly, the factors of 'conflict of interest' and the islands colonial past are combined, because the bottlenecks they cause are closely related in practice. Figure 8 illustrated that different stakeholders have different interests when it comes to managing the fisheries sector, why this must be done and how (e.g. NGOs stress the protection of the reefs, while fishers want to be able to catch more fish). This might be a perceived conflict of interest, seeing as all parties want more fish in the sea? This also becomes apparent in another common dynamic that complicates fisheries management and nature conservation in general. Efforts to protect nature on are often affected by the **local versus non-local (i.e. Dutch) tensions** present. It is often the Dutch or expats (i.e. non-locals) who are experts / scientists/ divers and plea for the protection of coral reefs which is labeled as 'good', whereas locals are different users of the environment which is (incorrectly) labeled as 'bad' (e.g. herding goats, fishing, hunting iguana's). In this respect, a distinction can be made between local nature users and non-local nature protectors (even though the so-called 'nature protectors' also use the environment).

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<sup>31</sup> <https://www.cbs.nl/nl-nl/publicatie/2017/50/trends-in-the-caribbean-netherlands-2017>

<sup>32</sup> <https://www.infobonaire.com/scuba-diving-magazines-2018-readers-choice-awards-feature-bonaire-top-and-center/>

Non-locals tend to see a direct link and opportunity between protecting the environment and earning money. They portray themselves and 'nature protectors' or responsible environmental users and engage in activities through which they can directly profit from protecting the environment (e.g. owners of dive shops reason that more fish = more tourists / more divers). Locals on the contrary often perceive they only experience immediate (financial) disadvantages when protecting nature (e.g. no longer allowed to fish = less income) and are less aware of the ways in which they too (indirectly) benefit from protecting the environment (e.g. employees in hotels, restaurants, entertainment sector that cater to tourists who visit Bonaire for its pristine environment → better environment = more tourists = more jobs). Correspondingly, even though everybody benefits from and is dependent on a healthy environment, protecting the environment is a luxury. There still is a lot of poverty (especially on Bonaire and St. Eustatius) which means that people need to cover the basics before they can collectively worry about the environment. One respondent explained:

'It takes intellectual advancement to understand that all other basic needs are easier to fulfil if your environment is in check. The number one element for the problem with the environment and environmental protection, especially [protection of] coral reefs, is poverty. You cannot expect people to understand the power of conservation when they are surviving'.

Most people (scientist, government officials, fishers) doubt that the fisheries-biodiversity problem can be solved without taking extreme measures that have a large impact on the local economy (e.g. stopping coastal development all together). Consequently, research is continuously being done and people are employed to come up with alternative solutions to solve the problem. As mentioned previously, for policy and legislation to be supported by the community, people must experience a sense of fairness and justice etc. (Perlaviciute & Steg, 2014; Jentoft, 2000; Turner et al, 2019). Decisions made by the government forbidding fishing in one area but allowing developers to build for example a private pier in that same area reduces the credibility of the policy and policy makers and eliminates a sense of fairness experienced by the community.

Lastly, the Government of the Netherlands is also affected by the 'Dutch versus Local' tensions on all three islands. On the one hand, there are claims of neocolonialism being made in which locals are wary about the increased influence of the Government of the Netherlands on the islands. This is also expressed towards (often Dutch) entrepreneurial actors who see and know how to act upon opportunities on the islands. On the other hand, there is also critique towards locals who tend to take on the role of the victim instead of taking responsibility for the issues they are facing. To overcome this struggle, communication, transparency and equal and fair involvement is key. In other words, a lot of attention must be paid to the process of co-management and building trusted relationship between stakeholders. See also [Chapter 8](#).

#### **7.2.2.5 Availability of, and agreement about scientific knowledge.**

Not only do all stakeholders have different perceptions of the cause, problem and possible solutions (see Chapter 6). Even among scientists there is a debate regarding what is the cause (e.g. overfishing, coastal development, sunscreen, waste water and or pollution) of which problem (e.g. increase in invasive fish species, declining fish stocks and degrading reefs) and which issue needs to be tackled (and how).

Regarding the fisheries sector on the three islands, some argue that the diminishing fish stocks and general degradation of the marine environment is not really the fault of the fishers even though their fishing activities also contribute to this. But that bigger, structural issues must also be tackled such as waste water treatment, erosion control, coastal development, damage to reefs by divers and the increasing number of tourists on the island.

Although most scientists and nature conservationists agree that protecting one single species is not the key to solving all problems, this often does make conservation projects more successful: it is easier for (lay) people to understand and adhere to measures taken for the protection of a (cute) endangered species (i.e. stop eating sea-turtles) than to understand and adhere to measures taken to save an entire ecosystem (i.e. no more coastal

development, no more use of sunscreen, no more pollution to save coral reefs, fewer tourists on the island). Furthermore, most interviewees on Bonaire – both fishers and other stakeholders (i.e. non fishers) - agreed that it is not the professional fishers on boats that cause the most damage, but the recreational and shore based fishers place the biggest pressure on the reefs (see also De Graaf et al, 2016).

This lack of consensus is one of the factors that contributes to not developing a fisheries management plan by the government, as government officials could argue that as long it is not clear what should be done no action will be taken if the risk are perceived not to weight up against the (possible) benefits (See: [Chapter 8.1](#) and [paragraph 8.2.2](#) )

### 7.2.2.6 Psychological factors: governance principles, reputational concerns, ownership and trust.

There are several psychological factors, also called **governance principles** (see table 9; displayed in the ‘cloud’ in the bottleneck model) that have been shown to affect whether individuals support or protest governance (i.e. “the structures and processes that determine how decisions are made, power is exercised, and responsibilities are allocated” (Turner et al, 2019; 474)). Resource management is most likely to be successful when resource users support governance arrangements and perceive themselves to be adequately engaged (e.g. Turner et al, 2019; Pollnac et al, 2010; Perlaviciute & Steg, 2014; Jentoft, 2000).

Therefore, it is important to take the different governance principles in to account to understand the (in)effectiveness of fisheries management activities. The absence of these principles has also contributed to the mismanagement of the fisheries sector on the Caribbean Netherlands and contributes to the bottlenecks ‘Lack of enforcement’ (bottleneck box 13) and ‘No governance support fishers’ (bottleneck box 15).

Table 10. Overview of governance principles (Turner et al 2019; 482).

Governance principle	Explanation
<b>Perceived Legitimacy:</b>	acting with integrity and commitment
<b>Perceived Transparency:</b>	the reasoning behind decisions is evident
<b>Perceived Accountability:</b>	the governing body is answerable to its constituency
<b>Perceived Inclusiveness:</b>	all stakeholders have appropriate opportunities to participate in the governing body’s processes and actions
<b>Perceived Fairness:</b>	decisions are made consistently and without bias
<b>Perceived Connectivity:</b>	the governing body is effectively connected with governing bodies operating at the same governance level
<b>Perceived Resilience:</b>	the governing body has procedures to identify, assess, and manage risk.

The concept of **reputational concern** (i.e. a persons’ concern about their reputation or the ways in which their behavior is perceived to be valued by the local communities) is another factor that appears in the explanatory model and is strongly related to the small scale of the islands. Living in small communities often means that everybody knows each other and is highly dependent on each other. It is therefore in everyone’s interest to maintain a relatively good reputation, especially individuals who are strongly integrated within the local communities or those who have a strong desire to be part of their local community. These individuals are generally more concerned about keeping up appearances, and therefore more likely engage in behaviors that are approved by the local communities (or their social network) (Beersma & Van Kleef 2011; Steinel et al., 2010). Ensuring a lot of communication exists between stakeholders and remaining open, honest and transparent can reduce the risks of reputations being damaged and thus increase the chances of achieving successful collaboration.

People’s **perceived sense of ownership** (i.e. the feeling that something is yours) also affects the way they engage in or support fisheries management activities or legislation. Those with a higher sense of ownership are more likely to actively participate in (or obstruct) management activities and can also shape the type of measure stakeholders feel must be taken. On Saba, for example, this is strongly reflected among the fishers. They express

a strong sense of ownership over the Saba Bank and do not want foreign fishermen (including fishers from St. Eustatius) to fish in ‘their’ waters (Social Mapping Interviews, 2018).

Lastly, the concept of **trust** or distrust. This concept is straightforward: if people or stakeholders do not trust each other, they are very unlikely to collaborate, support each other or comply with legislation. Having trust is affected by several other factors, namely (Röckmann, 2015):

1. knowledge, expertise, competence, predictability;
2. openness, honesty, absence of bias, objectivity, fairness;
3. concern, care, commitment to a goal, consistency, faith, empathy, dedication.

### 7.2.2.7 Negative past experiences.

Related to the concept of trust, negative past experiences with management activities influence stakeholder’s willingness to participate and collaborate in (new) management efforts. Negative past experiences, for example, play a big role in both fishers’ and other stakeholders’ willingness to invest in setting up a fisheries cooperative. If someone no longer believes it is possible to establish a fisheries co-op due to past failed attempts, chances are slim he/she will be willing to initiate or even collaborate when a new attempt is being made.

### 7.2.3 BOTTLENECK SERIES

In the following paragraphs, the many bottlenecks and factors for their existence the model are explained. The model contains a summary of relevant **stakeholder characteristics, contextual and psychological influences** and of three vertical rows displaying different so-called ‘**bottleneck series**’. Namely:

- Bottleneck series 1: Urgency;
- Bottleneck series 2: Roles, responsibilities & resources;
- Bottleneck series 3: Management and governance support;

These bottleneck series each consist of several boxes with bottlenecks or issues (e.g. urgency to manage fisheries < urgency to manage nature). From this point forward, these will be referred to as ‘**bottleneck boxes**’. The **black arrows** and dotted lines visualize the underlying factors which help explain the existence of a respective bottleneck box.

To provide some structure, the bottlenecks will be discussed in the following order: from top to bottom and left to right. For example: starting with *bottleneck series 1: Urgency* (left), the first *bottleneck box* (top) of that series is explained, by discussing the arrows leading up to this first box starting with the first top arrow. These arrows are indicated by means of an arrow symbol (→) in the paragraphs below. Once all the arrows of the first bottleneck box are elaborated, the next bottleneck box of bottleneck series 1 will be addressed (top to bottom) etc. Once all bottleneck boxes of the respective bottleneck series are explained, the following three bottleneck series are explained in the same manner (left to right).

Eventually, these bottlenecks and issues result in the decline in biodiversity, decline in fish stocks, dying coral reefs, dying culture and loss of the fisheries profession, decreased income for the fishers, non-compliance and no willingness for behaviour change. These final problems are discussed in the concluding paragraph of this chapter.

#### 7.2.3.1 Bottleneck series 1: Urgency.



*Bottleneck box 1: Urgency to manage fisheries < urgency to manage nature*

The more urgent and bigger a problem, the greater the chance the problem will be effectively addressed. Regarding the fisheries sector, there are several factors or issues that reduce the urgency of proper management:

→ **The government of the Netherlands is directly responsible for the fisheries sector of Bonaire but, the fisheries sector of the Caribbean Netherlands is smaller than the Fisheries sector of the Netherlands.**

Min LNV is directly responsible for the management of the fisheries sector in the Netherlands and in the Caribbean Netherlands. Although the fisheries sector is of importance to the islands, and relatively bigger than the fisheries sector of the Netherlands (GNP), the absolute scale of sector is much smaller (and consequently of less importance) compared to the fisheries sector in the Netherlands. The issues the fisheries sector of the Netherlands is faced with are likely to be perceived as bigger and more urgent. Moreover, the representation of fishers in the Netherlands is much larger (i.e. multiple, large, self-sustained fisheries cooperatives) and more actively engaged in with the Government of the Netherlands. All these factors contribute to the perception that the fisheries sector of the Caribbean Netherlands is less urgent to attend to than the fisheries sector of the Netherlands.

Although the fisheries are of economic and cultural value to the islands, the value of a fish alive in the water is argued to be of higher economic value (i.e. more fish → more (dive)tourism → more income), than caught fish sold for consumption. This reasoning contributes to the perception that the urgency to act in favor of conserving nature (and thus restricting fishing activities) is greater than the urgency to act in favor development of the fisheries sector.

→ **(Binding) international conventions actively stress the threats of climate change and emphasize the urgency to act in terms of nature conservation.**

As described in chapter 4.1, the Government of the Netherlands has final responsibility for the protection of special areas and species referred to in the international Treaties and Conventions signed by the Kingdom of the Netherlands. This entails promoting the implementation of the relevant regional and international treaties and conventions. Because of the (binding) pressure placed on the need for nature conservation by these international treaties and conventions, the government is motivated to adhere to these regulations and consequently invest in the development of nature conservation oriented policy.

That being said, nature conservation or protection is not opposite of “fisheries development”. Regarding sustainable fisheries development, the two actually go hand in hand. However, there still tends to be a dominating belief among many that (economic) development directly opposed conservation.

→ **Civil servants in the public entity have little affinity with the fisheries sector.**

Within the local government, few civil servants and commissioners have serious interest in managing the fisheries sector, the issues that are taking place, let alone fully grasp how to tackle these issues. Especially on Bonaire, those responsible for implementation of policy and enforcement (LVV) have very little affinity with the sector and no considerable knowledge about or interest in translating written policy into action (written policy for Bonaire being Beleidsvisie 2014-2029 Landbouw, Veeteelt en Visserij (van Almenkerk & Winkel, 2014) and no known policy documents for Saba or St. Eustatius). Moreover, the presence of the Government of the Netherlands makes local commissioners and policy advisors more likely to respond to formal requests coming from formalized groups. Again, because of the absence of a fisheries cooperative or a fisheries officer and the presence of NGOs relatively more attention has been to ecological aspects compared to requests in favor of or developing the fisheries sector.

→ **NGOs and scientists can actively lobby for environmental protection towards the government. Other environmental issues tend to be prioritized over fisheries management issues.**

The government in general responds to formal requests and works according to formal procedures (e.g. formally submitting a proposal, writing and sending letters with requests). Therefore, the government is more likely to support groups that adhere to this working method. NGOs and scientists in general possess the skills and expertise to adhere to these procedures. This increases the chance that their interests (i.e. nature conservation) are being attended to / receive some form of governmental support.

Another factor at the level of the local NGOs (especially on Bonaire) that affects fisheries management in the marine parks is the constant change of directors (and not having a director for several years) as well as marine park managers causing inconsistent policy and lack of follow up with actions, including fisheries management. Aside from the frequent transfers/departures of individuals in these positions, this is exacerbated by the fact that even within the NGOs employees can disagree about the existence of certain fisheries related problems and their respective causes and solutions (Social Mapping Interviews, 2017). However, with regards to the director and park managers, the biggest issue is a lack of time, capacity and priority preventing the organization to proactively work on a fisheries management strategy in addition to (bigger) environmental issues that need to be tackled on the islands. A lack of regulations also contributes to this issue (see also 7.4.1). Consequently, like the local government, the work of NGOs on the islands for or with the fishers has mostly been reactive to an immediate issue (e.g. placing anchoring systems).

- **Fishers lack knowledge about and experience with formal bureaucratic systems, and are confronted with institutional barriers when trying to advocate for the fisheries sector. There is a large physical and emotional/cultural distance between fishers and the Government of the Netherlands.**

Contrary to NGOs and scientists, fishers can be considered as the group that has the most difficulties adhering to these formal procedures, due to lack of knowledge and experience with these procedures and their importance (see also Chapter 5). This reduces the chance that their interests (e.g. more/better facilities for fishers) are being attended to / receive some form of governmental support.



*Bottleneck box 2: Urgency to manage nature < urgency to invest in development*

- **Bonaire / St. Eustatius: political instability prevents the public entities to develop well-defined, long term policy in general, including sustainable fisheries policy.**
- **The Caribbean Netherlands depends on a budget ('vrije uitkering') received from the Netherlands to execute their governmental tasks and responsibilities. It has been shown that this budget has a structural deficit (IdeeVersa, 2015), compelling public entities to choose between projects/areas to invest in.**
- **Due to the meagre economies and poverty that exists on the islands, the public entities are prone to prioritise short-term projects focused around economic development.**

Arrows 2-3 will be jointly elaborated, because these are strongly interconnected. In the previous section, it was explained that the absence of a fisheries organization and the presence of NGOs contributes to commissioners and civil servant being somewhat more likely to support/act in favor of ecologically important activities compared to fisheries sector developments. However, in practice, this does not automatically mean that the public entities always and automatically respond to scientific advice.

First, on Bonaire and St. Eustatius there is a lot of political instability. This inhibits the creation of well-defined and long-term policy, including sustainable fisheries policy, as politicians are constantly dealing with their party formation and not substantial island wide issues. Moreover, on all three islands there exists a culture of *clientilistic politics* (Veenendaal, 2016). Related to the small scale of the islands, government officials are tempted to approve of unsubstantiated requests based on the party/person who makes the request.

- **[Fishers are confronted with institutional barriers when trying to advocate for the fisheries sector, due to limited knowledge about and experience with formal bureaucratic system. \(see: bottleneck box 1\)](#)**



*Bottleneck box 3: NGOs tend to have a negative reputation within the community*

Regarding the fisheries management, there are two main factors that can negatively affect the reputation of (local) NGOs on the islands.

- **Communication from NGOs regarding legislation.**

Especially on Bonaire, a much-heard issue was that even though STINAPA is not responsible for development of policy, rules or regulations, they communicate about legislation to the public. Consequently, the community perceives STINAPA as the organization responsible for the fisheries (and general environmental use) restrictions. A concrete fishery related example is the list of protected fish species. Together with the Public Entity, information cards were produced on which (CITES/ IUCN red list threatened species) protected fish species relevant for reef fishers are illustrated. The goal of this information card is to create awareness about the protected species, to inform fishers what kinds of fish they should avoid catching, and to inform restaurants about the fish they should no longer buy/sell for consumption. On this information card, the STINAPA logo is displayed, which creates the impression that STINAPA (randomly) came up with this list.

Because STINAPA is the enforcer of certain regulations, most fishers (and the community) believe that STINAPA is also responsible for the restrictions being placed on the use of natural resources. This has negatively impacted their reputation within the community and this perception has never been addressed by the local government, which seems to find this situation convenient, seeing as it reduces negative feedback towards the public entity itself.

Some respondents also argued that the government gives too much room to NGOs to intervene and take responsibility for the environment, stressing that instead the local government needs to have their own strong policy.

→ **Insufficient inclusion of fishermen regarding fisheries management.**

Up till now, fishers have been sporadically (or not at all) included in the management efforts or fisheries related research conducted by local NGOs and (external) scientists due to various reasons. This does not mean that attempts have not been made to do so, and there have been occasions during which fishers were included (e.g. placement of mooring anchors on Bonaire; Red fish agreement Saba). However, depending on the measure taken, insufficient inclusion affects the extent to which the resource users support management actions.

A clear example of non-inclusion are the marine reserves on St. Eustatius. According to the fishers, the marine reserves were installed without any consultation of the fishers. This action has negatively impacted the reputation of STENAPA among the fishers: there have been several severe incidents between the STENAPA and the fishers. The fishers also feel that catches have gone down since STENAPA took over the management of the park area (Dilrosun 2000b, Van Baren, 2011; Social Mapping Interviews, 2018).

However, insufficient inclusion is not per definition the fault of researchers, but is closely related to the fact that fishers are difficult to reach (i.e. no fisheries cooperative / representative) and that fishers are not always willing to collaborate. The fact remains that it is sensitive for fishers to share knowledge on location and quality of fishing grounds with others. Fishers knowledge is their capital. Fishers are cooperative, but they are also competitors and usually have no reason to help a competitor by sharing their own knowledge on fishing grounds. In other words – if fishers share their secrets it makes them loose their advantage over others. Fishers are also hesitant to share their important fishing grounds because they fear other stakeholders might use this information against them. For example, if fishers share there is an abundance of a certain fish species in a specific location and they told this to an NGO representative, the NGO might try to make a MPA out of that specific area.

One of the biggest reasons fishers do not want to participate in monitoring research is the fear that once it is known how much fish is caught, they will have to pay income taxes. Some respondents argue that this concern is invalid, because, with the exception of Saba, fisher's incomes are very likely to fall beneath the minimum wage mark from which it is required to pay income taxes. While this may be the case, nobody knows exactly how much fishers earn, thus it cannot simply be believed that this statement automatically removes the fisher's fear. Besides not wanting to lose their income, fishers are reluctant to pay income taxes because they feel they never received any support from the government.

Fishers also tend to believe that the ocean is dynamic and thus see the entire ocean as having potential for good catches. Consequently, fishers are not likely to 'hand in' an area for closure as any area might just be(come) the best fishing ground. This is also related to their strong sense of freedom, which they do not want to give up (Röckmann et. al., 2017).

The issue of insufficient inclusion of fishers clearly illustrates the shared responsibilities parties have and that proper fisheries management requires willingness to collaborate from all parties.



*Bottleneck box 4: No fisheries organization or representative.*

The absence of a fisheries cooperative has been extensively discussed in Chapter 6. The main factors that contribute to this absence (at the level of the fishers) are summarized below<sup>33</sup>.

→ **Fishers feel less urgency to tackle fisheries issues compared to NGO's / the government.**

Not all fishers understand the need for more sustainable fishing practices. Especially younger fishers tend to be less likely to admit a decline in the amount and size of fish they caught (Jonson & Jackson, 2015). This is also affected by the phenomenon of baseline shifts, meaning that the reference point fishers use to measure the amount and size of fish changes (decreases) over time. This could contribute to their reduced sense of urgency to act.

Other factors that can contribute to fisher's low sense of urgency to take actions against fisheries related issues are the importance of religion (i.e. some fishers have expressed that they do not believe fish will run out because God created the fish for people to eat), fishers sense of responsibility (i.e. not all fishers believe it's their fault that the fish stocks are declining and hence do not feel a sense of responsibility to do something about this issues) and fishers perceived sense of control (i.e. if fishers strongly feel it is *not* in their power to stop or reverse the declining fish stocks, it is very unlikely they will change their own behavior patterns). These latter variables strongly differ among individuals. Therefore, making general statements about the extent to which these factors dominate the perceptions and behaviors of fishers on Saba, St. Eustatius and Bonaire is difficult. Nonetheless, these are important issues to consider throughout fisheries management activities.

→ **Fishers are individualists, and not used to working together.**

The most common reason fishers give for why they fish, besides earning money, is the independence and freedom it brings them (Social Mapping Interviews, 2018). In other words, fishers tend to be independent and work for themselves, they are comfortable in their informal ways. Even though fishers help each other out in times of need, in general fishers do not collaborate with other fishers. Hence, most fishers are not used to working in organizations such as fisheries cooperative.

→ **Fishers do not have (or make) the time to invest in setting up a fisheries-cooperative.**

This was an issue that became apparent during the fisheries cooperative intervention conducted on Bonaire. In order to set up a cooperative, fishers are required to volunteer and give up their free time. However, fishers and especially part-time fishers have irregular and very diverse schedules. Fishers do / 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 with other stakeholders for collaboration.

→ **Fishers have limited knowledge about or experience with bureaucratic system/ working methods.**

Most (professional) fishers lack knowledge about and experience with formal bureaucratic systems, and are confronted with institutional barriers when trying to advocate for the fisheries sector. There is both a large physical and emotional/cultural distance between fishers and the Government of the Netherlands. Not knowing what to do or how to create, for example, a cooperative demotivates fishers to take action – many do not know

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<sup>33</sup> The arrows and point discussed may somewhat deviate from the explanatory model in figure 14.

where or how to start. Fishermen who are willing to take a seat in the board lack experience and knowledge on how to run a cooperative, or (are afraid they will) have a somewhat negative reputation within the fisheries community, which will be elaborated more below.

→ **Fishers are fearful for reputational damage when joining the board of a fisheries-cooperative / taking the lead.**

Understanding the importance of sustainable measures and even having some experience with a bureaucratic system does not automatically lead to fishers taking effective actions. This can be inhibited by the previously discussed psychological and contextual factors. Common inhibitors are perceived sense of accountability (or responsibility), reputational concern and negative past experiences. For example, during the interviews several fishers shared that they know fish stocks are declining and that fish are becoming smaller. They also shared that it is better to not catch certain fish during spawning seasons. However, right after sharing those insights, they also admit they do not feel it is up to them to tell their peers to change their fishing practices, as this might damage their reputation and that they did not want to initiate conflict. In such cases top-down implementation and enforcement of regulations can actually be appreciated by fishers, provided that the majority support the proposed rules.

Previous individuals who made attempts to set-up a fisheries cooperative (on Bonaire) had been (or still where) politically affiliated. Fishers tend not to want to get political – they tend to distrust those who want to help when they have a political affiliation, or when they are fishermen or when they are associated to an NGO or a government.

→ **Fishers fear that collaboration can lead to additional restrictions.**

As mentioned previously, fishers are not always willing to collaborate with other stakeholders, but also not with each other out of fear that collaboration might lead to additional negative consequences and less freedom. During the interviews, several fishers have expressed that they fear that being more organized makes them an easy target for the government and NGOs to place restrictions on. This fear is fueled by feelings of distrust which are most likely due to negative past experiences (see also chapter 6).

The previous unsuccessful attempts to establish a fisheries cooperative left the fishers feeling demotivated 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 wouldn't help all fishers equally (e.g. board members would only help their friends and family in times of need). 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 disadvantage. Attempts to improve the monitoring of fish catches, for example, created concern amongst fishers that this would result in them having to pay taxes.

Fishers currently do not pay income tax, and have never been prosecuted to do so. Consequently, the fishers are unfamiliar with the reasons why this is of importance as well as the procedure of tax returns (e.g. financial administration, registration). If fishers were now obliged to pay income taxes, through their eyes this would mean that they would lose their freedom, which is one of the main reasons why they choose to become fishers in the first place.

### **7.2.3.2 Bottleneck series 2: Roles, responsibilities and resources.**



*Bottleneck box 5: Legislation has gaps and is insufficient and unclear.*

There are overall gaps in legislation inhibiting the execution of proper fisheries management and enforcement. For example, fishing permits (distributed by the minister of Min LNV) are required for fishing activities that take place within the EEZ. Within the territorial waters these permits are only required for fishers who fish on boats larger than 12 meters. However, in the Caribbean Netherlands the majority of the (professional) fishers have boats which are shorter than 12 meters, and this inhibits the national government from enforcing any form of

control on the active professional fishers. The legislation is currently undergoing a process of revision (see EcoVision, 2017).

These gaps or insufficiencies are created by the following contextual and social psychological factors:

→ **Change in legislation due to constitutional change of 10/10/10.**

As explained in Chapter 4, since the constitutional change in 2010 Min LNV is responsible for the management of fisheries in the EEZ around the three islands and, together with the island authorities (although as stated before, the exact responsibilities and mandate for the public entities are unclear) in the territorial waters. Even though the current fisheries legislation and fisheries decree are based on the former Dutch Caribbean fisheries legislation, the prominent presence of the Government of the Netherlands created shifts in the legal responsibilities for the surrounding waters of the islands. Now, the Minister of LNV is directly responsible for the management of areas that fall outside the island's jurisdiction but within the Kingdom's, such as the Exclusive Economic Zone (EEZ) as well as national laws applicable to the territorial waters and marine parks. The different levels and areas of responsibility require parties to closely collaborate, specific knowledge and capacity in order to develop legislation and responsibilities that complement each other, which reality has shown is not regularly done. The presence of the Government of the Netherlands also caused other ministries (e.g. Min I&W) in addition to Min LNV to have certain responsibilities (indirectly) affect the fisheries sector, overlap between the responsibilities of these ministries (Figure 4). This requires good communication and close collaboration between the different ministries and the public entities. If this is not the case, the new distribution of roles and responsibilities can become unclear

→ **[Urgency to protect nature is higher than urgency to manage fisheries. \(See bottleneck box 1\)](#)**

As already explained, other issues than the fisheries sector have been more urgent to tackle. This affects the investments being made to develop sound and broadly supported fisheries legislation.

→ **Availability of, and agreement about scientific knowledge.**

The lack of context specific scientific knowledge (e.g. monitoring data) and consensus about fisheries and fisheries management action inhibits the development of a fisheries legislation, as government officials could argue that as long it is not clear what should be done no action will be taken if the risk are perceived not to weight up against the (possible) benefits.



*Bottleneck box 6: Responsibilities for (daily) management are unclear.*

The (legal) roles and responsibilities of all the stakeholders regarding management of the fisheries sector are unclear. While the fisheries sector falls under the direct responsibility of the Min LNV, and some tasks have been directly assigned to certain organizations/ positions (e.g. data fisheries monitoring officers on Saba and St. Eustatius, Caribbean Netherlands fisheries policy officer at the level of Min LNV, Marine park management mandates to STINAPA, SCF, STENAPA), for many tasks it is not clear or agreed upon who is responsible for the daily management activities (see chapter 4).

The following factors have contributed to this:

→ **[Legislation has gaps / is insufficient \(See bottleneck box 5\).](#)**

The gaps in legislation also create ambiguities about which stakeholder needs to carry out certain responsibilities. There are stakeholders who carry responsibility for enforcement, but who until recently (2018) did not have the legal authority to act upon this responsibility (i.e. STENAPA rangers not having a BAVPOL). They are required to collaborate with different agents (e.g. coastguard or police force) who are not always willing or able to do so (for unknown reasons). Again, the change in legislation created a shift in roles and responsibilities making Dutch governmental departments (co)responsible for the whole fisheries sector.

- **Fisheries management requires close collaboration with various governmental departments and other stakeholders.**

This required the different national government *and* public entity departments to closely collaborate with each other and come to agreements about ‘who does what and when’. In practice, this is not as easy as these different departments have many obligations to attend to and differing interests to fulfil. If one department fails in fulfilling their responsibility, this inhibits the work of others.

- [Urgency to protect nature is higher than urgency to manage fisheries: other issues have been more urgent to tackle than fisheries legislation \(See bottleneck box 1\).](#)
- [Urgency to invest in economic development higher than urgency to invest in fisheries sector or nature \(See bottleneck box 2\).](#)

This lack of urgency affects the urgency to identify and clarify fisheries management responsibilities and everything else that has to do with fisheries management: research, spreading of information/education, enforcement, controls, registration of boats, handing out permits etc.

*Bottleneck box 7: Lack of resources: budget.*

In terms of budget, 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 a certain fisheries management activities.

- [Urgency to manage fisheries is lower than urgency to manage nature/other sectors \(See bottleneck box 1\).](#)
- [Urgency to invest in development is higher than urgency to manage nature \(See bottleneck box 2\).](#)
- [Responsibilities for management are unclear \(See bottleneck box 6\).](#)

Because the roles and responsibilities for daily fisheries management are unclear and debated, this creates disagreements regarding budget allocations: the different fisheries stakeholders argue about and even withdraw from financially fulfilling certain responsibilities (e.g. who will pay for fishing harbour maintenance: Min LNV or Min I&W or public entity?).

*Bottleneck box 8: Lack of resources: capacity.*

Closely related to the matter of insufficient budget, all stakeholders – mainly the government officials and NGOs – shared that there is a lack of capacity (people and knowledge) to fulfil their respective roles and responsibilities. Factors contributing to the lack of capacity are:

- [Urgency to manage fisheries is lower than urgency to manage nature/other sectors \(See bottleneck box 1\).](#)
- [Urgency to invest in development is higher than urgency to manage nature \(See bottleneck box 2\).](#)
- [Limited budget results in to limited availability in capacity: weak governmental departments \(See bottleneck box 7\).](#)

Urgency affects priority given to and available budget to invest in fisheries management. The limited budget in combination with the perceived lack of urgency to manage fisheries sector compared to other sectors results into little to no investments being made in the capacity of the organisations needed for achieving proper fisheries management. The personnel of the LVV department of Bonaire, for example, needs to be educated and strengthened in order to be able to develop and implement fisheries policy. Up till now, little to no investments in strengthening the LVV department have been made for fisheries.

As mentioned in previously, 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.



*Bottleneck box 9: Insufficient inclusion of fishers.*

→ [NGOs tend to have a negative reputation within the community \(See bottleneck box 3\).](#)

NGOs and scientists tend to struggle with inclusion of fishers for different reasons. For one, scientists and fishers are mutually confronted with language barriers and scientists often find it difficult to translate scientific research to lay language. Another reason is that some NGOs and scientists might be reluctant to collaborate with fishers because they do not want to face any resistance from fishers or create conflict due to (possible) conflict of interests. On Bonaire, it was also mentioned that STINAPA's headquarters is located very far from the community (and fishers), which creates both a literal and figurative distance. This distance complicates collaborations with the fishers. A common heard reason for lack of inclusion of fishermen on all three islands, is that researchers have no fisheries cooperative to work with and because fishers do not understand and trust the work of researchers making them unwilling to collaborate.

It is argued that the latter is because fishers fear that researchers want to place more restrictions on fishers and do not take their interests and needs into consideration. However, *not* conducting research with fishers also affect fishers' perceptions of credibility of the research, precisely because fishers are not involved from the onset. Another often heard complaint is that there is a large amount of (irrelevant) research being done, without sufficient follow up or communication to the respective communities and stakeholders about the outcomes of the research. Critique is given to the lack of follow-up and implementation of research findings. As one respondent stated:

'Money keeps being assigned to research, but nobody dares to take action'.

Lastly, some informants expressed that the government gives too much room to NGOs to intervene in developing policy and legislation. The lack of a ***strong and S.M.A.R.T.***<sup>34</sup> nature policy at a governmental level and the complete absence of a fisheries management plan in combination with the active presence of several environmental NGOs and conservationists concerned about the environment, leads to a large, contradicting (at times competitive) and incoherent amount of research, projects and attempts to address ecological issues. This often leads to confusion, miscommunication and tampers with the collaboration between the different stakeholders in its entirety.

→ **Not having a fisher's representative / fisheries cooperative** ([See bottleneck box 4](#)).

Although in certain instances efforts were made to involve the fishers, informants shared that this was a quite difficult task because (at the time) fishers were not united, difficult to reach in a group setting. One informant shares that on Saba, for example, all fishermen were once invited by Fisheries Committee BES to join a meeting but no one attended (Social Mapping Interviews, 2018).

Conversations with individuals and fishers who are knowledgeable of the local fisheries sector have taken place in the past in the context of development of management measures and to create solutions for identified fisheries problems. However, these were often informal of nature (e.g. meetings with marine park rangers on Bonaire regarding the installment of marine reserves), and / or did not necessarily represent the entire fishing community. Consequently, actions followed from this type of collaboration is not widely supported by the fishing communities of the three islands.



*Bottleneck box 10: No collective lobbying by fishers.*

→ **Not having a fisher's representative / fisheries cooperative** ([See bottleneck box 4](#)).

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<sup>34</sup> Specific, Measurable, Achievable, Realistic, and Timely.

One of the main responsibilities of the fishers is to actively campaign towards the government and collaborate with other stakeholders in favour of their interests. However, the absence of a fisheries cooperative has prevented fishers from doing so structurally and effectively.

### 7.2.3.3 Bottleneck series 3: Management and support.

*Bottleneck box 11: No structural investment in fisheries sector development.*

Over the years the governmental investments made in the fisheries sector of the islands have been sporadic and in response to immediate issues (e.g. repairs of the fisher's pier after a storm or the placement of FADs, but no structural maintenance or monitoring efforts). Structural investments made for the development of the fisheries sector have been limited and inhibited by the following:

→ [Responsibilities for \(daily\) fisheries management are unclear \(See bottleneck box 6\).](#)

Not knowing and agreeing about who needs to do (and pay for) management which inhibits investments being made for the development of the fisheries sector.

→ [Lack of resources: Budget \(See bottleneck box 7\).](#)

→ [Lack of resources: Insufficient capacity within the governmental departments \(See bottleneck box 8\).](#)

*Bottleneck box 12: No fisheries policy or management plan.*

→ [No investment in fisheries sector: no data monitoring / difficult to decide which measures need to be taken \(See bottleneck box 11\).](#)

→ **Availability of, and agreement about scientific knowledge.**

In order to make a comprehensive and good fisheries management plan, certain data is necessary in order to decide which measures need to be taken. There have been some monitoring research studies conducted (e.g. de Graaf, 2016), and Saba and St. Eustatius do have a data monitoring officer funded by the government of the Netherlands. These studies also included recommendations like 'develop a management plan with clearly defined indicators and quantifiable objectives, targets and reference points' and 'continue standardized monitoring of coral reef health, elasmobranch and fisheries indicators' as well as the suggestion for the implementation of adaptive legislation and regulations (see de Graaf, 2016, p 59). However, on Bonaire continuous data monitoring is not yet taking place. Absence of necessary information and data can make it difficult to define indicators and quantifiable objectives, targets and reference points that are supported by all stakeholders.

An often heard argument is that the lack of context specific scientific knowledge (e.g. monitoring data) and consensus about fisheries and fisheries management action inhibits the development of a fisheries management plan by the government, as government officials argue that as long it is not clear on a local level what should be done no action will be taken if the risk are perceived not to weight up against the (possible) benefits. This results in inactivity which contradicts the advocated precautionary approach<sup>35</sup> to apply in data deficient scenarios and thereby fails to halt any decline in fish stocks and associated ecosystem health.

→ [Responsibilities for \(daily\) fisheries management are unclear \(See bottleneck box 6\).](#)

It is not clear who is responsible for taking the lead in developing a fisheries management plan, inhibiting actions being taken.

→ [Insufficient capacity \(See bottleneck box 7\) / Insufficient budget within the government \(See bottleneck box 8\).](#)

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<sup>35</sup> See also: <http://www.fao.org/docrep/003/w3592e/w3592e07.htm>

Both the Government of the Netherlands and the public entities do not prioritize fisheries management and therefore make insufficient capacity and budget available for the development of a fisheries policy or management plan.

*Bottleneck box 13: No enforcement of legislation.*

On all three islands, there are three main parties who are legally responsible for enforcement of fisheries (related) legislation. Namely the local park management authorities (ie. STINAPA, STENAPA, SCF) according to the mandates received by the government, the coastguard and the police / customs. There are several factors that inhibit these parties from enforcing fisheries legislation:

- [Responsibilities for \(daily\) management are unclear \(See bottleneck box 6\).](#)
- [Legislation has gaps and is insufficient \(See bottleneck box 5\).](#)
- [Absence of fisheries policy or a management plan \(See bottleneck box 12\).](#)
- [Perceived insufficient communication about legislation to fishers \(See bottleneck box 9\).](#)
- [Affected by psychological factors: reputational concerns \(See paragraph 7.2.2.\).](#)
- **Fisheries has a strong cultural value: politicians reluctant to stress enforcement.**

A concrete example about STINAPA will be used to demonstrate how the abovementioned factors inhibit the enforcement of fisheries legislation. STINAPA has received a mandate from the public entity to enforce (deficient and outdated) legislation. There are several technical issues that inhibit proper enforcement of the current legislation. For example, the 60-meter depth limit of the national marine park and not having full time rangers to monitor the marine park 24/7. The 60-meter depth creates room for discussion between fishers and rangers regarding the depth at which a fish is caught, which is difficult to control. Not having enough ranger capacity to monitor the park 24/7 (despite having working shifts) limits the amount of control STINAPA has over the park.

The mandate is in need of revisions to include specific responsibilities for both STINAPA and the public entity. Some have argued these discussions have not taken place, because the government fears this would (possibly) require making available additional funding. Moreover, there is national legislation applicable in the whole EEZ, including the territorial waters and the marine park. Then there is the public entity's (unclear) mandate to develop regulations in the territorial waters, including the marine park. And lastly, there is the Marine park with a set of additional regulations set by the public entity and enforced by both the marine park and local law enforcement. If the coast guard is responsible for enforcing national legislation that is applicable in all areas, does that mean the coastguard is responsible for enforcing national legislation in the Marine Park? And who enforces island regulations applicable to territorial waters within the marine park? And if it is the public entity who makes rules that apply to territorial waters including marine park: who is responsible for daily management of these regulations? All mandates for all parties need to be clearly described in an overarching legally binding manner.

Because STINAPA is the enforcer of certain regulations, most fishers (and the community) believe that STINAPA is also responsible for the development of legal restrictions on the use of natural resources. This has negatively impacted their reputation within the community and this perception has never been addressed by the public entity. This reputational concern is not only reflected at the organizational level, but also at the level of the individual. On Bonaire for example, the marine park rangers work for STINAPA for many years and are almost always local. Here the impact of small-scale becomes apparent in that the rangers often have families or friends who also fish. These rangers are responsible for enforcing the laws and regulations. Because this is a delicate task, these rangers are reluctant to enforce rules and regulations if they feel fishers are not informed about and involved in the development of the rules (this is a task of the government), if legislation is not clear, or if legislation is not realistic/practical to enforce [see also bottleneck box 14](#) below).

Lack of enforcement at the level of the public entities is also strongly affected by the political power fishers have on all three islands. Like the saying ‘every goat is a vote’, many respondents stated that ‘every fish is a vote, too’ (Social Mapping Interviews, 2018). On Bonaire, for example, several informants noted that the (local) government stressed the input and informing of the fishers during the development and implementation of the new ‘Eilandsverorderening Natuurbeheer – protected species list’ (Social Mapping Interviews, 2018). According to fishers and marine park rangers, this was insufficiently done even though the public entity claims several attempts were made to do so. This has resulted in fishermen not wanting to adhere to this rule and rangers not wanting to enforce the rule.

Another example leading to lack of enforcement is the fact that the park management authority is often also the party to work with fishermen on data monitoring and research. Therefore, some marine park managers do not enforce fisheries regulation to avoid conflict with the same fishermen they need for their own work.



*Bottleneck box 14: (Perceived) insufficient communication about legislation.*

On Bonaire for several years, there has been a debate between fishers, STINAPA and government officials concerning the implementation of the latest fisheries legislation. Fishers and rangers claim that they were not fully informed or included in the process, while government officials claim that they put more effort into the implementation and information campaign of this bill in comparison to other actions and efforts.

This debate affects the rangers who are supposed to enforce the implemented legislation: the rangers are hesitant to do so because they feel it is unjust to enforce a law people are not aware of. Furthermore, they feel it is not up to STINAPA to inform the fishers about the legislation, as they view this to be a task for the government itself. As STINAPA is trying to improve its reputation within the local community of Bonaire, it has become reluctant to enforce or execute restrictions altogether. This does not mean however that STINAPA is *against* enforcing legislation altogether. As one ranger explained:

“Nos ta esun ku tin ku atendé ku e piskado. Nos ta bai tuma [...] 'wraak'. Anto si e ta bon hasí I don't care. Mi no tin problema ku nan, paso sowieso nan [piskado] ta rabia. Pero mi no tin problema si nan rabia ora e ta bon hasí. Pero si e ta mal hasí, mi ta hanja e ta inhustu.’

“We [the rangers] are the ones who need to confront the fishers. We need to take [...] ‘revenge’. And if it [legislation] is implemented correctly, I don’t care. I don’t have problems with them [the fishers], because they will get angry anyway. But I don’t have a problem with them getting angry if it’s done right. But if it’s done wrong, I find it unjust.’

That being said, these perceptions do not necessarily mean that fishers have not been informed at all about legislation. However, as long as fishers and enforcers of legislation claim this to be true, chances of enforcement to take place are slim.

Furthermore, it seems that the Fisheries Commission BES, despite their attempts, failed to inform all fishers about their roles and responsibilities or about the decision made during their annual meetings. However, informing fishers about the content of their meetings is not a *legal* responsibility of the Fisheries Commission. Nevertheless, several stakeholders shared that it seems most logical that this should be a task of the representatives within the Fisheries Commission as they are only ones who know what has been discussed and decided. Moreover, most fishers claim they know very little about the work of the Fisheries Committee BES if they know of the existence at all.

Similar debates have taken place on St. Eustatius and to a lesser extent on Saba. Especially on St. Eustatius and Bonaire there were a lot of fishermen who shared they were not aware about (certain) fisheries legislation or were misinformed. This *perceived* insufficiency of communication is most likely due to the following two factors:

- [Insufficient capacity \(See bottleneck box 7\) / Insufficient budget within the government \(See bottleneck box 8\).](#)

It is a citizen's responsibility to be informed about the rules and legislation of their country of residence. However, the government also has responsibility to collect, maintain and disseminate information to the public. More importantly, the government information should be disseminated in manner that 'promotes its usefulness to the public'<sup>36</sup>.

In other words, government information must be easily accessible to the public. This can mean that, depending on the information and the target group, different formats must be used or additional efforts must be made by the government to ensure the respective target group is informed. In the case of the fishermen, the government must therefore take into account that many fishers are illiterate and/or can have limited access to radio or television as they are out to sea. The additional required efforts also require additional budget and capacity to do so.

- [No fisheries cooperative / representative \(See bottleneck box 4\).](#)

A fisheries cooperative can help effectively share important information with other fishers about legislation, policy, developments etc. A fisheries cooperative would have access to the network and channels to inform all fishers and the community in general. Moreover, many fishers have expressed they preferred receiving information from a fisheries-cooperative as they feel this is a trusted source (Social Mapping Interviews, 2018). In sum, the existence of a fisheries could help improve information distribution regarding legislation etc.



#### *Bottleneck box 15: No governance support from fishers*

A final big issue in the field of fisheries management is the lack of governance support from fishers. Having governance support from the fishers is critical for management success in contexts where enforcement capacity is limited (Turner et al, 2019). The following factors are central to explain the lack of governance support from fishers on Bonaire, Saba and St. Eustatius.

- [Perceived insufficient communication about legislation \(See bottleneck box 14\).](#)
- [Perceived insufficient inclusion of fishers \(and other stakeholders\) in governance actions \(See bottleneck box 9\).](#)
- [No investments in fisheries sector development \(See bottleneck box 11\).](#)
- [Affected by psychological factors, conflict of interest and negative past experiences \(See paragraph 7.2.2\).](#)

As already mentioned, fishers feel they are not sufficiently informed about or included in the development of fisheries legislation or other management activities. Fishermen rarely attend stakeholder meetings. This is turn is related to the fact that fishers are not formally organized which has impeded other stakeholders to involve them. Fishers stated that the government and NGOs implement legislation without consultation and without providing feasible (income) alternatives. The lack of investments in fisheries sector has led to feelings of resentment from the fishers towards the government, particularly the public entities as they feel they never received help from the government. However, like all citizens, fishers too should adhere to the income tax rules considering that is the system through which the government is able to provide public services. From what is known, few (full-time) fishers are faced with income tax authorities and have therefore been able to ignore and/or not familiarize themselves with these rules and system.

It is difficult to say if fishers are distrustful *because* they have not been sufficiently included in or supported by the government and NGOs in management activities, or that they hinder their own inclusion because they are distrustful to begin with. On the one hand, fishers argue that they feel their views and opinions are not being

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<sup>36</sup> <http://www.ala.org/advocacy/govinfo/keyprinciples>

taken into consideration and that their expertise and knowledge is dismissed. On the other hand, because they do not trust researchers, it has been argued that fishers are not likely to be completely honest when sharing information with research impeding researcher's willingness to collaborate with fishers.

However, fisher's distrustfulness is based on a fear of implementation of restrictions without any perceived (direct) benefits for the fishers. This can be explained by research conducted by Johnson & Saunders (2014), who found that the circumstances of poverty lead fishers to prefer short term over long term satisfaction, also called the 'marsh-mellow effect' (i.e. rather have less money immediately, than more money in the future). This also explains why fishers are less likely to support sustainable management practices, as these usually require a short-term sacrifice to benefit in the future. Moreover, considering the current state of the coral reefs, a short term sacrifice could mean adhering to serious restrictive measures for up to 20 years if not longer.

Like most people, fishers are generally stubborn and creatures of habit, reluctant to change or try out different (more sustainable) fishing techniques. Their reluctance towards new sustainable fishing techniques can be explained by a fear to fail (e.g. catching less fish, thus having less income), the tragedy of the commons phenomenon that is fueled by the lack of enforcement (e.g. if enforcement doesn't happen, the fishers start to feel resentful as they leave the e.g. undersized conch, for "the next guy") and distrust the effectiveness of sustainable management activities.

For example, during the interviews it became apparent that (some) fishers are reluctant to participate in 'catch and release' because they feel the reasons for releasing a fish do not weight up to the amount of time, effort and money they invested to catch the fish in the first place. Every fish caught symbolizes success and money, that bills can be payed, children can go to school, food is on the table. Moreover, in some cases when deep see fishing on the reef or the drop-off, the fish is already dead when it reaches the surface because of rapid inflation of the swim bladder.

Fishers working with tourists have more interest in catch and release systems, and are more likely to admit that this is better for certain species (e.g. bill fish). These fishers are also more supportive of these initiatives because they earn their money directly from the tourists, and not from the amount of fish they sell and because these systems are better accepted by tourists who are often big supporters of marine conservation.

#### 7.2.4 CONCLUSION: LOSS OF BIODIVERSITY, ECONOMY AND CULTURE

Ultimately all the bottlenecks discussed and elaborated in the afore mentioned paragraphs lead us to the issues the primary stakeholders – in varying degrees – are concerned with to begin with:

- Decline in biodiversity
- Declining fish stocks
- Declining coral reefs
- Dying culture and profession
- Decrease income of the fishers
- No compliance to legislation
- Unwillingness for behaviour change.

These issues are in turn closely related to each other. For example: not complying to fisheries regulations (e.g. closed seasons), directly leads to further decline in fish stocks. Fewer fish results in less income for fishers – as it becomes more difficult to catch. This in turn makes it less attractive for young fishers to pursue the profession, which can ultimately result in the disappearance of the profession, culture and economy altogether.

While it may seem a daunting task to resolve all the existing bottlenecks, this does not necessarily have to be the case. What this chapter and model have illustrated, is that the focus must not lie solely on solving the final outcome (i.e. Decline in biodiversity, declining fish stocks, dying culture and profession etc.), but rather concentrate on the facets underlying the existence of these issues. In the case of fisheries management, this

entails that a lot of focus and energy must be placed **on *guiding and improving the process***, instead of the final desired outcomes.

## 8 ROADMAP TOWARDS EFFECTIVE FISHERIES MANAGEMENT ON THE CARIBBEAN NETHERLANDS.

### 8.1 AN ECOSYSTEM BASED MANAGEMENT APPROACH TO FISHERIES MANAGEMENT

The previous chapter made clear that indeed fisheries is a difficult sector to manage and that on Bonaire, Saba and St. Eustatius there are many interlinked bottlenecks inhibiting effective management of the sector.

Ecosystem Based Management (EBM; Röckmann et al, 2015) can provide some additional explanation as well as (theoretical) guidelines to achieve effective and broadly supported fisheries management. EBM can be defined as “an integrated approach to management that considers entire ecosystems, including humans” (McLeod et al, 2005, in Röckmann et al, 2015; 155). EBM is a response to the EAS-model (see figure 1), arguing that both environmental, ethical, social and economic processes need to be well understood and incorporated. Röckmann et al (2015) developed the interaction triangle (figure 15) as a tool for understanding stakeholder interactions in marine EBM:

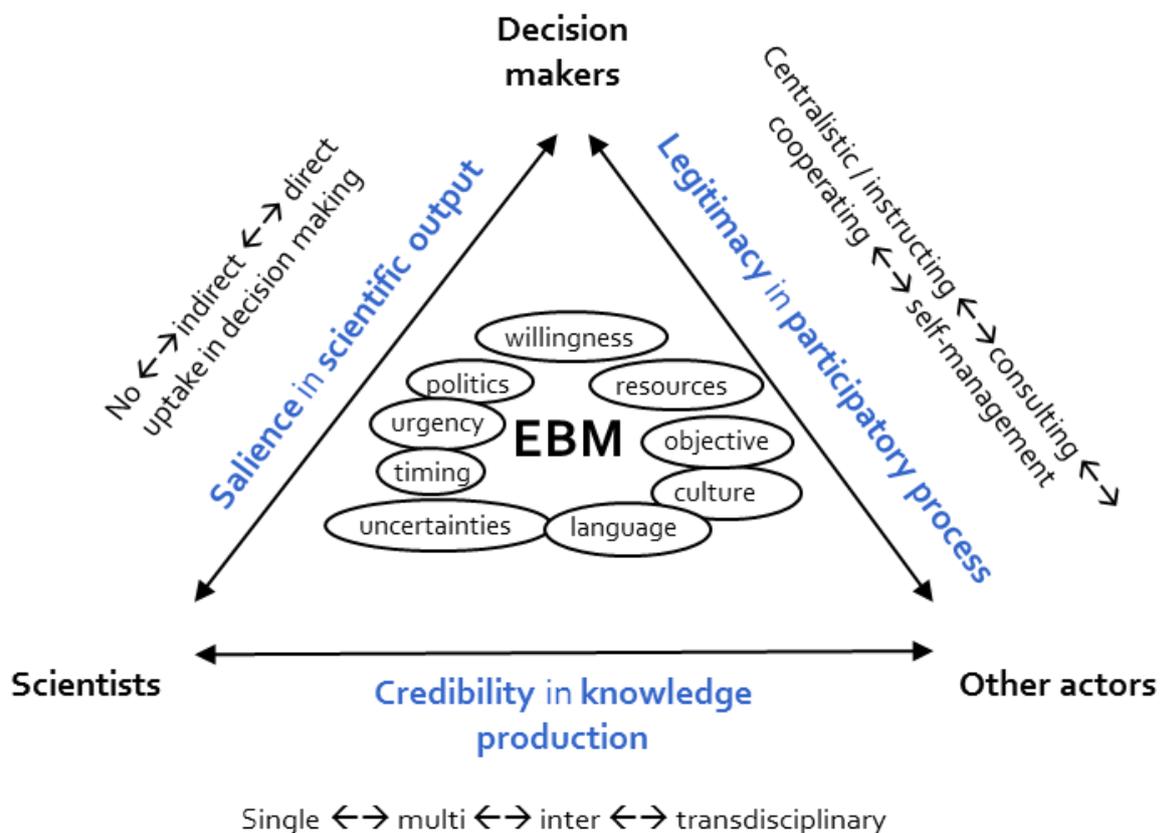


Figure 15. The EBM triangle of interaction, specifying an interaction spectrum (outside, black) for each of the three dimensions (blue). Encircled inside the triangle, examples of context specific factors. Adapted from Röckmann, et al. (2015).

The EBM-triangle describes three fundamental dimensions between three stakeholder interactions as well as important context specific factors that can influence and determine these interactions and the effectiveness of EBM. The table below outlines the range of these interactions and presents important considerations for each interaction. What you will notice is that the factors addressed in the EBM-triangle can be directly linked to the existing fisheries management bottlenecks identified for Bonaire, Saba and St. Eustatius.

**Table 11. The EBM-triangle explained: interactions, range and important considerations (summarized from Röckmann et al, 2015)**

Interaction	Range continuum	Important Considerations
<p><b>Scientists X decision makers</b></p> <p><b>Goal: SALIENCE</b></p> <p>Is knowledge relevant for the decision of policy in question?</p>	<p><b>No:</b> strong top-down political management (e.g. decisions makers under pressure to make an urgent decision)</p> <hr/> <p><b>Indirect:</b> time lags between scientific discovery and application (e.g. scientific information is already available when decision makers need to take action)</p> <hr/> <p><b>Direct:</b> scientific research conducted specifically for and applied directly in decision making.</p>	<ul style="list-style-type: none"> <li>– Joint problem framing is crucial for defining an applied research question.</li> <li>– Focus on process and not (only) scientific output.</li> <li>– Acknowledge decision makers’ concerns, perspectives and values.</li> <li>– Involve other actors.</li> <li>– Use of existing networks.</li> <li>– Interactions between scientists and decision makers can be various and variable.</li> <li>– Scientists who choose their role depending on the context can be more effective in creating salience in policy. Scientists roles:               <ul style="list-style-type: none"> <li>– <i>Pure scientist:</i> strives for scientific truth. No connection w/ decision makers</li> <li>– <i>Science arbiter:</i> provides scientific expert judgement to decision makers</li> <li>– <i>Issue advocate:</i> narrows down available options to decision makers</li> <li>– <i>Honest broker:</i> engages in decision making process, propose new policy alternatives</li> <li>– <i>Non-role:</i> situations where scientific knowledge is irrelevant.</li> </ul> </li> </ul>
<p><b>Decision makers X other actors</b></p> <p><b>Goal: LEGITIMACY (through participation)</b></p> <p>Has the process been fair and open to perspectives from representative stakeholders?</p>	<p><b>Centralistic / instructing:</b> not enabling people to participate but enabling power holders to educate’ the participants</p> <hr/> <p><b>Consulting:</b> allow participants to hear and to have a voice. No power to ensure their views will be regarded</p> <hr/> <p><b>Cooperating:</b> participation with decision-making influence / delegated power</p> <hr/> <p><b>Self-management:</b> citizens have the majority of decision-making seats or full managerial power</p>	<ul style="list-style-type: none"> <li>– Participation (i.e. the involvement of user groups in decision making and implementation process) is the ‘cornerstone of democracy’. However, if handled badly, they can result in counterproductive negative consequences (e.g. loss of trust between partners and end of cooperation).</li> <li>– Neither top down government centralistic management, nor bottom-up self-management is necessarily the best way for natural resources management. Be transparent about the roles and responsibilities expected from the involved parties.</li> <li>– Involve stakeholders early in the process of participation, i.e. in the problem framing/ scoping phase.</li> <li>– Stakeholders’ roles in the process should be clarified and “a common vision including the objectives for marine EBM” be defined.</li> <li>– Clarity and transparency enhance the joint understanding of the management question to be solved and can help prevent misunderstandings.</li> </ul>
<p><b>Scientists X other actors</b></p> <p><b>Goal: CREDIBILITY (through collaboration)</b></p> <p>Is knowledge true or technically adequate in its handling of evidence?</p>	<p><b>Single disciplinary:</b> very specific disciplinary approaches (e.g. chemical measurements)</p> <hr/> <p><b>Multidisciplinary:</b> collectively working with different disciplines in parallel on a similar problem, approaching from different angles, having different foci and applying one’s own individual disciplinary approaches.</p> <hr/> <p><b>Interdisciplinary:</b> collectively working with different disciplines, having one focus, bridging, combining and integrating different disciplinary approaches.</p> <hr/> <p><b>Transdisciplinary:</b> joint and collaborative research process involving science and other actors. Working together on producing new knowledge.</p>	<ul style="list-style-type: none"> <li>– Science alone cannot provide all the answers, since EBM is complex surrounded by many uncertainties, value-laden and intrinsically linked to stakeholder’s interests and values.</li> <li>– Transdisciplinary approaches (e.g. mutual sharing of knowledge, jointly and openly discussing input data, assumptions) have demonstrated positive effects in fisheries management. Namely: as joint problem understanding; comprehension and acceptance of the common knowledge basis; collective learning; advancing scientific understanding (Dryer &amp; Renn, 2011; Haapasaari et al, 2012; Jones, 2009; Kraan et al, 2014; Röckmann et al, 2012; Ulrich et al, 2010).</li> <li>– Collaborative processes that take place transdisciplinary approaches can build trust and result in a higher credibility of science and scientific advice (Haapasaari, 2009; Dryer &amp; Renn, 2011; Röckmann et al, 2012).</li> </ul>

The authors stress the importance of acknowledging the context in which EBM is implemented. As can be seen in figure 15: EBM is placed in the middle of the interactions between stakeholders, surrounded and shaped by a large number of contextual factors (the circles). There are four context-specific factors that particularly influence the interactions and thus the way EBM must / should be implemented:

1. The availability of resources
2. Trust
3. The quality or state of available (scientific) knowledge
4. The willingness to interact

These context specific factors are important to recognize, acknowledge and consider as they help determine the degree of transparency and interaction is required. Again, in the explanatory model (figure 14) these contextual factors also made their appearance and were directly and indirectly related and showed that the fisheries sector is not being optimally managed on the islands. The table below explains the importance of these contextual factors and presents examples of questions to ask when choosing an appropriate degree of interaction.

**Table 12. Effect of contextual factors and issues to consider for choosing an appropriate degree of interaction (summarized from Röckmann et al, 2015).**

	Importance	Issues to consider
Resources  (i.e. time, money, space, manpower, interaction fora, language)	<ul style="list-style-type: none"> <li>– Availability of resources determines how and which stakeholders / actors can interact/participate (e.g. not having the time/manpower to set up a fisheries cooperative withholds fishers from interacting with decision makers)</li> <li>– The first step to a more transparent process is to identify and acknowledge the distribution of resources among the stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>– Are resources distributed (un)equally?</li> <li>– Do those with more resources dominate?</li> <li>– Are work agendas overloaded?</li> <li>– What are the costs versus benefits of interaction?</li> <li>– Do interaction fora exist already?</li> <li>– Who participates in what forum? Are fora linked?</li> <li>– Do different actors understand each other’s language/ jargon?</li> <li>– How much time is available to build common understanding?</li> </ul>
Trust	<ul style="list-style-type: none"> <li>– Trust is a requirement for interaction and transparent interaction processes can build additional trust</li> <li>– 3 main determinants for trust: 1) knowledge, expertise, competence, predictability; 2) openness, honest, absence of bias, objectivity, fairness; 3) concern, care, commitment to a goal, consistency, faith, empathy, dedication.</li> <li>– Mutual contact is important for trust building to achieve a good collaborative process and credibility in data collected by practitioners (i.e. fishers instead of scientists)</li> <li>– Distrust can lead to frustration and hinder/halt participation</li> <li>– Trust is better served by a focus in why disagreements exist, rather than on who is right.</li> </ul>	<ul style="list-style-type: none"> <li>– Is there transparency about roles and responsibilities expected from the involved parties/actors?</li> <li>– Are there institutional arrangements in place (e.g. co-management) to enhance trust?</li> <li>– Are there interactive means to build trust, e.g. cooperation, regular meetings, face to face contacts, direct communication?</li> <li>– What is the state/ quality of the involved knowledge/ expertise/ competence?</li> <li>– Are results/ future developments predictable?</li> <li>– Is there a general (societal) climate of openness, honesty, absence of bias, objectivity, fairness?</li> <li>– Is there a general (societal) climate of concern, care, commitment to a goal, consistency, faith, empathy, dedication?</li> <li>– Can actors participating in the process be held accountable for their input?</li> </ul>
Quality of knowledge	<ul style="list-style-type: none"> <li>– Be aware of potential bias caused by the accessibility of information.</li> <li>– An expected benefit of joint knowledge production is to get a better mutual understanding of the problems involved.</li> <li>– Interaction between different stakeholder groups about the knowledge basis and considering traditional local ecological knowledge in addition to scientific knowledge can add transparency or even reduce (or at least reframe) uncertainties, by realising that a particular contested issue is irrelevant for the management question to be dealt with.</li> </ul>	<ul style="list-style-type: none"> <li>– Is the (scientific) knowledge considered adequate and appropriate?</li> <li>– Is there consensus on the quality of the available (scientific) knowledge?</li> <li>– Are scientists interested in studying a particular management issue?</li> <li>– Are the uncertainties in the knowledge known and documented systematically?</li> <li>– Can quantitative approaches be coupled to qualitative approaches, including problem framing from multiple perspectives and stakeholder involvement?</li> </ul>

Importance	Issues to consider
<p>Willingness</p> <ul style="list-style-type: none"> <li>- The urgency of an issue can negatively affect the willingness of decision makers to spend time on interacting</li> <li>- Decision makers are not always willing (i.e. dominated by politics) to interact with scientists or other actors, or are not inclined to create a transparent process with uncertain outcomes.</li> <li>- Awareness of the political reality can prevent frustration and fatigue among scientists and other actors wanting to interact with decision makers.</li> <li>- Previous, negatively experienced participatory process can lead to “consultation fatigue”.</li> <li>- Frustration or scepticism about the intention of other actors can impede the willingness to engage in participatory processes.</li> <li>- Stakeholders can have their own hidden agendas, i.e., reasons for not collaborating or collaborating in biased and even misleading ways (e.g. “some fishers are reluctant to share information that they fear could lead to future quota reductions or effort restrictions” (Johnson &amp; Densen, 2007).</li> </ul>	<ul style="list-style-type: none"> <li>- Is the scientific discovery ready to be applied right away or is there a time lag?</li> <li>- Are actors willing to engage in joint problem framing?</li> <li>- Are actors interested in learning from/understanding other actors?</li> <li>- Are actors willing to share information?</li> <li>- Are there hidden agendas?</li> <li>- How is the governance process organized? Top down, bottom-up/participatory, or a combination?</li> <li>- How urgent is it to deal with the EBM challenge? Is there time to add the ‘best available knowledge’?</li> <li>- Are actors willing to acknowledge the decision makers’ concerns, perspectives and values?</li> </ul>

Lastly, there are several things that are crucial to understand when applying the EBM approach (Röckmann et al, 2015; 161):

- Stakeholder participation is a key element of successful EBM.
- Due to the complexity of EBM, there is not one optimal interaction approach: depending on the context of an EBM question, the initiators of, as well as participants in EBM processes should decide and negotiate on how much and what kind of interaction is necessary, appropriate and desirable. The responsibility for finding an appropriate degree lies with the initiator of EBM.
- Transparency about the chosen strategies (and limitations) to engage in the interaction processes is the key to reaching consensus about the degree of interaction.
- Roles of all stakeholders in the process should be clarified.
- A common vision and the Objectives for EBM should be defined.

## 8.2 ROADMAP TOWARDS EFFECTIVE FISHERIES

The analysis of the bottlenecks revealed the complexity and interrelatedness of the problems currently present in the field of fisheries management on the Caribbean Netherlands. By now it should be clear that these problems are interconnected, meaning that one problem leads to many others.

While this can seem overwhelming, this interconnectedness means only a few solutions are in fact needed. To overcome the bottlenecks discussed in previous chapter, a roadmap was developed based on insights and findings from the research. In addition to describing what the solutions entail, explaining which bottlenecks are tackled, the roadmap presents concrete steps on how each solution can be successfully implemented.

Irrespective of what solution is best, who or what is to blame, the crucial factor is that the fishers and all other stakeholders are involved in managing the resource (i.e. the ocean). If fishers are not involved but are impacted by developments made to the resource without having a fair, desired and supported alternative, chances are that they will not support and oppose necessary changes (e.g. Dryer & Renn, 2011; Haapasaari et al, 2012; Jones, 2009; Kraan et al, 2014; Röckmann et al, 2012; Ulrich et al, 2010).

For the creation of the roadmap presented in the remainder of this chapter, the principles of EBM were used as a vantage point for developing concrete steps and guidelines in order to achieve effective, sustainable fisheries management on Bonaire, Saba and St. Eustatius.

Reed (2008; in Röckmann, 2017; pp 289) identified eight best practices that improve the quality and effectiveness of stakeholder participation. Röckmann (2017) and all concluded that not adhering to all eight principles carries a significant risk that successes will not be booked. Therefore, it is strongly advised that all eight of the following practices are met throughout the entire process:

1. Stakeholder participation needs to be underpinned by a philosophy that emphasizes empowerment, equity, trust, and learning.
2. Where relevant stakeholders should be involved as early as possible and throughout the process.
3. A systematic stakeholder analysis should be carried out to ensure representative involvement of those stakeholders relevant to the environmental management question.
4. Clear objectives for the participatory process need to be agreed among stakeholders at the outset.
5. Methods should be selected and tailored to the decision-making context, considering the objectives, type of participants, and appropriate level of engagement.
6. Highly skilled facilitation is essential.
7. Local and scientific knowledge should be integrated (to provide a more comprehensive understanding of complex and dynamic socioecological systems and processes).
8. Participation needs to be institutionalized (creating organizational cultures that can facilitate processes where goals are negotiated and outcomes are necessarily uncertain).

Figure 16 summarizes the four phases needed for developing and realizing successful fisheries management on Bonaire, Saba and St. Eustatius. The solutions are incorporated within these phases; some spanning more than one phase. Key steps are outlined for each of the five phases. These steps are presented in order of priority; however, it is strongly advised that these steps are simultaneously executed.

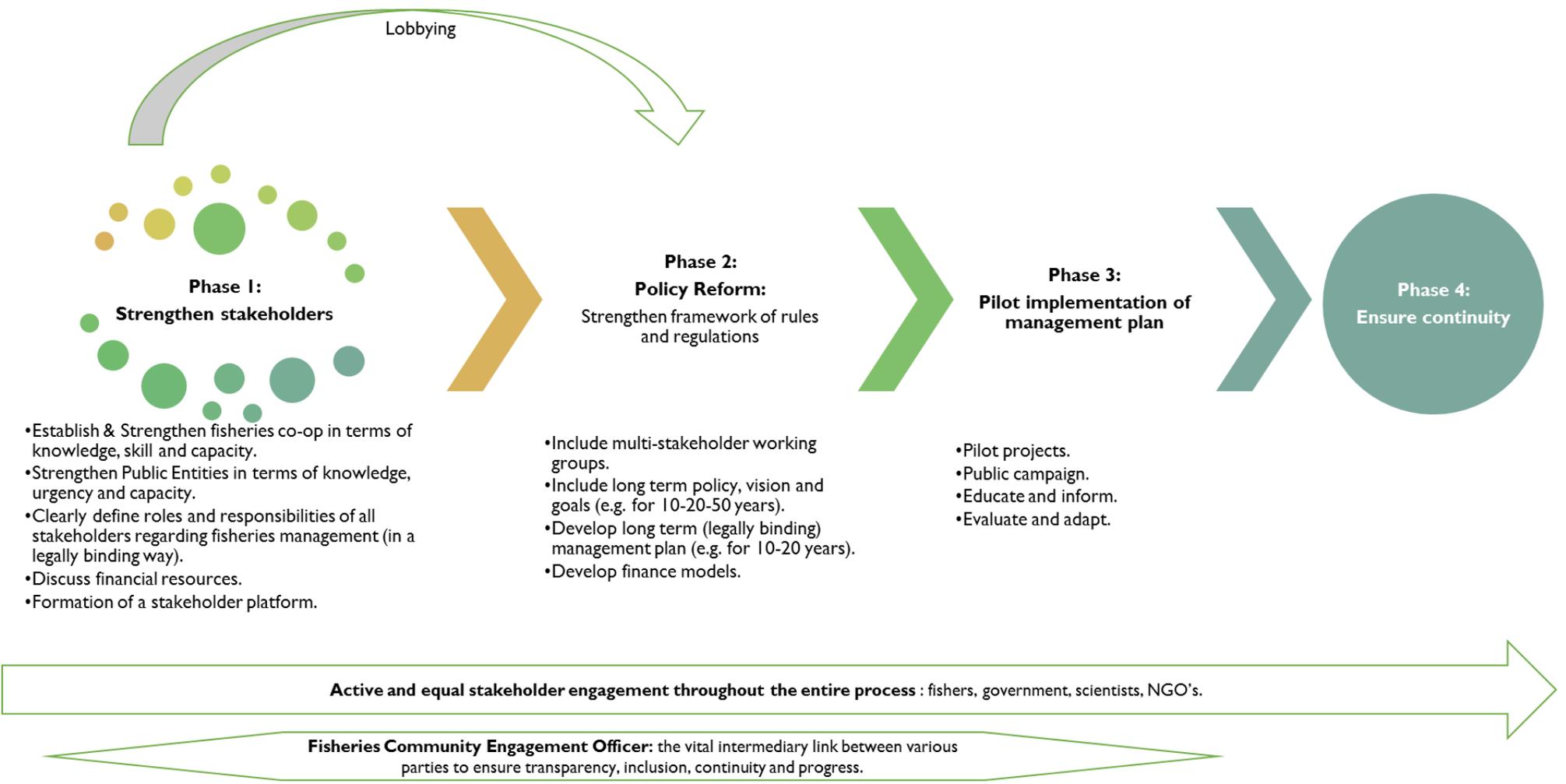


Figure 16. Summary of phases for developing effective participatory fisheries management on Bonaire.

### 8.2.1 PHASE 1: STRENGTHEN STAKEHOLDERS

Once all stakeholders including the fishers are identified and formalized, the capacity of the key stakeholders of fisheries management need to be strengthened. In addition, a new 'collaboration culture' must be established to build trust and transparent working relationships.

#### 8.2.1.1 Step 1: strengthen (or establish) the fisheries cooperative

A fisheries cooperative is believed to be a good way to manage fishery resources at the local level because:

- They are legal entities
- They can perform economic, social, and organizational functions
- They have a complementary mission in development.

Impact is delivered because:

- With a growing number of members, a fisheries cooperative can become the central organization to collectively represent the fishers and lobby for their needs towards the government.
- Through a fisheries cooperative, fishers can be structurally and unobtrusively included in policy and legislation development and research / data monitoring programs and therefore create sustainable support among the fishers for these programs.
- A fisheries cooperative can facilitate the fishers by means of providing affordable fishing gear, boat supplies, services, ice jugs, store discounts etc.
- A fisheries cooperative services as a central point of contact for other stakeholders
- A fisheries cooperative can be the trusted, organized informant towards fishers. Via PISKABON fishers can be informed about developments, sustainable fishing techniques and alternatives, legislation etc.

To ensure the existence of a fisheries cooperative, the following actions must be taken:

- Find secretarial support: see profile with qualifications and task description in Appendix VI.
  - This can be someone who fulfils other functions on the island, if these are not related to the government or other (fisheries related) NGOs (i.e. STINAPA, SCF, STENAPA).
  - Funding must be available to hire this support (see also STEP 4 – preferably not by a nature protection organization due to perceived conflict of interest).
  - This should preferably someone with regional or local roots, however, external (e.g. (Latin) American / European) support can be well received as well. The latter must be especially mindful about building a relationship build on trust with the fishers.
- Support board with development of strategic plan (preferably not by a nature protection organization in the case of perceived conflict of interest among fishers).
- Educate and coach the board members on:
  - Roles and responsibilities of board members
  - Roles and responsibilities of other stakeholders regarding fisheries management
  - Existing rules and legislation with regards to fisheries
  - Organizational working strategy and methods:
    - Structuring meetings
    - Project management and execution
    - Lobbying
  - Financial literacy:

- How to gain access to subsidies / external financing
  - How to work with budgets
  - How to make a profit
  - Dealing with organizational taxes (i.e. profit tax)
- Involve in all fisheries related programs
  - Come up with sustainable revenue models to make PISKABON (and other fisheries co-ops in the future) less dependent on donations/subsidies (see also STEP 4).

### **8.2.1.2 Step 2: strengthen public entities**

Aside from gaining governmental support the local government also needs to be strengthened from within. Government officials (commissioners and policy makers) need to be educated about the importance of the fishers, the marine ecosystem and the role and impact of all its users. Moreover, it needs to become clear and concrete what the tasks and responsibilities are of the government regarding the fisheries sector. The policy plans need to be translated into concrete projects. The public entities should:

- Train and /or hire additional fisheries personnel. Specific fisheries education can be provided by NGOs (e.g. program being developed by CARMABI, GCFI, WWF, etc.).
- Place people in positions that are willing to learn/ be educated or have an affinity with the sector
- Government should encourage employees to become educated about the sector – not solely rely on the advice reports from NGOs etc. who are vocally stronger.
- Define responsibilities and harmonize with existing stakeholders.

In order for this to happen, the urgency to act must be amplified among the government:

- Together with STINAPA and other NGOs, PISKABON must lobby towards the government to stress the need of a strong governmental fisheries department.

### **8.2.1.3 Step 3: reestablish collaboration and trust (see also table 11).**

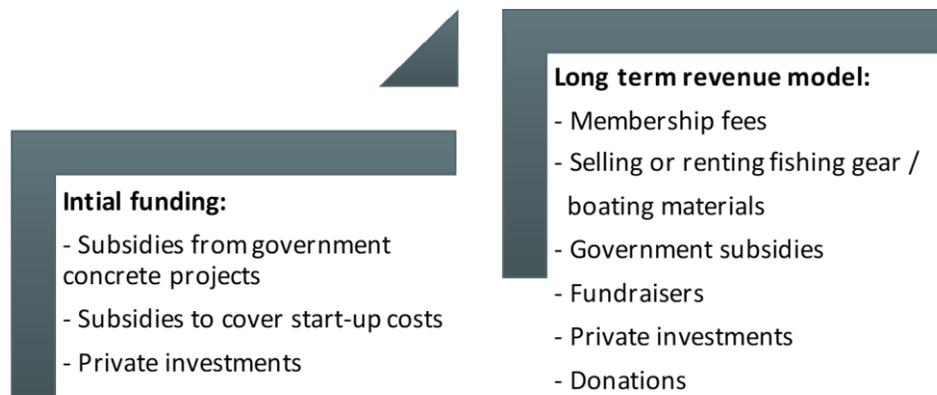
- Determine roles and responsibilities of each stakeholder.
- Set-up (multiple) stakeholder meetings during which roles and responsibilities are presented and discussed.
- Respect each stakeholder's interest and discuss common interest.
- Develop projects that support common interest and decide who is responsible for what.
- Frequently communicate with all stakeholder groups: all stakeholders must receive frequent updates regarding the latest development regarding the fisheries sector. Each stakeholder must frequently and consistently inform the other stakeholders about the latest developments taking place within their organization.

### **8.2.1.4 Step 4: define funding mechanism**

To ensure the continued existence of a fisheries cooperative, a funding plan must be developed. This funding plan must include long-term costs sharing and any required cost recovery and makes the co-op less dependent of charities.

The funding plan needs to be split in two parts, namely some initial funding from which the fisheries cooperative can establish itself and a long term revenue model to keep the coop in business.

In general rule is that those who provides funding also have a say in how the money is spend (under which terms). Therefore, it is important to be aware of the effects external funding can have on the reputation of a fisheries cooperative. Both within the cooperative, among their members and among other stakeholders.



**In sum:**

Do...	But be aware of...
<ul style="list-style-type: none"> <li>- ...involve fishers in management to help drive support, enforcement, education, participation, and empowerment</li> <li>- ...extensive outreach and consultation with fishing communities via a fisheries co-op</li> <li>- ...contribute to community organizations and capacity building</li> <li>- ...provide education for fishers, their communities, and youth (in conservation, science, and business)</li> <li>- ...collaborate across different sectors and stakeholders</li> <li>- ...give women a leading role in management</li> <li>- ... develop proper business planning with fishers</li> </ul>	<ul style="list-style-type: none"> <li>- It can be difficult to find the right people to run the daily activities co-operative (coaching/education does make people more skilled/equipped to fill certain positions)</li> <li>- Fulfilling a position on the board can have negative consequences on one's reputation within the community</li> <li>- Fishers' do not all have the experience or skillset to run a co-operative. They need time need to adjust and become comfortable in their new roles</li> <li>- a fisheries co-op currently does not trust the government and NGOs. Thus, supporting organizations should never decide for or force/trick a fisheries co-op to do something they do not support.</li> <li>- Funding for a fisheries co-op from a nature conservation organization is not preferred due to (perceived) conflict of interest.</li> </ul>

**8.2.2 PHASE 2: A FISHERIES MANAGEMENT IMPROVEMENT PLAN**

There are few fisheries which can be effectively managed solely by a government administration. On Bonaire, Saba and St. Eustatius the cost of enforcement alone would make this impractical. However, the role the government has regarding the management of the fisheries sector cannot and should not be disregarded: the government is the guardian of the natural environment for present and future generations, and has the responsibility to ensure that natural resources are not exploited beyond the limits of sustainability. To do so, the government must recognize and respect the rights of existing resource users (i.e. fishers, divers, tourists) to have a say in how the resources are exploited and managed.

Therefore, it is proposed to develop a fisheries policy plan (i.e. what are the long-term goals for the fisheries sector) as well as a holistic, multi-stakeholder management plan (i.e. how should the sector be managed in order for measures to receive support from all stakeholders).

### **8.2.2.1 Step 1: form a fisheries management council**

Instead of solely having an advisory function, the current Fisheries Commission BES can transform itself into an institution wherein all stakeholders are equally represented. Such an institution should have such credibility, so that once consensus within the council is attained, full-government consent is unavoidable.

Impact is delivered because:

1. All stakeholders are equally and fully represented.
2. The council seeks and develops workable consensus on management strategies.
3. The council aids in implementation.
4. The council can carry out a monitoring and enforcement function.

The new council must be comprised out of representatives of all primary stakeholders:

- Government representatives from both the National government and the public entities
- Fisheries economists (e.g. Wolfs Company / IMARES / VU).
- Fisheries researchers (e.g. IMARES).
- Local environmental organizations (i.e. STINAPA, SCF, STENAPA).
- Fishers and/or fishers' organizations (e.g. PISKABON).
- Coast guard (law enforcement).

Depending on the content of the meetings, additional 'secondary' stakeholders can be approached or invited to attend the meetings as well. For example:

- Legal attorney.
- Harbor master.
- Customs.
- Data Monitoring Officers.
- Market stakeholders (fish vendors/ supermarkets / restaurants).
- Tourism Board.
- Diving agencies (e.g. CURO).
- WAITT institute
- WWF

To ensure the existence of a fisheries management council, the following actions must be taken:

- Choose representatives from each stakeholder group to fill a position on the council.
- Organize multiple meetings with all stakeholders.
- Develop a common agenda.
- Identify mutually enforcing activities.
- Continuous communication.

### **8.2.2.2 Step 2: install a community engagement mediator**

Due to the current negative sentiments and 'poor history of fisheries management' (combined with the general negative existing tension between the stakeholders/local vs non-locals) which led to the current high state of distrust, it is advised to install a community engagement mediator for at least a period of one year. This mediator is responsible for facilitating and guiding the process of the creation and implementation of a comprehensive fisheries management strategy on Bonaire. To ensure transparency, unbiasedness / neutrality of this mediator, it is advised

for all main stakeholders (i.e. national government, public entities, NGO's and fishers) to come up with a joint funding system and a clear contract describing the roles, responsibilities and the framework within which this mediator operates.

Impact is delivered because:

- Common ground can be found among the different stakeholders.
- The involvement of fishermen is encouraged and supported via PISKABON.
- Enhances transparency.
- Ambiguities with regards to legislation are further identified and clarified.
- Helps create support among stakeholders.
- Reduces ambiguity among the many stakeholders, their roles, interests and responsibilities by organizing meetings between the different stakeholders (or informing the stakeholders separately).

To do so, the community engagement officer needs to:

1. Built trust and foster two-way communications.
2. Be transparent.
3. Collaborate with all parties.
4. Pro-actively engage in constant conversation and sharing information with all parties.
5. Understand the legal responsibilities of each stakeholder and can explain these two others

In Appendix VII a profile and work description of a community engagement officer is provided.

### **8.2.2.3 Step 3: develop a multi-stakeholder fisheries management improvement plan**

Considering there currently are no implemented long-term fisheries policy plans or fisheries management plans (with the exception of ['Management Plan for the natural resources of the EEZ of the Dutch Caribbean'](#) which was developed mainly from a nature or biodiversity perspective), there is a need to (re)develop a fisheries management improvement plan.

The objectives of this plan are to:

- Formulate strategic sustainable management goals regarding fisheries on the island, framed within the larger context in which fisheries takes place on these islands
- Align national, local and interdepartmental rules and regulations
- Translate the sustainable management goals and legislation in to a concrete implementation plan. This implementation plan specifies time-bound goals as well as the (daily – monthly – yearly) roles and responsibilities of all stakeholders throughout the entire management process.

For the plan to be most effective and receive support from all stakeholders, the following aspects must be taken into close consideration:

- The plan needs to address the objectives regarding the environment and how these targets can be combined with fishing.
- This plan needs to be explicit about its expectations and the inclusion of the fishermen: when, why and how are fishers included in the process? How much will their input be considered?
- The plan should, if possible, avoid having negative consequences for the income of the fishermen. If sustainable fishing requires reduced catch, the decline in income needs to be compensated in some other way. Either way, unsustainable fishing will lead to further reduction of fish stocks which will lead to

decreased incomes, not only for the fishermen, but many others (e.g. employed within tourism sector) as well.

- The plan needs to be convincing, legit, fair and effective. Focusing on a more holistic approach that goes beyond fisheries by including eco-system based approaches and integrated coastal management will lead to more support and felt sense of fairness among all stakeholders (especially fishers) (Turner et al, 2019; Röckmann et al, 2015). This can be achieved by actively involving all stakeholders in the process of development.
- This plan should be based on one common goal of all the stakeholders.
- The plan should include the development of clear fisheries policy on island level and a permitting system for doing research with a check that the research actually contributes to implementation of policy as well as an outreach program that explains the research to the general public. This could be a major positive change in how research is being perceived and followed up on.

In order to receive support for governance arrangements, the developers of the fisheries policy and management plan should aim to achieve the highest social fit (i.e. the extent to which institutions in place match the expectations and behaviors of those governed (Turner et al, 2019; p 475). In Box 7, a brief guideline for achieving social fit of government arrangements to the different resource users is presented.

**Box 7. Brief guideline for achieving social fit of government arrangements to the different resource users.**

Turner et. al. (2019) conducted a study in which they investigated how fisher perceptions related to diverse governance arrangements in the Wider Caribbean Region. The researchers interviewed reef-dependent fishers (n=498) of 12 fishing communities in Barbados, Belize, Honduras and St. Kitts and Nevis. Two dimensions of governance themes were identified, namely ‘Institutional acceptance’ and ‘Engagement’. Institutional acceptance is the degree to which community members endorse current reef governance processes. This (extrinsic) dimension is shaped by perceptions of legitimacy, connectivity, transparency, fairness and resilience. Engagement reflects perceptions of fisher’s own engagement in reef management. This (intrinsic) dimension is shaped by perceptions of one’s own accountability and inclusiveness. The table below presents the characteristics of fishers associated with different (positive or negative) views on coral reef governance.

**Table 13. Characteristics of fishers associated with different views on coral reef governance (Turner et al, 2019).**

	<b>Positive Engagement (PE)</b>	<b>Negative Engagement (NE)</b>
<b>Positive Institutional acceptance (PIA)</b>	<ul style="list-style-type: none"> <li>– Member of reef-related group (e.g. fisher’s cooperative)</li> <li>– Involved in reef-related tourism</li> <li>– Involved in reef related fishing</li> <li>– Involved in trolling or spear fishing</li> <li>– (PE) Perceived reef decline over the past 10 years</li> <li>– (PIA) Aware of rules about reef use</li> <li>– (PIA) Low dependence on fishing income (i.e. fishing for recreation only / fishing is not primary/secondary source of income)</li> </ul>	<ul style="list-style-type: none"> <li>– Only primary education</li> <li>– Perceive reef is currently healthy</li> <li>– No perceptions of decline in reef-associated fish populations</li> <li>– Less likely to belong to reef-related group</li> </ul>
<b>Negative Institutional acceptance (NIA)</b>	<ul style="list-style-type: none"> <li>– Perceive reefs as being unhealthy</li> <li>– Wealthier fishers</li> <li>– Higher levels of education</li> <li>– Engage in seine, scuba and/or pot fishing</li> <li>– Perceive fishing as part of tradition/ family history</li> </ul>	<ul style="list-style-type: none"> <li>– Fishing as primary source of household income</li> <li>– Not involved in tourism activities</li> <li>– Fish from shore</li> <li>– Less aware of rules about reef use</li> <li>– Less likely to have observed declines in coral reef health</li> </ul>

These findings illustrate how governance perspective are influenced or shaped by specific characteristic of fishers. Understanding how fisher characteristics influence governance support can help to develop more targeted interventions to improve the fit of governance arrangements for different groups. The general rule is: the better the *social fit* of government arrangements to the different resource user, the more likely this will lead to enhanced participation and greater stewardship of [coral reef] resources. For fishers with lower levels of governance support, governance developments should be tailored to encourage more positive interactions between resources users and governance institutions. This can be done through targeted engagement efforts towards to these groups to improve the social fit of governance arrangement for a wider range of fishers. Greater social fit can help motivate autonomous stewardship and support for management measures, rather than motivation derived from pressure or coercion (Decaro & Stokes, 2008). As mentioned, this is critical for management success in context where enforcement capacity is limited (McClanahan et al, 2012) (Turner et al, 2019).

The following actions must be taken:

- Appoint a national and public entity fisheries advisor to represent the interests of the different governmental departments.
- Ensure institutional coherence in terms of policy, legislation and incentives provided by policy instruments.
- Interventions should pay attention to follow-up actions and measures to (financially) support fishers during transition to better management (i.e. fishers could be provided with alternative opportunities to learn and apply different skills with which they can generate income in order to minimize the impact of no fishing zones or closed seasons on their income).
- Organize working groups with all stakeholders discussing interests.
- Address the community’s primary needs and concerns.

- Develop solutions in collaboration with the fisheries co-op and give responsibility regarding management of the sector.
- Address alternative livelihoods from the outset to avoid overpromising: sustainable and market-based, with a focus on benefits and investment in individuals.
- Specifying the purpose for collecting data. Defining and agreeing on protocols needed for data collection and consolidation, and ensuring that protocols in use allow cross-purposing of data
- Allocate institutional roles and responsibilities at different levels.
- Incorporate politics and political choices to balance social, environmental and economic objectives. This is of importance to gain access to government funding and support for implementing change, and achieving coherence between the different ministries/national policies.

#### 8.2.2.4 Step 4: develop funding mechanism

To be able to implement the developed management plan, the financial resources for funding must be identified (and granted). The following factors must be taken into consideration:

- Covering long-term costs
- Costs sharing / division among ministries and other stakeholders
- Consider the consequences of utilizing different sources of funding (i.e. He who pays the piper calls the tune).

Do...	But, be aware of...
<ul style="list-style-type: none"> <li>- ...embrace the complexity and integration: stop simplifying, but focus on long term, holistic management</li> <li>- ...equally address (conflicting) objectives and interests of stakeholders (biological, economic, social, political)</li> <li>- ...create strong community engagement and empowerment: ensure participation and inclusion of all stakeholders</li> <li>- ...educate fishers in sustainable fishing practices, financial literacy, and preparation for alternative livelihoods</li> <li>- ...balance the needs of the tourism economy with those of fisheries and finding ways to share the benefits of protected areas with fishing communities</li> <li>- ...build capacity not only for fishers, but also for the judiciary, policy makers, and other institutions</li> <li>- ...create sustainable financial models that will fund the transition to sustainability</li> </ul>	<ul style="list-style-type: none"> <li>- Because a Fisheries Commission of this type limits the power of politicians and the government, they may not become established through government initiative; there is the need for the other stakeholders to organize themselves (nationally) to advocate for the establishment of a Fisheries Management Council</li> <li>- Insufficient support for enforcement and compliance</li> <li>- Lack of political will and stability, a strong legal framework, or education and commitment of judicial sector</li> <li>- Management focused solely on Marine Protected Areas (MPA) or endangered species</li> <li>- Population and tourism growth (means more eligible fishers , more pressure on the marine environment and more demand for fish)</li> <li>- Lack of human and financial resources to start and maintain the transitions</li> <li>- Unclear or unsupported definition of “sustainable”</li> </ul>

### 8.2.3 PHASE 3: PILOT IMPLEMENTATION

Once the working group is established, the components of the policy reform are clearly defined, and operational issues have been resolved, the elements of the proposed plan must be piloted. Piloting specific management tactics allows to identify the success and effectiveness of the proposed plan, scope necessary changes and further develop support among stakeholders and the community.

#### 8.2.3.1 Step 1: communicate to all stakeholders

- Communicate the plan to stakeholders.
- Install and train personnel responsible for the execution of the pilot projects at the level of the national government, public entities and/or independent staff.

- Execute pilot projects.
- Provide ongoing feedback.

Initiatives that would increase the level of enforcement:

- Fishers, coast guard, and the fisheries department working together and sharing resources and equipment.
- Fisher incentives for both compliance and self-regulation.
- Raising the profile of fisheries with enforcement bodies.
- Creating a website about the management improvement plan for transparency: (changes in) legislation, research results, updates on implementation and progress, development plans, involved parties.
- Creating of managed access and ownership (i.e. refraining from an open access fishing plan by creating a rights-based approach to motivate fishers to respect geographical and seasonal fishing restrictions, catch size, and some quotas. See also: [Appendix 4.4](#)).<sup>37</sup>
- Education and outreach from top to bottom.

### 8.2.3.2 Step 2: presentation of pilot and approval of plan by government

Once the pilot project proposal is finalized, it should be presented to the government (both Public Entity and Min LNV) for approval.

- Organize presentation for government.
- Propose pilot implementation.
- Secure funding for pilot implementation.

### 8.2.3.3 Step 3: public campaign

Public must be adequately (fit to the target group) informed about the pilot project.

- The government should inform public via all media to target all residents of the islands.
- PISKABON can assist with informing fishers (See also Box 2: Checklist for successfully organizing a successful fisher meeting).
- Information must be repeated, meaning that important information must be shared multiple times.
- Technical information should be translated and explained in lay language.
- Regarding legislation and enforcement, the public must be directly informed by the government, **not** by NGOs or a fisheries co-operative. NGO's can communicate about the status of the fish stocks, health of the reefs etc.
- Outcomes or results of the pilot must be evaluated and shared with the public frequently.

### 8.2.3.4 Step 4: evaluation

Evaluation is needed to make the necessary adjustments to the management plan. Management is not an idle process, but a dynamic one that should be open to change.

Do....	But, be aware of...
<ul style="list-style-type: none"> <li>- ...involve of all stakeholders from the onset</li> <li>- ...ensure transparency towards all stakeholders</li> <li>- ...provide clarity about roles, responsibilities and interests</li> <li>- ...ensure collaboration among government and NGOs</li> </ul>	<ul style="list-style-type: none"> <li>- Insufficient support for enforcement and compliance support from whom?</li> <li>- Lack of: political will and stability, a strong legal framework, or education and commitment of judicial sector</li> </ul>

<sup>37</sup> <http://www.fao.org/docrep/005/y3427e/y3427e08.htm>

- ...Involve fishers in the process and allow to collect data themselves
- ...Incentivize and generating pride in the contribution to science
- ... pilot management actions that demonstrate success and allow fishers to see how the new system will work
- ...quantify the potential present and future benefits
- ...engage private sector financing at an early stage to create an enabling environment
- ...including users of fisheries products (e.g. supermarkets/ restaurants)
- ...revise of management plans on a regular basis - also known as adaptive management

- Management that focusses only on MPAs why is this an obstacle – other factors also need to be addressed
- Population growth (means more eligible fishers)
- Poor access to technology for small-scale fishers
- More jobs needed for trained biologists
- Lack of human and financial resources to start and maintain the transitions
- A high up-front cost for transition without clear return on investment, which poses an obstacle to receiving private-sector funding (i.e. the private sector is less likely to take a big financial risk if there is little (perceived) guarantee for a return on investment)
- lack of continuity due to political change

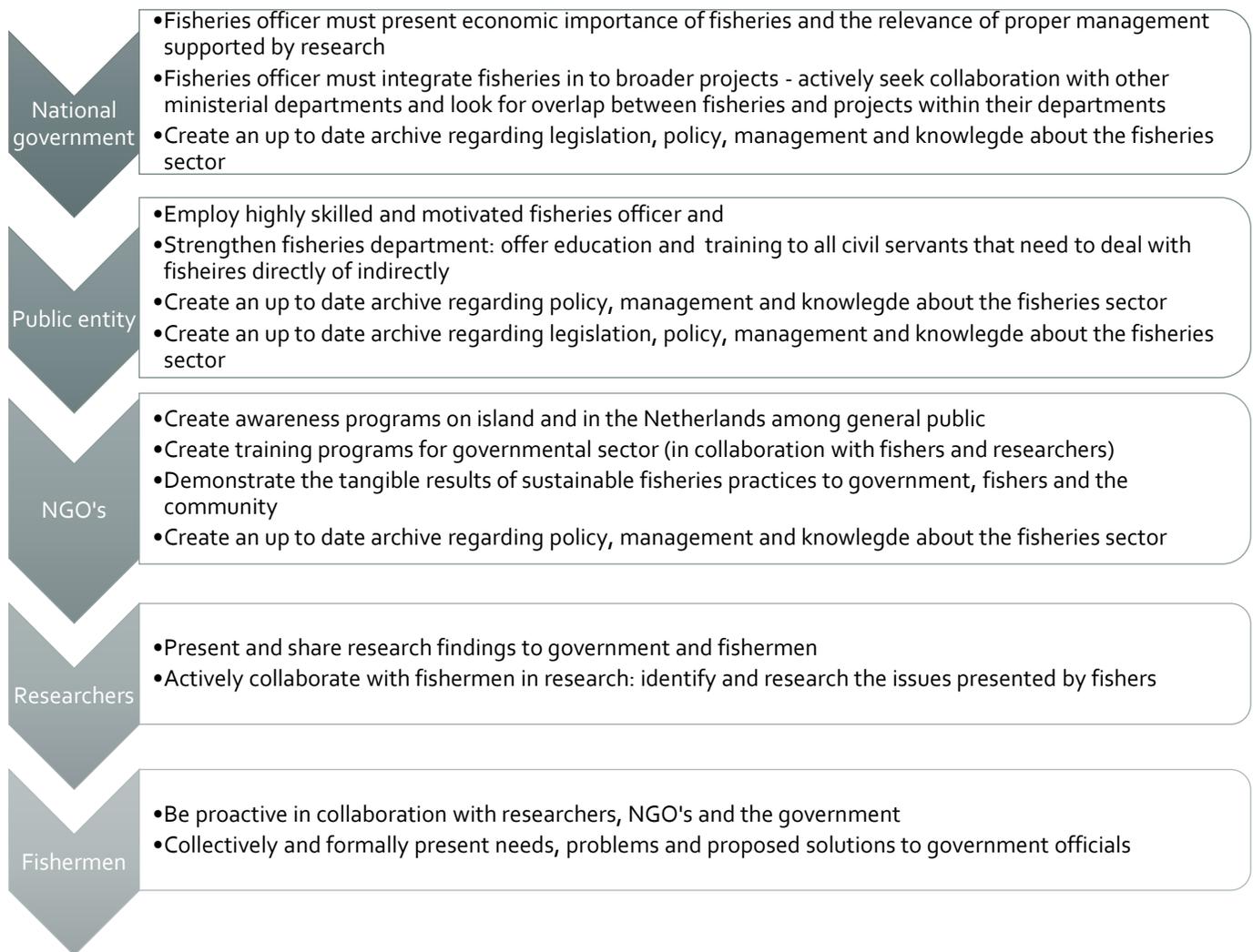
#### 8.2.4 PHASE 4: ENSURE CONTINUITY

It is important to recognize that achieving success in fisheries management will take a long time, a substantial financial commitment, enhanced sharing of knowledge and experience, political support and commitment to building capacity at all levels. In sum, the following four conditions must be in place:

1. Financial commitment.
2. A long-term fisheries policy plan and execution team.
3. A long-term fisheries management plan and execution team.
4. Educational program to continue to increase awareness about the meaning of and need for holistic sustainable development.

Stakeholders must be willing to adapt to external pressure and change and accept that change in policy and policy implementation is necessary. The primary stakeholders must not be afraid or proud to include new or different voices (e.g. young, old, woman, processors, traders, shopkeepers). This change will require time, experimentation, negotiation and acceptance.

The figure below outlines the practical steps the different stakeholders can take to facilitate that the conditions for continuity are met:



## 9 CONCLUSIONS

This study has demonstrated that marine management is political and relies on broad range of (scientific) knowledge and expertise. Moreover, one must also deal with psychological and behavioral factors such as a perceived sense of fairness, emotional and cultural values, social norms and resistance towards breaking old habits. The answers to the main questions of this research, namely: “Why is it difficult to manage the fisheries sector on Bonaire, Saba and St. Eustatius? What steps need to be taken, to break the current impasse towards sustainable participatory fisheries management on Bonaire, Saba and St. Eustatius? How can support for participative fisheries management within the fisheries communities be achieved?” can be summarized as follows:

- The fisheries sector is a difficult to manage, because of scientific uncertainty; an inherent conflict between short-term social and economic needs and goals and the longer-term need for sustainability; poor management practices in the past, particularly failing to ensure that stakeholders participate in management; insufficient capacity within the management agencies and others (Cochrane & Garcia, 2009).
- The contexts of Bonaire, Saba and St. Eustatius – although facing similar challenges – must be evaluated separately and continuously throughout the process.
- Stakeholder participation is a key element of successful fisheries management. Due to the complexity of fisheries management, there is not one optimal interaction approach: the initiators of, as well as participants in fisheries management processes should decide and negotiate on how much and what kind of interaction is necessary, appropriate and desirable.
- Different stakeholder groups have their own set of ideas, experiences, and beliefs. These differences influence how stakeholders participate in participatory processes.
- A well-functioning fisheries cooperative can help to structurally and effectively include the fishing community in fisheries management efforts. A fisheries cooperative can only be established by means of hands-on, full time support from a trusted source.
- Participation requires transparency and rules. Problems emerge when the process and objectives of stakeholder participation are ambiguous, and when participation is driven by contradicting motives to share knowledge.
- Transparency about the chosen strategies (and limitations) to engage in the interaction processes is the key to reaching consensus about the degree of interaction.
- Roles of all stakeholders in the process should be clear as should be a common vision and the Objectives for the fisheries sector.
- It is essential that all parties involved in the process have commitment and resources available to take on their role in the process. Highly skilled facilitation is essential.
- Methods should be selected and tailored to the decision-making context, considering the objectives, type of participants, and appropriate level of engagement.
- Local and scientific knowledge should be integrated (to provide a more comprehensive understanding of complex and dynamic socioecological systems and processes).
- Participation needs to be institutionalized (creating organizational cultures that can facilitate processes where goals are negotiated and outcomes are necessarily uncertain).

Recommendations:

- On all islands a fisheries cooperative must be established, by means of strong, continuous facilitation.

- The fisheries departments of all public entities must be strengthened in terms of knowledge, urgency and capacity.
- The urgency among the government to address and manage the fisheries sector must be enlarged through joint lobbying from NGO's and fishers.
- A systematic stakeholder analysis should be carried out to ensure representative involvement of those stakeholders relevant to the fisheries management question. Clear objectives for the participatory process need to be agreed among stakeholders at the outset. It should be made explicit who are considered stakeholders in the issue at hand, which of these groups can participate and in which form, and who decides on all of this, in short: who is the owner of the participatory process.
- Where relevant stakeholders should be involved as early as possible and throughout the process. The different contexts of departure must be shared at the beginning of a participatory process.
- A transdisciplinary, multi-stakeholder, long term, legally binding fisheries policy plan and management plan must be developed by a stakeholder-working group. The management plan or overarching legislation should clearly define – in a legally binding way – the roles and responsibilities of all stakeholders in fisheries management.
- To ensure participation continuity, transparency and clarity throughout the development of a fisheries policy and management plan a fisheries engagement officer must be installed. Preferably by the National (and local) government. However, to ensure the position of the fisheries engagement officer remains as neutral as possible, a joint funding construction could be created (e.g. the salary of this officer is jointly funded by the key fisheries stakeholders: national government & public entities, NGO's and fisher representatives). A key prerequisite for a joint-funding construction is that clear and concrete agreements are made in advance among the stakeholders about the role, responsibilities, opportunities. Moreover, it should not be possible for the financing parties to (easily) deviate from or ignore these agreements.
- A sustainable financial model must be developed for fisheries management for all three islands to prevent the sole reliance on perceived (political) urgency.
- Throughout the development of the management and policy plan, pilot projects must be executed, the communities must be informed through public campaigns and the plans must be evaluated and adapted accordingly.

The findings and recommendations in this report are not novel, but rather very much in line with earlier research (e.g. de Graaf, 2016; Johnson & Jackson, 2015; Campbell, Townsley, Whittingham & Marsh, 2013; Cochrane & Garcia, 2009; Röckmann et. al., 2017;2015). This goes to show that what is needed is a question of less 'talk' but more conscious, deliberate, supported action. This report does not pretend to have all the answers or that every single issue has been addressed. However, this report hopes to act as a strong guideline providing some direction in the complexity of fisheries management on Bonaire, Saba and St. Eustatius. Discovering and identifying the social bottlenecks of fisheries management on the three islands underpins the importance of an EBM-like approach in order to achieve success.

In conclusion, the focus of fisheries management must not lie solely on solving the final outcome (e.g. decline in biodiversity, declining fish stocks, dying culture and profession etc.), but rather concentrate on the facets underlying the existence of these issues. In the case of fisheries management, this entails that a lot of focus and energy must be placed on guiding and improving the process, instead of the final desired outcomes.

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# APPENDIX

## I FISHERIES LEGISLATION

		Island	Directly related to fisheries	Indirectly related to fisheries	Source
<b>National legislation</b>	Fisheries Act BES	All	X		EcoVision
	Fisheries Decree BES	All	X		EcoVision
	Decree on tasks and procedures for Fisheries Commission BES	All	X		EcoVision
	Decision of the State Secretary on time restriction for fisheries in waters near Saba	Saba	X		EcoVision
	Regeling visserijproducten 1998 BES	All		X	EcoVision
	Regeling identificatie van visserijproducten BES	All		X	EcoVision
	Vessel registration Act BES	All		X	EcoVision
	Wet grondslagen natuurbeheer en bescherming BES	All		X	EcoVision
	Wet martiem beheer BES	All		X	EcoVision
	Regeling gezondheidscontroles visserijproducten BES	All		X	Yoeri de Vries
	Regeling invoer vis of visserijproducten uit derde landen BES	All		X	Yoeri de Vries
	Regeling residuen van genees- en bestrijdingsmiddelen in visserijproducten BES	All		X	Yoeri de Vries
	Regeling verpakking visserijproducten BES	All		X	Yoeri de Vries
	Besluit visserijproducten 1999 BES	All		X	Yoeri de Vries
<b>Island legislation</b>	Island Ordinance Marine Environnent Bonaire	Bonaire		x	EcoVision; Beleidsvisie LVV
	Island Decree Marine Park Bonaire	Bonaire		x	EcoVision; Beleidsvisie LVV
	Island Decree Nature Management Bonaire	Bonaire		x	EcoVision
	Island Ordinance Nature Management Bonaire	Bonaire		x	EcoVision
	Nature protection and monuments ordinance 1967	Bonaire		x	EcoVision
	Ordinance on Caribbean Spiny Lobster	Statia	x		EcoVision
	Statia Marine Environment Ordinance (A.B. 1996, No. 3)	Statia		x	EcoVision
	Saba Fisheries ordinance	Saba	x		EcoVision
Saba Marine Environment Ordinance (A.B. 1987, No. 11)	Saba		x	EcoVision	
<b>International treaties (nature conservation)</b>	UN Law of the Seas	All			Beleidsvisie LVV
	SPAW protocol	All			EcoVision
	CBD	All			EcoVision
	CMS (sharks MOU)	All			EcoVision
	CITES	All			EcoVision
	IAC (seaturtle convention)	All			EcoVision
<b>Regional fisheries management organizations</b>	ICCAT	None			Ecovision
	WECAFC	All			Ecovision
<b>Policy plans</b>	Beleidsvisie LVV Bonaire 2014 -2028	Bonaire	x		Ecovision
	Nature Policy for the Caribbean Netherlands 2013-2017	All		x	

## II OVERVIEW OF RESPONDENTS

Nr	Island	Name	Organization	Stakeholder level
1	BON	Anthony Emerenciana	OLB / LVV	Government
2	BON	Arthur Janga	PISKABON	Fishers
3	BON	Ayana Johnson	WIATT institute /Blue Halo	NGO
4	BON	Cecilio Thode	--	Fishers
5	BON	Celsio Thielman	PISKABON	Fishers
6	BON	Chris Morkos	Piscatur	Fishers: Charter
7	BON	David Everts	PISKABON	Fishers
8	BON	Din Dommecase	STINAPA	NGO
9	BON	Djibi di Lac	--	Fishers
10	BON	Eddy Christiaan	Kopibon	Fishers
11	BON	Elsmarie Beukenboom	Ex-directeur STINAPA	NGO
12	BON	Ernest de Lanoy	PISKABON	Fishers
13	BON	Esther Wolfs	Wolfs Company	Private sector
14	BON	Etienne van der Horst	OLB / (DRO)	Government
15	BON	Fabian Havedings	PISKABON	Fishers
16	BON	Frank van Slobbe	OLB / DRO	Government
17	BON	Frankin Antoin	FuHiKuBo	NGO / Private sector
18	BON	Gelare Nader	Ministerie LNV	Government
19	BON	Guus Schutjes	Ministerie LNV	Government
20	BON	Herman Sieben	Ex-directeur STINAPA	NGO
21	BON	Izain Mercera	Magazina di Rei	NGO
22	BON	James Kroon	OLB / Bestuurscollege	Government
23	BON	Jan Hendrik Emerenciana	PISKABON	Fishers
24	BON	Joselito Statia	OLB / Gedeputeerde	Government
25	BON	Kalli de Meyer	DCNA	NGO
26	BON	Kris Kats	TNO	Private sector
27	BON	Larry Gerharts	PISKABON	Fishers
28	BON	Luuk Bastiaans	Mangrove Center	NGO
29	BON	Nolly Oleana	RCN	Government
30	BON	Pancho Cecilia	Bonaire Visserij Commissie NA	Government
31	BON	Papai	--	Fishers
32	BON	Paul Hoetjes	RCN	Government
33	BON	Peter Montanus	OLB / DRO	Government
34	BON	Pieter van Baren	WWF-NL	NGO
35	BON	Ramon de Leon	REEF SUPPORT BV	NGO / Private sector
36	BON	Rangers	STINAPA	NGO
37	BON	Rijk Stekelenburg	Le Grand Blue	Fishers: Charter
38	BON	Ruud Stelten	Terramar Museum	NGO / Private sector
39	BON	Sabine Engel	STINAPA	NGO
40	BON	Shanella Winklaar	PISKABON	Fishers
41	BON	Sharon Bol	Boneiru Duradero	NGO
42	BON	Sherwin Poullier	Bonaire Agri and Aqua Business bv (BAAB)	Private sector
43	BON	Tim van den Brink	EcoVision	Private sector
44	BON	Vicente 'Humphrey' Figaroa	OLB / LVV	Government

Nr	Island	Name	Organization	Stakeholder level
45	BON	Volunteers STCB	STCB	NGO
46	BON	Wijnand de Wolf	STINAPA	NGO
47	BON	Yuri van Kampen	Bonaire Big Game Fishing	Fishers: Charter
50	Saba	Kai Wulf	SCF	NGO
50	Saba	Dozlyn Pouchie	SBMU	NGO
51	Saba	Randall Johnson	Hoofd Agriculture Station	Government
52	Saba	Ayumi Kuramae	SBMU	NGO
53	Saba	Jens Odinga	Former SBMU	NGO
54	Saba	Dahlia Hassell	Former Data Monitoring Officer SBMU	NGO
55	Saba	Menno van der Velde	Member Fisheries Comission BES	Government
56	Saba	Ivan 'Kooka' Hassell	--	Fishers
57	Saba	Julian 'Bogan' Hassell	--	Fishers
58	Saba	Nicholas 'Nicky' Johnson	--	Fishers
59	Saba	Bradley Johnson	--	Fishers
60	Saba	Michel	--	Fishers
61	Saba	Dekman Joshua	--	Fishers
62	Saba/ Statia	Iroek de Windt	Lobster import	Private sector
63	Statia	Kimani Kitson-Walters	Data Monitoring Officer	Government
64	Statia	Erik Boman	Former Data Monitoring Officer	Government
65	Statia	Jessica Berkel	STENAPA	NGO
66	Statia	Clarisse Buma	STENAPA	NGO
67	Statia	Anthony Reid	Department head LVV	Government
68	Statia	Gilberto and David	Harbour	Government
69	Statia	William Degannes	NUSTAR marine operations manager	Private sector
70	Statia	Carlyle Tarr	--	Fishers
71	Statia	Biskit	--	Fishers
72	Statia	Cyrill Marsdin	--	Fishers
73	Statia	Gordo	--	Fishers
74	Statia	Winston Stephens	--	Fishers
75	Statia	Vincent Monique Brown	Member Fisheries Comission BES	Government

### III (PAST) FISHERIES RELATED MANAGEMENT ACTIONS ON BONAIRE

Various management actions have been undertaken regarding the fisheries sector. Both the government, STINAPA, the private sector and the fishers undertook actions regarding the fisheries sector. This paragraph provides an overview<sup>38</sup> of these actions.

Year	Lead by	Action	Status	Source
1950	Unknown	Synthetic fish lines introduced	Executed	De Graaf 2016
1961	Unknown	Minimum catch size for lobster & regulation protecting sea turtles (incl. eggs and nesting sites)	Executed	De Graaf 2016
1963	Unknown	Regulation on the use of dragging nets	Executed	De Graaf 2016
1971	Captain Don	Spearfishing banned	Executed	De Graaf 2016
1975	Unknown	Harvesting of corals banned	Executed	De Graaf 2016
1979	Unknown	Bonaire Marine Park established	Executed	De Graaf 2016
1983	Nature	Mass mortality Acropora cervicornis species (staghorn coral) due to White Band Disease	Occurred	De Graaf 2016
1983	Nature	Mass mortality Diadema antillarum (sea urchin)	Occurred	De Graaf 2016
1983	Netherlands Antilles Federal Government	Fundashon MarCultura	Failed	KvK
1991	STINAPA/ OLB	Management agreement between the Island Government of Bonaire and STINAPA giving STINAPA management of the Marine Park.	Executed; ongoing	BMNP Management Plan, 2006
1988	Nature	Tropical storm Joan	Occurred	De Graaf 2016
1999	Nature	Hurricane Lenny (Category 3) hits sheltered SW coast	Occurred	De Graaf 2016
1999	Daniel DeAnda (Manager)	'Seahatch Bonaire' purchased from Fundacion MarCultura to serve as a backup facility and or quarantine facility for shrimp brood stock.	Failed	Bonaire National Marine Park Management Plan, 2006
2000	Fishers	KOPIBON establishment	Failed	Bonaire Reporter; LVV archive
2003	STINAPA / Fundashon pa Bon Koral	Site exchange between Soufriere Marine Management Area, St. Lucia and Bonaire National Marine Park to support the establishment of No Take Marine Reserves	Executed / Successful	Dilrosun 2004; Report Fundashon pa Bon koral, 2003
2003 -2005	OLB/LVV	FAD placement: 4 FADs placed, only 1 remained for a while. According to fishers FAD worked, but no study conducted to calculate if investment costs are worth it or what the impact on caught fish is.	Executed / No maintenance	Dilrosun 2004
2008	STINAPA	Fish Protected Area's	Executed	Dilrosun 2004
2008	STINAPA	Establishment two Fish Protection Areas and two No-Diving Zones; Hurricane Omar causes localized effect	Executed	De Graaf 2016
2008	OLB	Ban on Snorkel fishing	unknown	Kalli de Meyer; Eilandsverordening natuurbeheer - rivvisserij
2009	STINAPA	Meetings with fishers about new nature and marine park ordinance	Executed	Elsmarie Beukenboom; Ramon de Leon

<sup>38</sup> This is not a complete overview, but these initiatives were identified by informants and found in documents during the period of fieldwork.

Year	Lead by	Action	Status	Source
2009	Unknown	First invasive Lionfish detected	Occurred	De Graaf 2016
2009	OLB	Harbour restoration/facilities	Executed	Bonaire Reporter; LVV archive
2010		Introduction of Lionfish speargun	Executed	Pieter van Baren
2010	OLB	Implementation Island Resolution Marine Park Bonaire	Executed	De Graaf 2016
2010	Nature	Tropical storm Thomas	Occurred	De Graaf 2016
2012	EZ	Installment Visserijcommissie BES	Executed; ongoing	LVV
2015	EZ	“Yarari” Shark and Whale sanctuary established in Bonaire’s territorial and EEZ waters	Executed	De Graaf 2016
2015/2016	EZ	Fishers attend GCFI conferences	Executed	Pieter van Baren
unknown	STINAPA	Educational radio programs /commercial concerning fisheries	Ongoing	Pieter van Baren
unknown	STINAPA	Seat available on Executive Board STINAPA for fishers	Position still vacant	Dilrosun 2004
unknown	STINAPA	Mangrove crabs	Self-resolved	Kalli de Meyer
unknown	STINAPA	Mangrove oyster	Self-resolved	Kalli de Meyer
unknown	STINAPA / harbour master	Hook and line fishing: from the pier. changing fishing culture	Executed	Kalli de Meyer
1975	unknown	Bonaire Visindustrie NV	Failed	Leendertse & Verbeek, 1987
unknown	OLB/LVV	Establish advisory nature commission to advise STINAPA on Fish Protected Areas	Executed	Dilrosun 2004
unknown	STINAPA	Installment of mooring blocks	Executed	Kalli de Meyer
unknown	EZ / STINAPA / DCNA	Placement of information boards at fishers harbors	Executed; not in use / demolished	Pieter van Baren
unknown	STCB	Introduction of circle hooks	Failed / ongoing	Pieter van Baren
unknown	Unknown	Strengthen KOPIBON by means of strategic plan	Dismissed	Dilrosun 2004
unknown		Bill fish tournament: catch and release	Executed; ongoing	Pieter van Baren
unknown	EZ / Fisheries Commission BES	Develop sustainable fisheries roadmap	unknown	Pieter van Baren
unknown	OLB	Meetings	Executed	LVV
unknown		PISKABON attempt 1	Failed	Pieter van Baren
unknown	STINAPA	Reda registration	Pending	Kalli de Meyer

## IV CARIBBEAN FISHERIES MANAGEMENT SUCCESS STORIES

There are several regional examples, illustrating how sustainable practices, if done right, can benefit all parties in the fisheries sector. In the following table, a selection of these examples is described, as well as the factors underlying their success.

Several side notes need to be taken into considering when reading these success stories. First, it can be debated what is defined as success. There are different stages and forms of success, as can be seen in the following examples. Also, a successful or start or idea does not necessarily guarantee success in the long run. Second, these cases and their success are very sensitive to their context. There is no one size fits all approach in fisheries management. However, there are several factors that are important to consider in each situation (such as stakeholder involvement, timing, and strong communication). Finally, readers should be aware that success stories in the literature are often a one-sided presentation of the case, coming from a party with great interest in presenting a good picture of their management efforts. Thus, related to the first side note, success should also be carefully interpreted.

### **1. JAMAICA: THE ORACABESSA BAY FISH SANCTUARY**

#### ***The initiative and its success:***

Started in 2008, and legalized in 2010 by the Jamaican Government, the Oracabessa Bay Fish Sanctuary is a joint initiative between the Oracabessa Foundation and a local fishers' cooperative. Fishers have always played an important role in the Oracabessa Bay area, providing a sustainable livelihood to the community. Jamaica is also known for having one of the most depleted fish stocks in the world. Not only are the size of the fish population reduced, fishers are also forced to fish closed to the reef which has detrimental effects on the entire ecosystem.

To address these issues, the Oracabessa Bay Sanctuary was established with the goal to protect and restore Oracabessa Bay's natural resources while serving as a catalyst to ensure the sustainable livelihoods of the families that depend on the Bay for their income. 'A fish sanctuary is an area of the coastline that has been set aside as a specially protected area where no fishing is allowed, either permanently or for a specific period. If properly enforced, such an area can produce, over time, numbers of mature fish and other commercially valuable species that reproduce, and their eggs and larval stages drift over to other adjoining areas and grow to sizes where they can be caught by fishers'.<sup>39</sup>

The local fisher's cooperative that set up before the sanctuary initiative was completely independent, but was ultimately not a success in that it dissolved. This has also been the experience of most fishers' cooperatives in Jamaica. Jamaica does, however, have a successful national cooperative - The Jamaica Fishers Cooperative Union. Their success is based on supplying much needed fishing gear across the island. In Oracabessa there is now the Oracabessa Fishers Association. This is primarily a representational body through which the fishers can form partnerships and execute projects. This has worked better for the local situation because under government laws there are a lot of statutory requirements for a cooperative, whereas an association is simpler to legally maintain.

Despite the dissolving of the local fisheries cooperative, the fish stocks in the Oracabessa Bay Fish Sanctuary experienced a 16-fold increase in 2016. The fishers are catching more fish around the sanctuary than even in the more remote places. The sanctuary also has great value in the tourism sector: there is an increase in the number of

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<sup>39</sup> <http://web.jamaica-gleaner.com/article/commentary/20170304/karl-aiken-fish-sanctuaries-jamaicas-quiet-success-story>

visitors who arrive to have a look at the large numbers of fishes there, versus other areas with good reefs but little fish to see.

#### ***Why did it become a success?***

- The most important factor for success was a strong leader among the fishers
- There is good enforcement in place and the assignment of a group of responsible persons to operate the fish sanctuary
- The fishers recognize the importance: desire to restore depleted fish stocks (especially from the fishers). Furthermore, they presented a similar idea to the government prior to the creation of the sanctuary themselves.
- The Oracabessa Bay is a suitable area for a sanctuary: no major pollution, reasonably healthy coral reefs compared to the rest of Jamaica
- It is a long-term conservation project - started 2008 and still in place today
- There is ongoing monitoring: up-to-date insight into the fish density. Progress is measured and shared with the fishers and other stakeholders.
- The project assists fishers to earn more money from the increased fish supply, but also provides other related jobs to fishers such as the maintenance of the coral reef nursery
- The initiative also focused on educating, through a high level of engagement, the fishers and making them advocates of conservation
- Sanctuary is financed by grants from the government and NGOs, meaning the sanctuary is supported by the governmental
- It was a local initiative

#### ***What was the driver?***

- The fisheries association was born out of a need for legal representation.
- The sanctuary was born out of a desire by the fishers to manage dwindling fish stock, and a push by the government to establish fish sanctuaries in suitable areas with strong community groups.

#### ***Who was (were) the driver(s)?***

- The Oracabessa Foundation (specifically Mr. Jonathan Gosse)
- The St Mary Fishers' Cooperative (The fishers). Specifically, David Murray, leader among the fishers.

#### ***Which obstacles were overcome?***

- The fear of income decrease among fishers: installing the sanctuary meant an immediate restriction on the fishers in the short term, but increase in amount of fish in the long term.
- Convincing local fishers that closing off a portion of their fishing ground indefinitely will bring more fish
- The Environmental Manager at Oracabessa Foundation, Inelek Wilmot, shared: "There were many naysayers; fortunately, the sanctuary was local enough that it only took the local group of fishers to be on board with it working. Others came around when results were seen. For the association there had to be a lot of capacity building as setting up and maintaining a registered company is foreign to fishers. The approach was a very high level of engagement throughout; and taking on hurdles one at a time as they came - biggest take away is that the process has to be flexible because it never goes according to how it has been mapped out on paper. Fortunately, we had partners who were not tied to any timelines - most important thing was to get it right".

### ***What are the differences with Bonaire?***

- Bigger scale, meaning more people (although Oracabessa comprises of a small community)
- National and local awareness of the bad status of the reefs – Jamaica is known (amongst fishers) for its bad reef status in the Caribbean. Furthermore, this bad status is attributed to overfishing. Compared to Bonaire where the reefs are being marketed as one of the best in the Caribbean, and where the deterioration of the reef is mostly attributed to tourists, divers, coastal development and erosion, pollution (waste water) and global climate change development rather than overfishing.
- Operated with locals, and mainly by locals
- Spearfishing is still allowed
- Oracabessa Bay Sanctuary deals with one fishing community in a specific location, meaning there are little conflicts with other fishing communities in the country

### ***What are the similarities with Bonaire?***

- Many fishers are often poorly education and/or illiterate
- There comes prestige with fishing
- It's becoming harder to make a living of fishing, however, fishing is a fast way of making money
- Money is the sole objective of fishing
- Not all fishers support the initiative
- Fishers are independent thinkers

### ***Sources:***

- <http://www.jamaicaobserver.com/news/Fishers-reaping-the-benefits-of-fish-sanctuary>
- <http://jamaica-gleaner.com/article/commentary/20170304/karl-aiken-fish-sanctuaries-jamaicas-quiet-success-story>
- <http://www.oracabessafishsanctuary.org/story/>
- <https://www.islandoutpost.com/community/island-acts/oracabessa-foundation/>
- Interview Inelek Wilmot - Environmental Manager at Oracabessa Foundation

## **2. ST. LUCIA - THE SOUFRIERE MARINE MANAGEMENT AREA**

Not a success story but an extensive (historical) description of the development, implementation and evaluation of a marine management area in Soufriere, St. Lucia. The report can be read here:

<http://www.smma.org.lc/background/>

## **3. HONDURAS: RESOLVING THE 'CONSERVE OR CATCH' CONFLICT**

### ***The initiative and its success:***

The spiny lobster is the most economically valuable marine resource in the Caribbean and a key component of the commercial fishery in Honduras, but its numbers are believed to be threatened due to overfishing. Therefore a team led by scientists from the [Smithsonian's Marine Conservation Program](#) developed a marine reserve network that both helps to conserve as well as improve the catch of the protected Caribbean spiny lobster in Honduras.

According to computer calculations, protecting 20 percent of the fishing grounds, could ensure the long-term survival of the lobster population while also increasing the numbers of lobsters expected to inhabit local fishing areas

available to the local fishers. This would only be the case if current levels of fishing effort remain stable. *The marine reserve network has not yet been implemented.*

***Why did it become a success?***

- Collaboration between scientists, local partners including fishing communities, the fishing industry, local resource managers and government agencies to develop the data sets needed to make informed decisions.
- Conserving while increasing fishing yields in outside of the reserves borders: resolving this point of tension helps align fisheries stakeholders and conservation practitioners behind a joint plan, removing a key obstacle to reaching sustainable conservation successes with economically important marine species.
- Including a vast amount of data on relevant biological and oceanographic data: how spiny lobsters grow, reproduce and die and how adult-lobsters move across the ocean floor, ocean currents, and habitat maps of the seafloor.

***What was the driver?***

- The spiny lobster being the most economically valuable marine resource in the Caribbean, but a protected species and threatened by overfishing.

***Who was (were) the driver(s)?***

- The researchers

***Which obstacles were overcome?***

- Working with little to no data
- Convincing fishers that who fear taking away a large proportion of their fishing area threatens their income without clear any benefits.
- balance long-term conservation goals with the more immediate needs of local communities

***Sources:***

- <http://newsdesk.si.edu/releases/smithsonian-scientists-and-collaborators-design-first-marine-reserve-network-deliberately-b>
- <https://marineconservation.si.edu/fisheries-science/>

***4. BELIZE – PARROT FISH BAN & MANAGED ACCESS***

***The initiative and its success:***

Belize implemented a ban on parrot fish in 2009. A second set of the regulations helps protect the endangered Nassau Grouper. Fishing of the Nassau Grouper is still allowed but is heavily regulated – there is now a minimum and maximum size limit, and all groupers must be brought in whole so that catch rates can be monitored. Additionally, spawning aggregations of Nassau grouper are protected, and spearfishing is now banned within marine reserves. A third set of regulations creates several “no-take” zones in protected areas, which are closed to fishing. The areas selected are biodiversity hotspots with unique and/or fragile ecosystems and/or species. In 2011, the herbivore biomass in Belize surpassed levels recorded in 2006 and increased 33% above the low levels measured in 2009. Since the implementation of the ban, there have been few instances of illegal catch.

To lessen the threat of overfishing, declining stocks and fewer economic benefits for fishers over the long term, Belize designed and implemented a coordinated managed access program (MAP) in 2011. The pilots were so successful that the Belize Fisheries Department has approved the rollout of managed access to its entire marine reserve network by 2017, putting an end to the open-access nature of Belize fisheries completely. The MPA pilot focused combining on four factors to achieve change (Theory of Change model 50to10):

- Policy reform:
  - o Using a new area-based fishing licensing system and verification process that ended open access prior to the managed access pilot
  - o Collecting all catch data from fishers to monitor total production from the two pilot sites
  - o An adaptive management framework to assess fisheries and make management decisions based on regularly collected data
- Community empowerment: effectively uniting the goals, efforts, and interests of fishers and fishing sector stakeholders with marine stewardship
- Credible science:
  - o Data-based catch limits and replenishment (no-take) zones rebuild and sustain the lobster and conch populations.
  - o Catch data and fisheries' independent data help determine stock assessments and total allowable catch (TAC) numbers.
  - o The Belize Fisheries Department oversees efforts such as protecting nursery areas and spawning populations, setting minimum size and weight limit regulations, closing fishing seasons, and creating inexpensive low-data stock assessment models for calculating catch limits and restoring fish populations
- Market demand.

Results include the following:

- Most the fishing community supports Belize's new policy.
- Fishers feel they have a vested stake in the recovery of the reef and are adopting sustainable practices.
- Fishers are stewards for long-term sustainability and play an active role in setting policy and carrying out enforcement.
- Fish stocks are recovering.
- After one year, fishing violations dropped 60 percent, and the department did not issue any licenses to unqualified fishers.
- More than 90 percent of fishers submitted catch data.

#### ***Why did it become a success?***

- Policy reform taking the needs and interests of all stakeholders into account
- Credible science: extensive, adequate research to make informed decisions and to explain and gain trust of local stakeholders
- Parrot fish ban initiated by fishers after being informed about their importance: Voluntary ban before becoming a national law
- A reduction in the number of users at the project site
- Implementation of good monitoring program
- A dedicated presence of enforcement personnel
- Community based approach to ensure participation and, consequently, support of fishers in the program

- The Managed Access Working Group brought together fishers, fishing communities, government, and NGOs in a collective impact model;
  - Fishers participate in decision making so they have a vested stake in the recovery of the reef (e.g. fishers developed a three-strikes policy in which they kick out or suspend fishers for committing severe fishing violations);
  - Fishers collaborate in the management of the fishery and provide monitoring and enforcement;
  - Hundreds of meetings with fishers and coastal communities have built relationships and engendered support.
- Pride campaign: The Belize Fisheries Department’s social marketing campaign fosters community support for the adoption of sustainable behaviors and conservation strategies among Belize’s diverse peoples. Employees of the fisheries department were trained to run this campaign.
  - Economic incentives to build support: In order to prevent potential income loss in the short term, generate revenues to cover operating costs of the MAP, and reduce reliance on charitable financing mechanisms the following actions were taken:
    - A national plan of programs to diversify income sources from fishing and non-fishing activities;
    - Fostering access to new premium markets to meet international demand for sustainable seafood;
    - Establishing a local seafood certification brand.
  - Reframing the management efforts, based on input from fishers (i.e. ‘managed access’ instead of ‘catch shares / special licenses’; ‘replenishment zones’ instead of ‘no take zones’).

***What was the driver?***

1. Visible Decreasing fish population and increasing algae cover on the reefs
2. The threat of overfishing, declining stocks and fewer economic benefits for fishers

***Who was (were) the driver(s)?***

- [Wildlife Conservation Society](#)
- The fishers: fishing organizations and fishing cooperatives
- [Belize Fisheries Department](#)
- Environmental Defense Fund
- The Nature Conservancy
- Rare
- Local NGOs

***Which obstacles were overcome?***

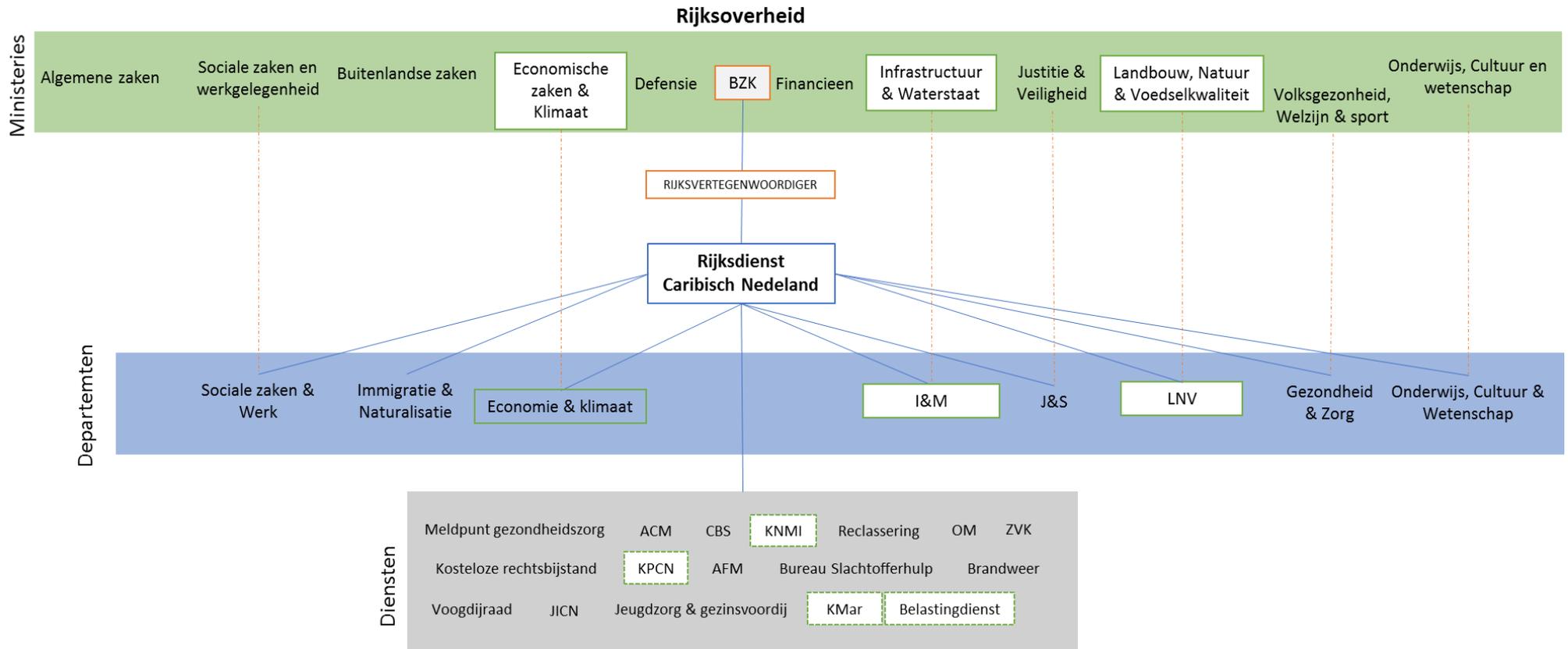
- Gaining support and trust among fishers

**Sources:**

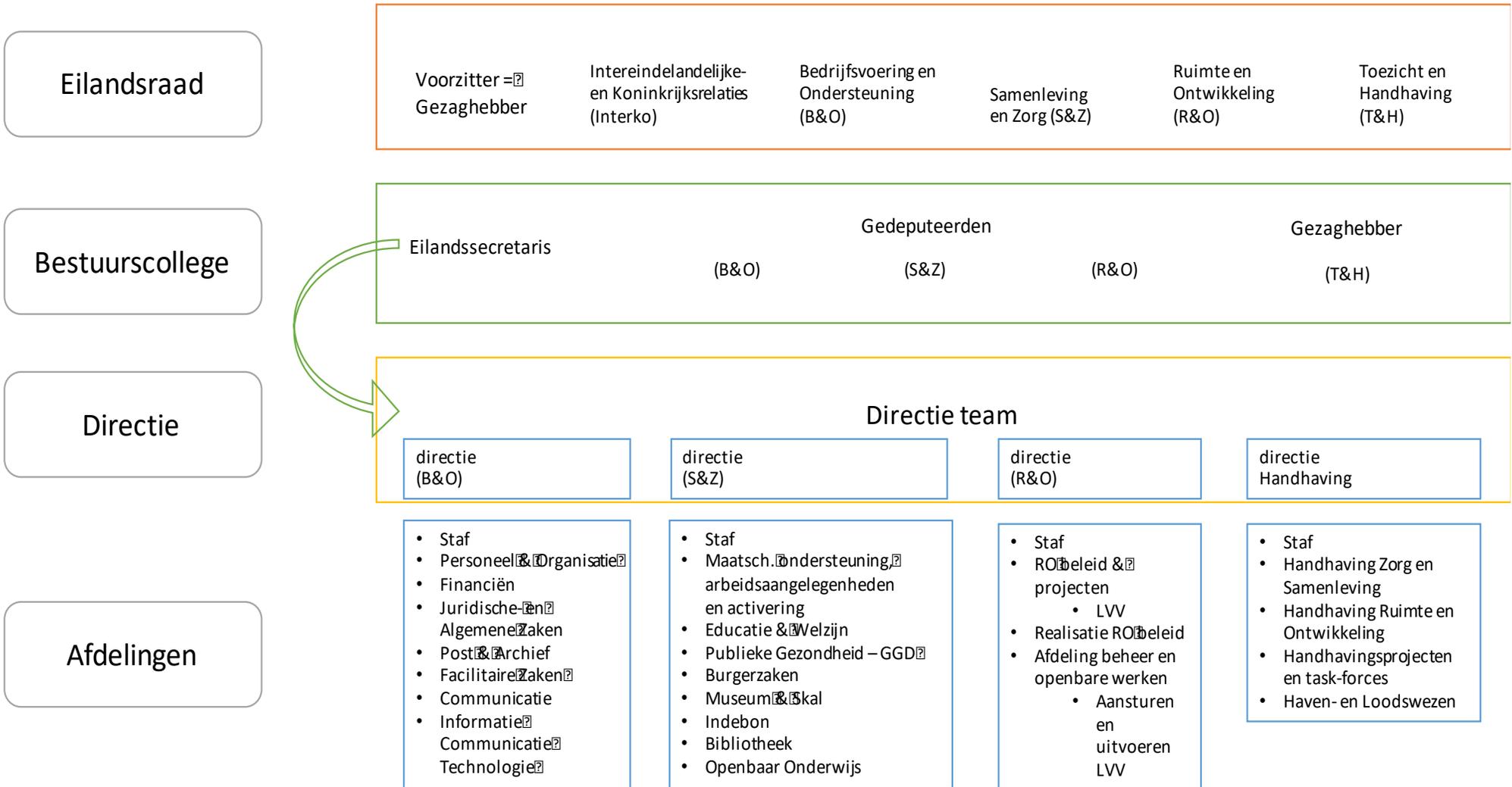
- <http://www.reefresilience.org/case-studies/belize-fisheries-management-2/>
- <https://www.moore.org/docs/default-source/Environmental-Conservation/50-in-10-project---resources/case-study---collective-impact-of-managed-access.pdf?sfvrsn=2>
- <https://www.seafoodsource.com/features/belize-pioneers-managed-access-for-its-coastal-fisheries>

## V ORGANOGRAMS OF THE INSTITUTIONS RESPONSIBLE FOR FISHERIES MANAGEMENT ON BONAIRE

### National Government

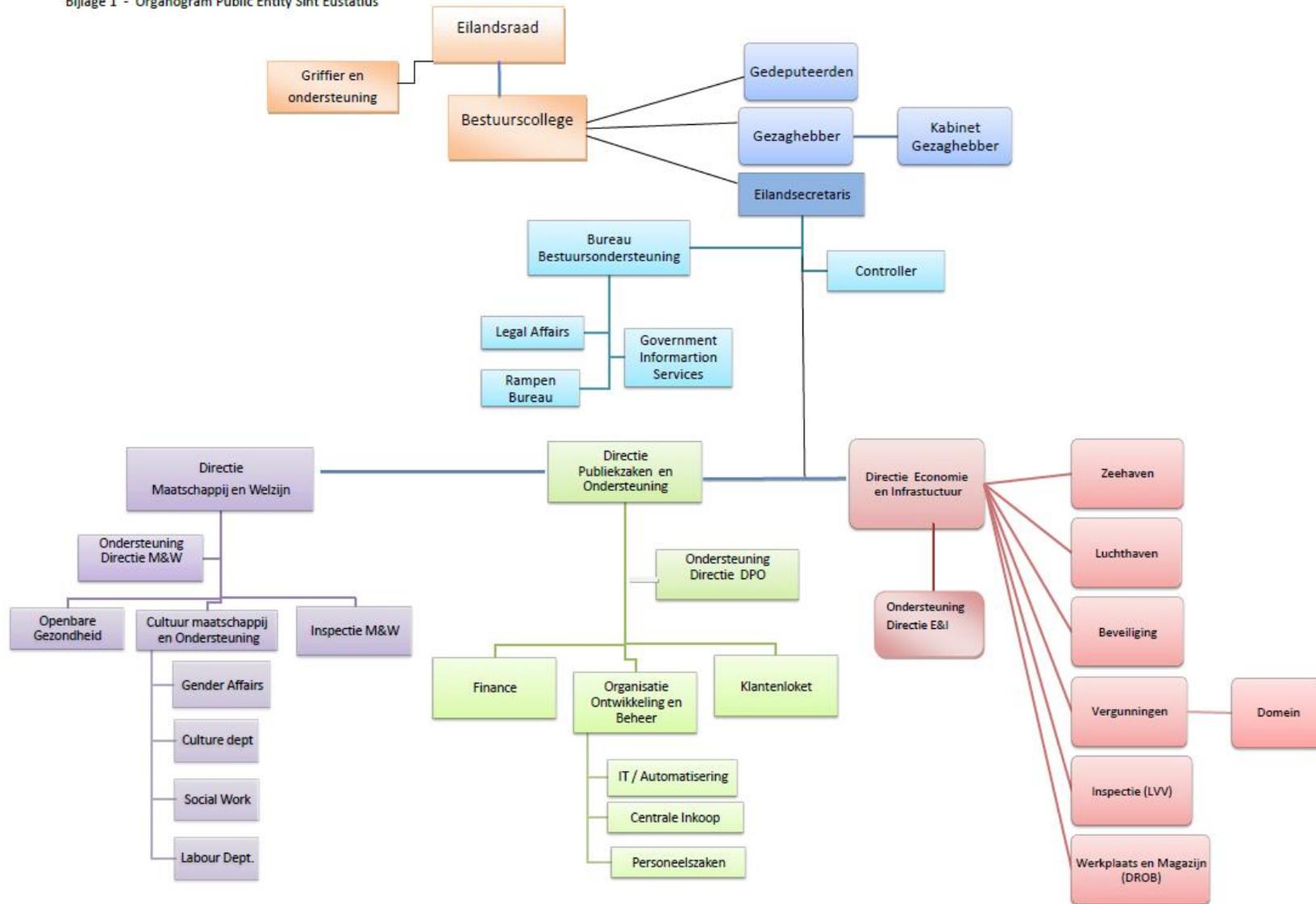


Public Entity Bonaire



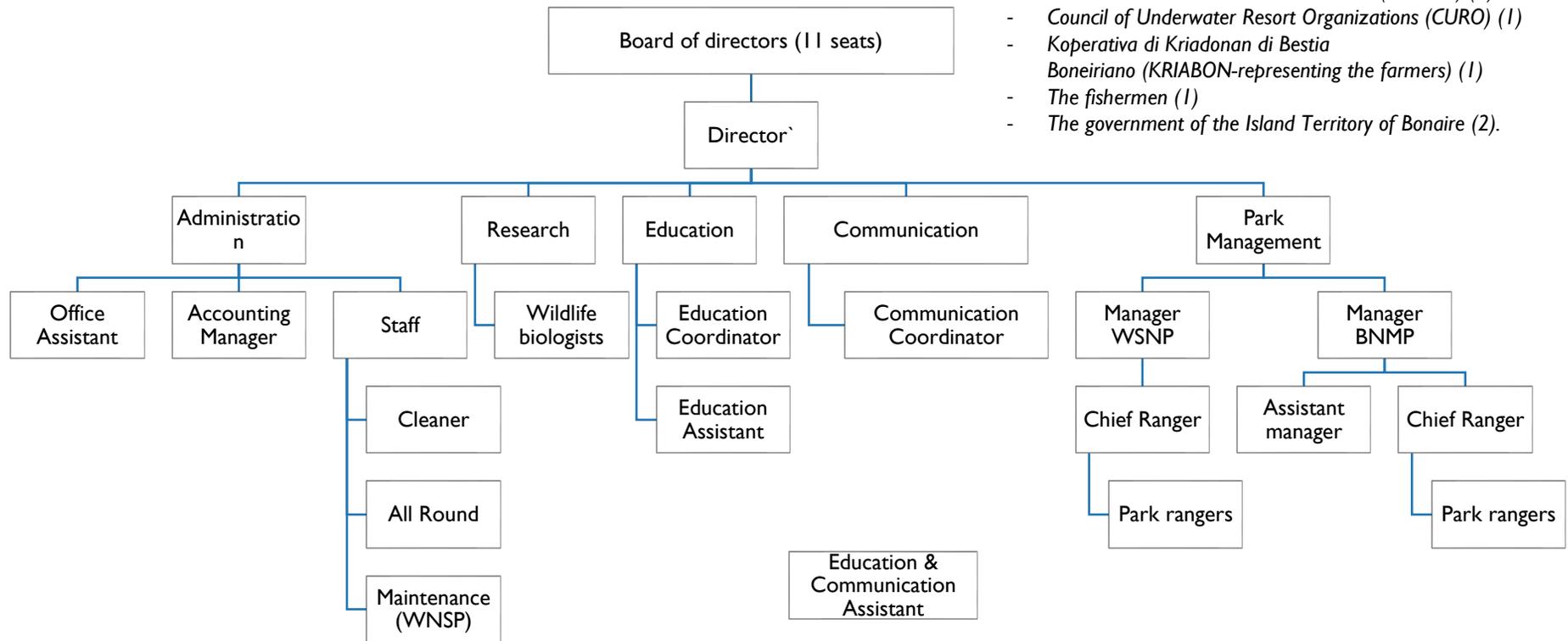
# Public Entity St. Eustatius

Bijlage 1 - Organogram Public Entity Sint Eustatius

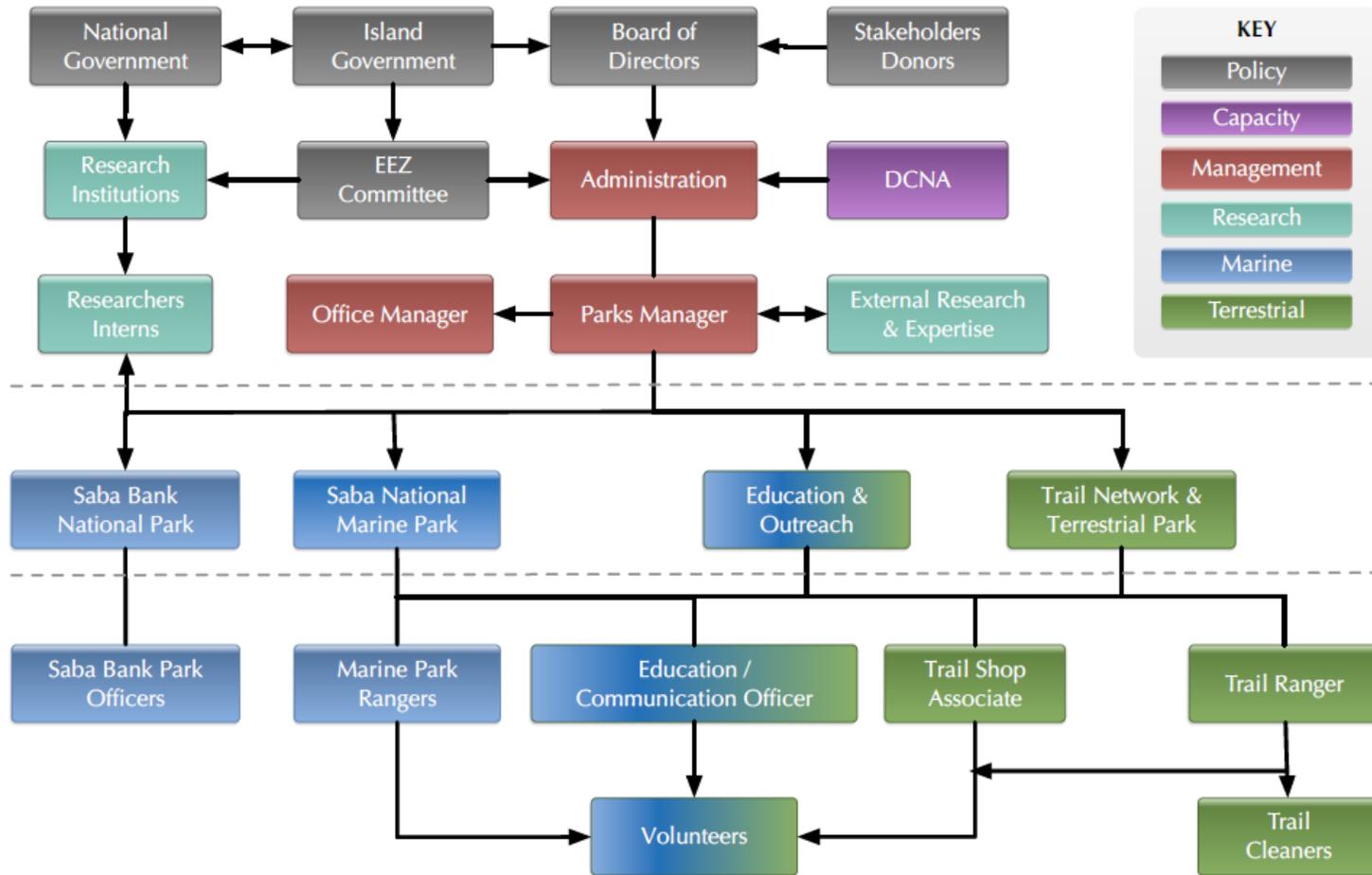


STINAPA Bonaire

- Tourism Corporation Bonaire (TCB) (1)
- Bonaire Hotel and Tourism Association (Bonhata) (1)
- Council of Underwater Resort Organizations (CURO) (1)
- Koperativa di Kriadonan di Bestia Boneiriano (KRIABON-representing the farmers) (1)
- The fishermen (1)
- The government of the Island Territory of Bonaire (2).



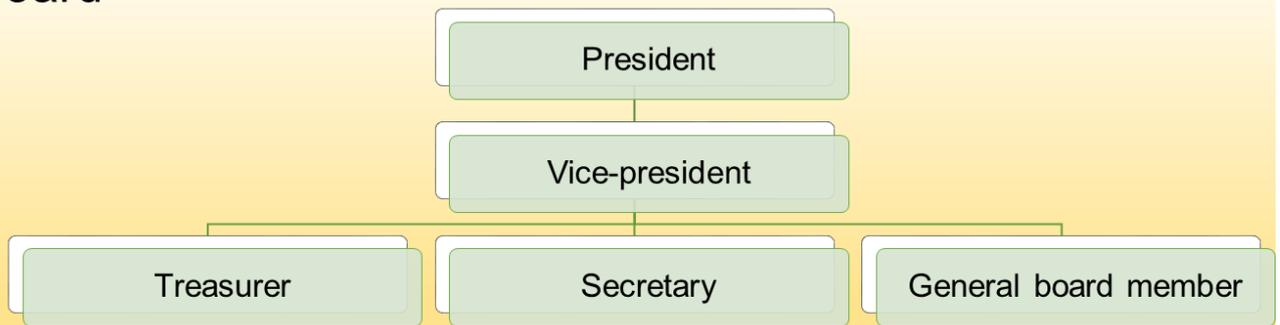
### Institutional Chart 2017



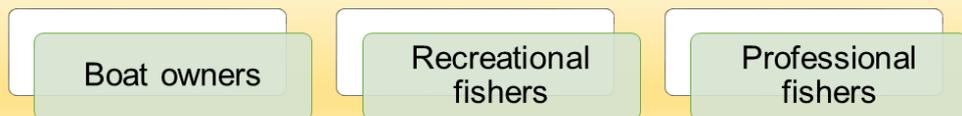
## Supervisory Board



## Board



## Members



## VI SECRETARY (20 HOURS A WEEK)

As a secretary, you are responsible for the ins and outs of the fishing cooperative PISKABON. You support the board and the supervisory board on all fronts, you are the centipede they cannot miss. You keep yourself busy setting up and running smoothly of administration, projects and organization.

Often you are the first point of contact for people. You also get to deal with all sorts of confidential information. You often consult with the board members, members of the supervisory board, but also other stakeholders in the field of fishery management on Bonaire (including fishers, Ministry of Agriculture, Nature and Fisheries, Rijksdienst Caribisch Nederland, Public Entity Bonaire, STINAPA).

You do different things. To start you manage the agenda of the board. You make the necessary arrangements for the board members with people within their own organization and beyond. You collect the necessary documents for meetings. On this basis, you set the agenda. You ensure that all parties involved have the documents available for inspection in time so that they can prepare themselves well. You also make written reports of meetings. You ensure that these reports and other relevant information are clearly stored in a (digital) archive. You also deal with the correspondence.

In addition to these activities of a secretarial nature, you think and write along with the board about strategic annual plans, communication plans and other organizational documents for the proper functioning of the cooperative. You also support the board in applying for subsidies and other funds for the implementation of projects and creating support for the cooperative among stakeholders in fisheries and the community of Bonaire.

### Activities or responsibilities

- Organizing board meetings
- Organizing general member meetings
- Maintain contact with the supervisory board and executive board
- Keeping overview of projects / compliance with agreements
- Writing and submitting project proposals / grants
- Organize and attend stakeholder meetings
- Coordinate communication between stakeholders
- Drafting / writing strategic plans
- Drafting / writing communication plans
- Making presentations (PowerPoint)
- Organize trainings for board members
- Provide the incoming and outgoing correspondence
- Support executive board in various departments
- Take care of the internal announcements
- Maintaining the agenda
- Prepare meetings, collects and distributes meeting documents
- Prepare minutes
- Archive (paper and digital)

### Competencies, skills, capacities

- Reliable, honest and diplomatic
- Motivator
- Conceptual thinking
- Leadership skills
- Planning and organizing (in the long term)
- Anticipating and staying ahead on situations
- Good computer skills
- Fluent in Papiamentu, Dutch and English
- Multitasker that knows how to maintain an overview and does not shy away from deadlines
- Proactive attitude and flexible attitude
- Good oral and written expression
- Being able to handle people well, have patience
- Work accurately
- Can quickly switch from one task to another
- Can improvise
- Being able to think systematically
- Broad network
- Education level: MBO-4 or HBO

## VII FISHERIES COMMUNITY ENGAGEMENT OFFICER

The mediator helps repair the stalled communication and investigates with those involved where the sting of the conflict is. The content of the conflict is up to those involved, the mediator gives no opinion on this. The mediator acts as moderator and does so by:

- Taking control of the conversation, which means that there is always room for everyone to tell his or her story
- Clarifying what has remained underexposed in the situation until then.
- Facilitating those involved - each for themselves – to gain insight into their own behavior and to promote insight into the behavior of the other person.
- Making it clear how the parties involved in a conflict communicate with each other.
- Clarifying what those involved want to see resolved and what an acceptable solution can look like for everyone involved.

The mediator has no interest in the solution that the parties involved will ultimately find under his/her guidance. This makes it possible for him/her to be completely neutral and independent of them.

A mediator is an independent third party who mediates between the parties. The role of the mediator is limited to guiding the mediation process. At the content level, the parties themselves remain the boss in the conflict.

A mediator will take on the following tasks:

- Apply conversation structure
- Monitor progress and the procedure
- Allowing all parties to speak
- Identifying the facts, positions, interests and backgrounds of the parties
- Cultivating space for mutual understanding
- Acting in a solution-oriented way
- Draw up a settlement-agreement



**Why we are here.**

To stop the degradation of the world's natural environment and to build a future in which humans live in harmony with nature.

[wwf.nl](http://wwf.nl)

**PHOTOGRAPHY**

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