

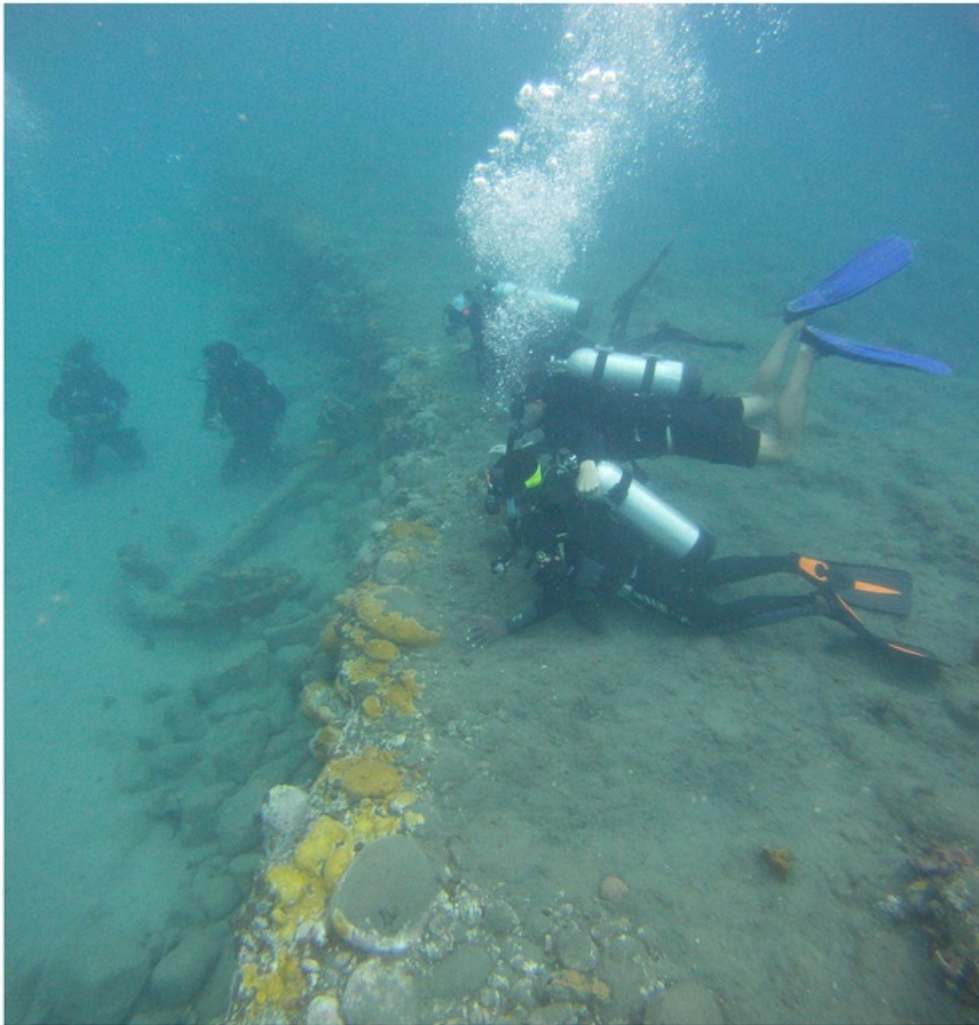
REMAINS OF OUR PAST
UNDERWATER: HOW DO WE
PRESERVE IT? An assessment
of the underwater cultural
heritage management system
on Bonaire, Saba and St.
Eustatius (the Caribbean
Netherlands)

door Dorien Otten

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Figure front page: Divers doing fieldwork during the UNESCO Foundation Course on St. Eustatius in December 2014 (maritiemprogramma.wordpress.com).

Contact information:

[Redacted contact information]

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An assessment of the underwater cultural heritage management system on
Bonaire, Saba and St. Eustatius (the Caribbean Netherlands)

By Dorien Elisabeth Otten

Student number: s1274309

Course: BA3 thesis (catalogue number 1043WY)

Supervisors: Dr. M.S. de Waal and Drs. M.R. Manders

Specialisation: Archaeology of the Americas

Leiden University, Faculty of Archaeology

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1 INTRODUCTION

In the 18th century, a lieutenant named Cornelius de Jong sailed with the Dutch warship *Mars*, under command of Captain Willem Crul, to the Caribbean Islands in the. Lieutenant De Jong wrote about his sailing adventures. It was September 1780, and in his fifth letter he describes his visit to St. Eustatius. He talked about the roadstead of St. Eustatius and it appeared spectacular: everything was alive and everything was on the move. The fleet of ships displaying flags of various European nations, which counted for almost two hundred ships big and small, did provide a beautiful sight (translation from: Vijfde Brief, De Jong 1870, 96).



Figure 1: An impression of St. Eustatius surrounded by many ships, in less peaceful times: “St. Eustache”, when it was taken by the English in 1781. By Johann Baptist Bergmüller, ca. 1781 (commons.wikimedia.org).

Lady Janet Schaw from Scotland also wrote about her travels, between 1774 and 1776. She provided a description of her experiences during a visit at the island of St. Eustatius (Schaw 1921, 135-6):

“In a few hours after we left St Kitts, we landed on St Eustatia, [...] a free port, which belongs to the Dutch; a place of vast traffick from every quarter of the globe. [...] I understand however that the whole riches of the Island consist in its merchandize, and that they are obliged to the neighbouring Islands for subsistence; while they in return

furnish them with contraband commodities of all kinds. [...] But never did I meet with such variety; here was a merchant vending his goods in Dutch, another in French, a third in Spanish, etc. etc. They all wear the habit of their country, and the diversity is really amusing.”

Both Lieutenant De Jong and Lady Janet Schaw described what St. Eustatius looked like a few centuries ago. It was an island surrounded by many ships, which were there to trade, or fight, as is shown on the card above (figure 1). The fact that people have been travelling through these seas for all kinds of reasons, or that people have built their harbours and warehouses on the coasts is the very reason why underwater cultural heritage exists. Imagine that the riches of the island, the merchandise, the small and big ships, and even parts of the buildings could now be situated underwater, preserved for centuries. However, how much do we know about the underwater archaeological record from before the colonial encounters? As this introduction shows it is easy to find historical evidence of the well documented navigational past, yet it is possible that pre-historical evidence of both navigation and habitation still remains in the soil. This research investigates the underwater archaeological record of the Caribbean Netherlands and the measures that are taken to protect it.

1.1 THE CARIBBEAN NETHERLANDS

The Caribbean Netherlands consists of the three islands Bonaire, Saba and St. Eustatius and is situated in the Caribbean Sea (figure 2). All three islands are part of the Lesser Antilles, whereby Bonaire lies close to the South American mainland and Saba and St. Eustatius lie at the top of the Lesser Antilles arc (Leeward Islands). The islands used to form the Netherlands Antilles together with Aruba, Curaçao and St. Maarten, which was a country within the Kingdom of the Netherlands. In 1986, Aruba became an independent country within the Kingdom. Curaçao and St. Maarten followed in 2010 at the time when the Netherlands Antilles became dissolved. Bonaire, Saba and St. Eustatius became special municipalities of the Netherlands in that same year and are now called *Caribisch Nederland* (the Caribbean Netherlands). In short these islands are referred to as the BES Islands, however, this abbreviation will be used in this research in particular when referring to law titles. The six islands form the Caribbean part of the Netherlands, but the three special municipalities are

officially considered *openbare lichamen* (public bodies) under Dutch law (government.nl).

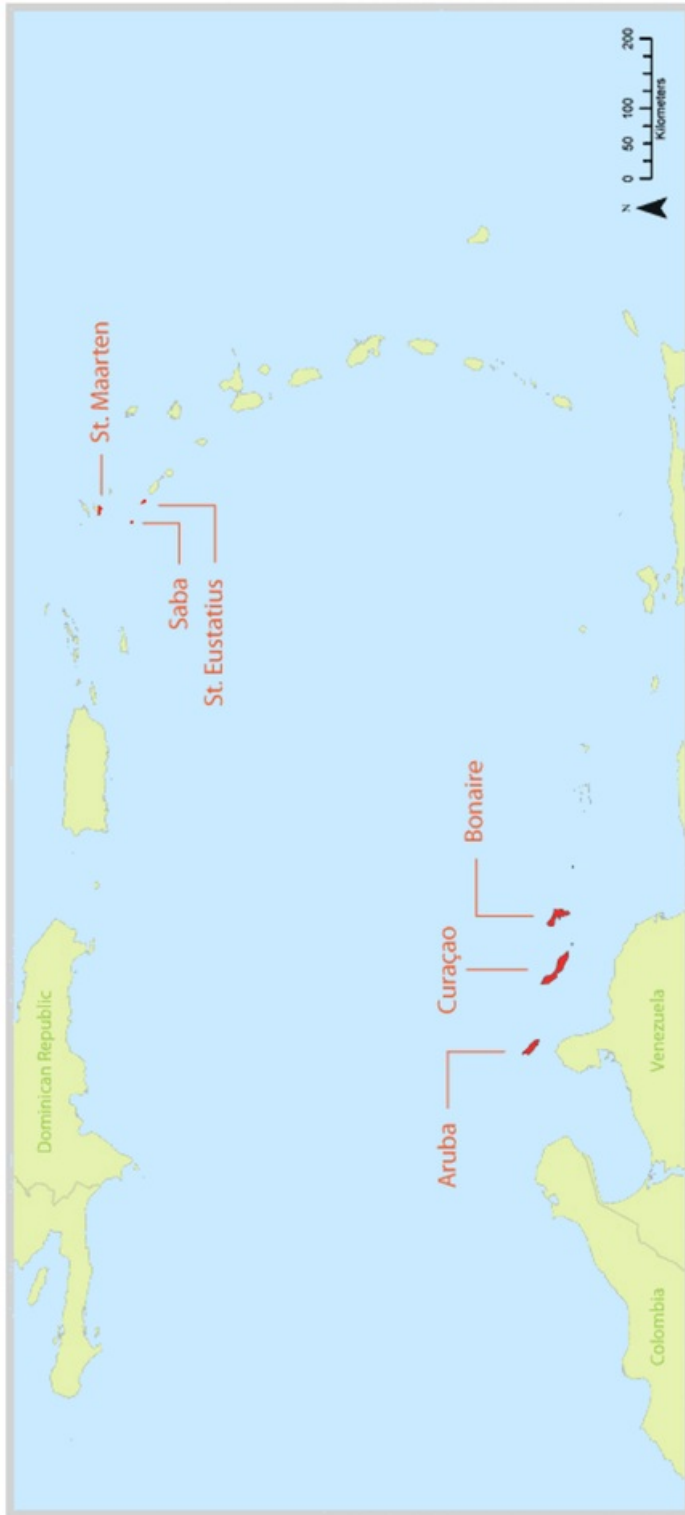


Figure 2: The Kingdom of the Netherlands comprises four countries: The Netherlands (in Europe), and the islands Aruba, Curaçao and Sint-Maarten (in the Caribbean Sea, above). The islands Bonaire, Saba and St. Eustatius have a separate status within the Netherlands and are called together *Caribisch Nederland*, in English “Caribbean Netherlands” (in the Caribbean Sea, above). The six islands in the Caribbean Sea form the Caribbean part of the Kingdom of the Netherlands (dcnature.org/islands).

People have been travelling through the Caribbean thousands of years. These settlers inhabited islands and made use of its most important surrounding source: the sea. They have left behind many traces of the lives they once lived. These traces, or archaeological remains, have been investigated for several decades by means of archaeological research in the form of excavations both on land and underwater. Still, less is known about the archaeological record underwater compared to the record on land. The combined body of knowledge obtained from archaeological excavations, written sources, and the underwater archaeological record from other Caribbean islands, let us believe that we can expect underwater cultural heritage (hereafter UCH) in the waters surrounding the Caribbean Netherlands. The first thing many people would think of is the shipwrecks of the many ships that sailed to the Caribbean during the centuries of exploration and trade. Shipwrecks appeal to one's imagination, and they are one of the most encountered underwater archaeological resources that have been found. However, one must not forget that there are more kinds of UCH. For example, the underwater archaeological remains we know of in the European part of the Netherlands consist not only of shipwrecks, but also of a sunken island, a Roman bridge, a sunken city, a slipway and a rowing blade (as can be seen in the "Wrecks In Situ" viewer on machuproject.eu). As easy as it is to find such information about UCH in the mainland of the Netherlands, it is not that obvious for the Caribbean islands.

Fortunately, the means and opportunities to investigate UCH are increasing. Over the last few decades, the maritime and underwater archaeology sector has grown. Advanced technologies such as diving gear, underwater robots and acoustic systems provide us with the possibility to conduct research into archaeological remains underwater (figure 3). Unfortunately, the condition of UCH is often threatened by deterioration or destruction, and that means it will not be preserved and the history will be lost. The advanced technologies have for example resulted in more explorations by means of scuba diving or salvaging, which subsequently lead to the destruction of the remains. The increased accessibility gives the so-called treasure hunters the possibility to collect archaeological remains for commercial purposes. Other ways in which UCH is likely to be threatened by are infrastructural projects, the devastating *Teredo navalis* (shipworm), erosion or sedimentation. At this point, protective underwater cultural heritage management (hereafter UCHM) comes into play. If not protected, the UCH that became exposed will eventually disappear. As the *Charter on the Protection and Management of Underwater Cultural Heritage* (1996)

from the International Council on Monuments and Sites (hereafter ICOMOS) appropriately describes: “[...] in the language of resource management, underwater cultural heritage is both finite and non-renewable.” We are not able to restore or to renew this type of heritage, making UCHM imperative. As will be shown in chapter two, different kinds of UCH are known or expected to be left behind in the Caribbean Netherlands and therefore, there is reason to believe that more will be found in the future. The country, municipalities and local communities of the Caribbean Netherlands have to be prepared in order to preserve heritage that is situated underwater. The new legal status that came into existence in 2010 provides new opportunities to bring measures for protection into the legal framework, which you can read about in chapter three. Archaeologists are, however, not able to protect the archaeological remains on their own, and therefore, collaboration with stakeholders is so important (chapter four). Who does contribute one’s bit towards the protection of this amazing kind of heritage?

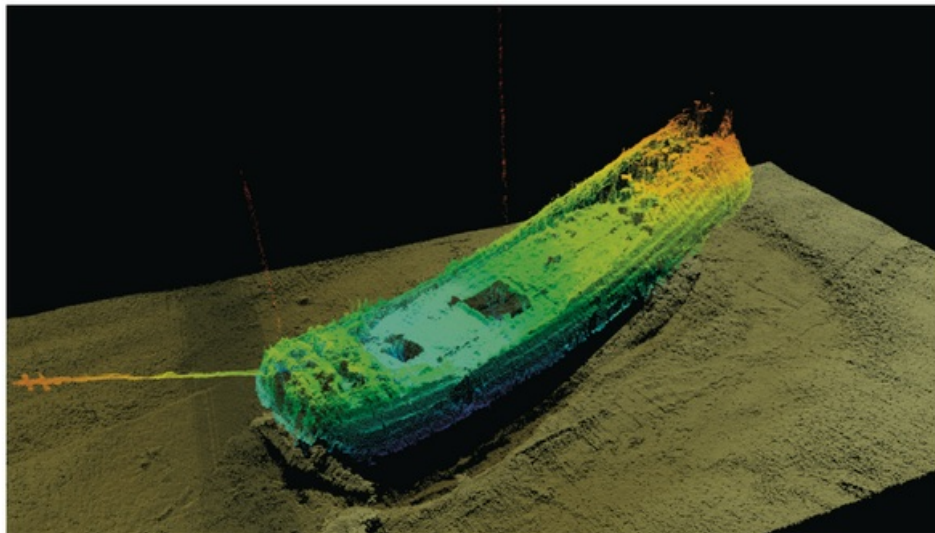


Figure 3: A digital 3-dimensional model of the Ghost Ship, a 17th century ship on the bottom of the Baltic Sea (at 130 meters depth). The Swedish companies Deep Sea Productions, Marin Mätteknik, and the Maritime Archaeological Research Institute (Södertörn University) made this image with the measurements of a multibeam echo sounder from their research between 2009 and 2012 (Eriksson and Rönnby 2012, 350-2).

1.2 RESEARCH QUESTIONS

In spite of the opportunities that make it possible to investigate and preserve UCH, little has been written about the management of UCH in the Caribbean Netherlands. Contrary to the UCHM that has been conducted elsewhere in the Caribbean or the

Netherlands (Otte 2008; Brugman 2015), the UCH in the Caribbean Netherlands has not been given the attention that it deserves, as it is a valuable source of information and very vulnerable to damage or deterioration. Management is imperative when it comes to protection of UCH and therefore, I aim to contribute to the research on UCHM in the Caribbean Netherlands. I seek to outline and evaluate the current state of UCHM on these islands. The relevance will be practical, because I seek to provide a clear overview and recommendations for those who are concerned with UCHM in the Caribbean Netherlands. I look at several aspects of UCHM that are mostly concerned with legislation, policy and the stakeholders involved. It concerns the processes of UCHM after the 10th of October 2010, because before this date, the basis for protection of heritage – the legal framework – was different. We have to work in accordance with the current legislation, and therefore it is important that insight is given in the current framework. The main research question will read as follow: *How is underwater cultural heritage being managed in the Caribbean Netherlands since 2010 and is there room for improvement?* Subsequently there are several sub-questions that I aim to answer:

1. What is underwater cultural heritage management?
2. What kinds of underwater cultural heritage have been found in the Caribbean Netherlands (known resource); and what kinds of underwater cultural heritage can one expect to be there (unknown resource)?
3. Which legislation exists to regulate the protection of underwater cultural heritage?
4. Who is involved in the management of underwater cultural heritage in the Caribbean Netherlands, and how are they involved?
5. How effective is the current situation of underwater cultural heritage management and which recommendations for improvement can be given?

These questions will be answered by means of the methodology provided below.

1.3 METHODOLOGY

This research has been set up with the following subjects to be analysed: the underwater cultural resource (Chapter 2); the legal framework (Chapter 3); and stakeholders of UCHM (Chapter 4). The first research sub-question will be answered in the next paragraph of this introduction, and the subsequent research sub-

questions in the corresponding chapter. The diagram below shows the steps that have been taken in this research (figure 4).

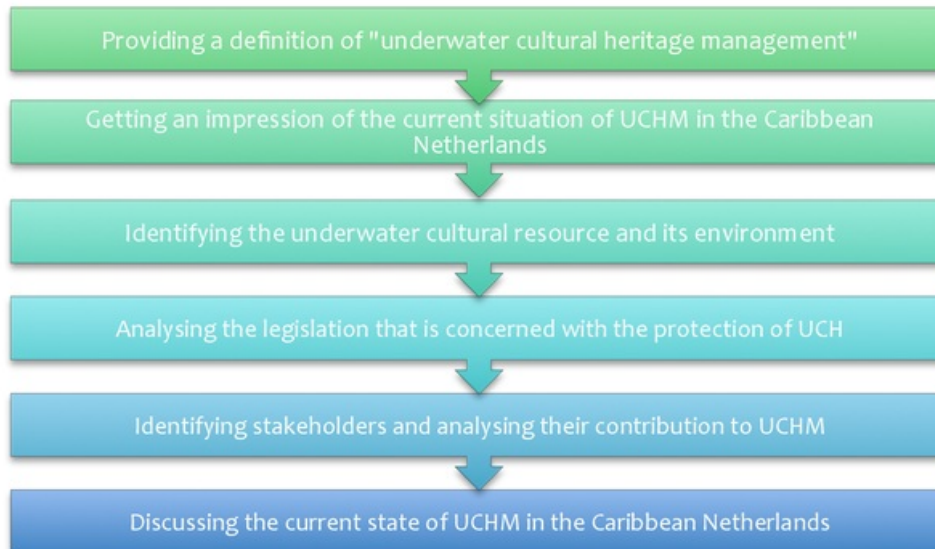


Figure 4: Diagram of the research methodology.

The first step of this research was to provide a definition of UCHM to help with setting the scope (sub-question one). The subject is divided in two parts: the underwater cultural resource and the management of this resource. International treaties are examples of sources that provide a definition of “underwater cultural heritage”. It is preferable to provide a definition that is applicable worldwide and not only in the Netherlands, due to the cooperation possibilities amongst State Parties in relation to the ownership and location of this heritage. Another source had to be sought to define “management” of the UCH. I chose to use a manual from the *United Nations Education, Scientific and Cultural Organization* (hereafter: UNESCO), with regard to the 2001 Convention on the Protection of Underwater Cultural Heritage. The next paragraph in this introduction shall dilate upon these definitions.

Early in the process of this research, I decided to talk to archaeologists who work in the Caribbean Netherlands and to officials who work in the European part of the Netherlands. I chose to do this to learn about the current situation of UCHM in the Caribbean Netherlands (Appendix 1), because the subject can be complex and UCHM encompasses many aspects. The information that is provided by the contact persons will be used to provide an overview of the current situation as complete as possible.

Identifying the underwater cultural resource, the third step, is necessary in order to state that UCHM is imperative (sub-question two). Available literature is reviewed to obtain this information, which includes scientific papers about archaeological research and (prehistoric) seafaring; books about maritime and underwater cultural heritage and about archaeology in the Caribbean; historical texts from people who visited the islands; and information provided by the Marine Parks or diving operators.

The fourth step is to understand the legal situation after the 10th of October 2010, with regard to the protection of the underwater cultural resource in the Caribbean Netherlands (sub-question three), because a solid legal basis is the start of effective management. I seek to achieve this understanding by reviewing the relevant legislation, mostly bills and other legislative documents, such as letters or diplomatic memorandums from the Parliament. It has to be pointed out that the author of this research does not have a juridical background. Therefore, advice has been sought with different experts in this field.

The last subject to be analysed is the contribution of stakeholders to the management of UCH, whereby the research is focused on policy and enforcement of legislation (sub-question four). The identified stakeholders are the ones of which I believe have an important role to play in UCHM and are also those who mainly construct and enforce the relevant legislation. Not all stakeholders can be approached, because that would go beyond the scope of this research, and in order to do that a visit to the islands would be necessary. The stakeholders who are involved in this research are the municipalities, governmental institutions, archaeological institutions, marine parks and diving organisations.

Sub-question five (and the last step of this research) is meant to evaluate the current state of UCHM in the Caribbean Netherlands. I will evaluate the situation of underwater archaeology before and after 2010, what has been arranged formally since the 10th of October 2010 and how this is implemented. The evaluation includes a comparison between the three islands of the Caribbean Netherlands and the European part of the Netherlands, and it describes UCHM in the Caribbean Netherlands in general. In addition, shortcomings and recommendations as a result of this research will be discussed. A conclusion with the answers to the research questions and suggestions for further research will be given in Chapter 6.

1.4 DEFINITION OF UNDERWATER CULTURAL HERITAGE MANAGEMENT

The terms that are required for an overall understanding include “underwater cultural heritage”, “underwater archaeology” and “underwater cultural heritage management”. To start with, I would like to use the definition of “underwater cultural heritage” provided by Sarah Dromgoole in her book *Underwater Cultural Heritage and International Law* (2013, 65-6):

The word ‘heritage’ implies that something has a value or quality which is worthy of protection so that it can be passed on to future generations; the word ‘cultural’ suggests something that is related to human beings; and the word ‘underwater’ implies something that is, or at least was, located underwater.

Underwater cultural heritage encompasses the remains of a culture that people want to pass on to future generations; it has a value for their society and is worthy of protection.

Secondly, I looked at the *Convention on the Protection of Underwater Cultural Heritage* (2001) from UNESCO to define “underwater cultural heritage”. It provides the following definition:

“1. (a) “Underwater cultural heritage” means all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at least 100 years such as:

(i) sites, structures, buildings, artefacts and human remains, together with their archaeological and natural context;

(ii) vessels, aircraft, other vehicles or any part thereof, their cargo or other contents, together with their archaeological and natural context; and

(iii) objects of prehistoric character.”

This definition clearly describes the kinds of UCH that exist. However, UNESCO provides a definition of UCH with a value that is based on age, namely heritage that exists for at least a hundred years. This is not consistent with the definition of heritage in the Netherlands, because the Netherlands values heritage on significance and not with a minimal age (Manders 2012a, 3).

Archaeology performed in a submerged environment is called “underwater archaeology”. The underwater archaeologist conducts research into the human past with the same methods for excavation and interpretation as the field archaeologist, but with different tools (Leshikar-Denton and Scott-Ireton 2014, 341). The tools that Leshikar-Denton and Scott-Ireton are talking about, they are presented by the Archaeological Monuments Care of the Netherlands (Appendix 3). For example, instead of exploratory field research by means of drilling or test pits on land, underwater archaeologists can conduct research by means of sounding methods (on water) or diving (underwater). There is however a difference in academic archaeology and the branch in archaeology that deals with archaeological resources, which is mostly called “cultural resource management” or “archaeological heritage management”. Whereas archaeology is defined as the study of the past, cultural resource management deals with the present and future (Willems 2009, 94). Therefore, the importance of UCHM is that it is focused on the present and future.

The most important part of defining UCHM is concerned with the protection of UCH. According to Martijn Manders, managing underwater cultural heritage can be defined as “[...] the attempt to balance the protection of underwater archaeological sites with, for example, the availability of funds, human resources, time and also economic development pressures such as fishing” (Manders 2012a, 3). The manual that is provided by the UNESCO Foundation Course explains the many processes that UCHM encompasses (Manders and Underwood 2012). This manual contains curriculum material that has been developed by international expert trainers and it is the result of a regional capacity-building project to improve the management and protection of UCH in Asia and the Pacific, initiated by UNESCO Bangkok in 2009 (Favis *et al.* 2012, 9). The research of Foundation Courses has been carried out under the guidelines of the 2001 UNESCO Convention. The manual deals with topics such as desk-based and significance assessment, data management, Geographical Information Systems (GIS), *in situ* preservation and conservation, and it forms a basis for subsequent six-week Foundation Courses.

According to Manders, there are three main components of UCHM, of which the first is the *structuring process*. Management can take place on different levels, namely on site, regional, national and international levels. There are several well-known guidelines to manage UCH at a site level, such as the *European Convention on the Protection of the Archaeological Heritage* (1992), the *ICOMOS Charter on the*

Protection and Management of Underwater Cultural Heritage (1996), and the Annex of the UNESCO *Convention on the Protection of Underwater Cultural Heritage* (2001). Within management on a regional level one should consider the relationship with the environment, the history of the area, other underwater resources, the use of the area, threats, stakeholders, and individuals or institutes responsible for UCHM. Management on a national level includes as well the maritime history and the stakeholders involved, but also legislation to protect heritage, the responsible institution for protection and the establishment of a central database. Management at international level will not be discussed in this research, although, the international treaties mentioned in this research provide a basis for international management, if the same policy is implemented over several countries (Manders 2012a, 6-8).

The second component of UCHM that Manders has described is *dare to select*. Time and money are often a reason why one is not able to protect heritage. It is therefore important to select and prioritise sites and to discard the protection of other sites. In this case, formats to measure the quality and importance of a site are useful. Selection is also based on the choice between *in situ* preservation and excavation. International treaties such as the Valletta Convention (1996) or UNESCO Convention (2001) promote the *in situ* protection as first option, but it is not always possible or desired (*ibidem*, 8-9).

Mitigation is the third component of UCHM (*ibidem*, 9). By means of mitigation one aims to avoid unnecessary risks by implementing interventions. Mitigation methods include for example workflows, processes and quality norms, or legislation to protect heritage, knowledge and data. There are different management tools that are useful for mitigation: one can think of cultural or environmental impact assessments, a national research agenda, policy, management plans or archaeological value maps. A number of management tools will be discussed in this research, to show that mitigation methods form an integrated part of UCHM. Chapter 2, however, will first go more deeply into the underwater cultural resource of the Caribbean Netherlands.

2 THE UNDERWATER CULTURAL RESOURCE

2.1 INTRODUCTION

The actions of the past have left many traces behind on the islands of the Caribbean Netherlands. However, without the actions on or in the waters we would not have found these remains on land. The remains that are left behind underwater, which were once part of for example warehouses, ships or fishing gear, are explored in this chapter. Not all knowledge about resources is, however, diffused by archaeologists. A percentage of the underwater cultural resources are known by authorities, but more resources might be known by people other than the authorities, such as divers, and some resources are even unknown (Green 2004, 373). Nevertheless, it is important that we identify the resource early in the process of UCHM. There are different types of underwater resources, but the three that are mentioned in this chapter (known, unknown and future) are the most prevailing. An important aspect that influences the identification of UCH, and which is also the reason why we want to protect it in the first place, is the condition of the remains. Different threats (whether from humans or nature) result in the deterioration or even disappearance of UCH. There is however an on-going discussion whether it is possible to predict the chance of encountering UCH (Manders *et al.* 2014, 8). This research does not provide an elaborate prediction of the underwater cultural resource; it rather discusses the different kinds of resources that one could likely encounter, and those resources that actually have been found in the Caribbean Netherlands. The information provided about the unknown resource is based on the knowledge about settlement history and natural environment. The behaviour of humans in the past in relation to the environment is the main reason why we expect UCH in the waters of the Caribbean Netherlands. The information provided about the known resource is based mainly on the results of archaeological research and information from different stakeholders of UCHM.

2.2 ISLAND HISTORIES

The Caribbean islands know a long history of people who came to occupy the islands from different locations of the mainland. Archaeologists have shown that the first migrations started around 6,000 years ago, when people began to move with

watercrafts to different islands of the Caribbean archipelago, particularly the Greater Antilles (Wilson 2007, 27). Also, several millennia before the colonisation of most of the Lesser Antilles began, people moved from South America to the adjacent islands such as Trinidad, around 6000 BC (*ibidem*, 38-9). Between 3000 and 2000 BC, people made the decision to move to the other islands of the Lesser Antilles (*ibidem*, 56). An archaeological site that is well known for occupation in this period is for example Norman Estate on St. Martin (2350-1800 BC) (Knippenberg 1999, 21-34). The islands Saba and St. Eustatius could have been reached in this period as well, since they lay very close to St. Martin. Investigations at the Plum Piece site on Saba showed evidence of occupation between 1875 and 1520 cal BC (Hofman and Hoogland 2003, 16). According to Hofman and Hoogland, the steep topography and rich fishing grounds of Saba must have attracted many seafarers (Hofman and Hoogland 2014, 295). Evidence from the Golden Rock site of St. Eustatius shows that people occupied this island at a later period, namely around 500 BC (Versteeg 1994, 28). The earliest evidence of occupation at Bonaire dates at least to around 1400 BC (Haviser 1991, 40). In the last few centuries BC, new groups of people moved to the Lesser Antilles. Archaeologists labelled these groups “Saladoid”, based on the ceramics they produced (Wilson 2007, 59). They have occupied places in the Lesser Antilles for long, permanent periods (Newsom and Wing 2004, 32). Between AD 600 and 1200 occupational sites and cultures changed and populations became larger (Wilson 2007, 95). After this period, however, population sizes declined and islands from at least Saba to Nevis seemed to have been abandoned (*ibidem*, 149).

Another very well-known period, when there was much activity in the surrounding waters of the Caribbean islands, is that of the 15th-19th centuries, when European nations, in particular Spain, England, France and the Netherlands, acted as colonial powers and carried out commerce in the Caribbean (Leshikar-Denton 2002, 279; Stelten 2010). In 1621, the Dutch West Indies Company was founded to increase trade in the West Indies and South America. From that moment, settlements were established as permanent trading posts. Around 1630, settlers from Zeeland and Holland (provinces of the Dutch Republic) permanently settled for the first time at St. Eustatius, although the area had been frequently visited by the Dutch seafarers for approximately six years before this date (Attema 1976, 16). Both Bonaire and St. Eustatius became colonised in 1636 under the 1621 Patent of the West Indies Company. About ten years after the permanent settlement on St. Eustatius, European settlers also inhabited Saba (Brugman 1995, 16-9). According to Brugman,

the island has been mentioned several times before that, during different voyages to the West Indies in the late 16th and early 17th centuries.

2.3 NATURAL ENVIRONMENT

As has been shown in the introduction of this thesis, the three islands of the Caribbean Netherlands do not particularly lay close to each other. Bonaire lies at a distance of more than eight hundred kilometres from both Saba and St. Eustatius and it is situated approximately a hundred kilometres north of Venezuela. About 750 meters off the island lies the small uninhabited island Klein Bonaire. Both islands are very flat (nearly two meters above sea level), with some higher elevations up to 238 meters at the north of Bonaire. The core of the island is of volcanic origin and (coral) limestone formations make up the coastline. Terraces have been formed due to sea level changes and rising land (De Meyer 1998, 142).

Saba and St. Eustatius are part of the Active Arc or the so-called “Volcanic Caribbees”, which is known for its historic and pre-historic volcanic activities and which has affected Amerindian populations (Roobol and Smith 2004, 3). Contrary to Bonaire, both Saba and St. Eustatius suffered many storms and hurricanes, which often caused boats or ships to wreck (Attema 1976, 33, 38; De Jong 1870, 126-30). Saba is a very mountainous volcanic island with a maximum elevation of 866 meters above sea level and for the most part access to the ocean is difficult (Buchan 1998, 187). St. Eustatius is slightly less elevated and rises about 600 meters above sea level (Roobol and Smith 2004, 99). Both islands were formed on top of shallow-water submarine banks that extend to a very large area (*ibidem*, 1-2). One of these banks is the Saba Bank, which lies to the west of Saba. The Saba Bank is a unique maritime habitat with reefs that are relatively remote from intense human impact (Lundvall 2008, 9). The reefs surrounding the islands are a potential resource for dive tourism and an essential source for fishing (MacRae and Esteban 2007, 31).

Relative regional sea levels have risen by about five metres over more than six thousand years, which would have had a profound effect on the islands and their surrounding waterscapes (Cooper and Boothroyd 2011, 396). Histories of many Caribbean islands present records of drowned and raised settlements (Donovan and Jackson 1994 in Wilson 2007, 26). Sea level changes therefore might have resulted in submerged cultural heritage; however, it may as well be a threat in the future to

heritage such as Lower Town at St. Eustatius (Hoogenboezem-Lanslots et al. 2010, 26).

2.4 KNOWN RESOURCES

BONAIRE

There have been several archaeological studies into the underwater cultural remains of Bonaire. Divers from the *Archaeological and Anthropological Institute of the Netherlands Antilles* (hereafter AAINA) (Curaçao) conducted three surveys along the western coast in 1987, 1998 and 2000 (Nagelkerken and Hayes 2008, 293-300). Members from the Maritime Archaeological and Historical Society (Washington D.C.) assisted the team. The surveys have led to the discovery and documenting of the historic anchorages of Kralendijk and Fort Orange. They also have found archaeological evidence of the wreck site for *ZM Sirene*. The ship concerns a 19th century Dutch brigantine, which has been identified on the basis of the location of ballast stones. Nagelkerken and Hayes also conducted underwater archaeological surveys at the harbour anchorage of Kralendijk in 2001 and 2002, in collaboration with the *Foundation for Marine Archaeology of the Netherlands Antilles* (hereafter STIMANA) (Haviser 2014a, 74). STIMANA, which was founded in 2002, was set up to continue maritime and underwater archaeological projects that had previously been conducted by AAINA (*ibidem*, 157). In 2003 and 2004, the same team of researchers conducted a survey and mapping of the *Witte Pan* wreck site (a ballast pile) close to Bonaire (Nagelkerken and Hayes 2008 in Haviser 2014a, 74).

Beside archaeological research, Marine Parks also provide information on UCH, such as the location within the park. According to the management plan of the Bonaire National Marine Park (hereafter BNMP), a few shipwrecks such as the 20th century *Hilma Hooker Wreck* (De Meyer and MacRae 2006a, 35) (figure 5), and the 19th century *Windjammer Wreck* (de Meyer and MacRae 2006b, 59), lie close to Bonaire. The management plan also mentions historical sites on or around Klein Bonaire, but without further details.

Another source of information are diving organisations, such as the Professional Association of Diving Instructors (hereafter PADI). PADI mentions for example cultural dive sites, such as *Sampler on Small Bonaire* and the *Town Pier at night* (padi.com). Also the Bonaire Official Tourism Site has an online map available that

shows many dive sites (86), although these include mainly natural sites (tourismbonaire.com).



Figure 5: The Hilma Hooker wreck site (Bonaire). The ship has been brought to sink in 1984 to create this artificial site (<http://www.tourismbonaire.com/bonaire-dive-sites/hilma-hooker>).

SABA

Not much is known about the UCH of Saba. According to Ryan Espersen, director of the Saba Archaeology Center (hereafter SABARC), there might be underwater archaeological remains that can be found. Divers sometimes mention that they have encountered a shipwreck or parts of it, such as a mast. For example, back in the 1970s someone encountered a mast while diving for conches in Fort Bay, Saba (personal communication with Ryan Espersen, 28 April 2015). Espersen also mentioned that “Big Mike” Atkinson, who used to own and operate Saba Deep (a scuba diving company) has found about 120-130 anchors around the island. Unfortunately, this information is not published.

Other information about UCH comes from the Hydrographic Service of the Royal Netherlands Navy (hereafter NLHS), which discovered a shipwreck during a survey in 2006 (Lundvall 2008, 27). In 2007, a survey crew explored the wreck and discovered that it possibly has been a cargo ship transporting cement (however, no dating or reference to an archaeological report is mentioned). The wreck is positioned on the Saba Bank and, according to the management plan of the Saba Bank; it has the potential to develop into a tourism dive site because of the concentration of sea life around this wreck.

ST. EUSTATIUS

Extensive underwater archaeological research has been conducted around St. Eustatius as well. Norman F. Barka wrote the report *Archaeology of St. Eustatius Netherlands Antilles*, in which he summarises the archaeological research that has been carried out on the island between 1981 and 1984 (Barka 1985). The report includes a list of surveyed sites, of which most are historical (*ibidem*, 57-63). Some are pre-historical and consist of middens with shells or ceramics, or both, or lithic scatter. The sites that are close to the coasts or on the shores consist only of the ruins of forts, wells, cisterns or artefact clusters (*ibidem*, 4, Figure 2). Barka mentions that Oranje Bay and Gallows Bay served as anchorages for larger vessels, whereas Oranje Bay had served as the main anchorage since the arrival of the Europeans (*ibidem*, 6). According to Barka, shipwrecks may be present and lost goods or goods that were dropped overboard certainly are present at the bottom of the sea. Also, ruins of warehouses extend into the surf in some areas, given the rise in sea level during the past centuries (*ibidem*, 7).

Kathryn E. Bequette wrote the master's thesis *An Archaeological Reconnaissance of the Anchorage, Seawalls and Shipwrecks within Oranje Bay, St. Eustatius, Netherlands Antilles* (1992), in which she documented the extent of the historic anchorage, located and identified submerged cultural material and mapped identified resources. Bequette writes about the archaeological research that has been conducted by students from the College of William and Mary under supervision of Stephen J. Gluckman in 1982 (University of South Florida), and from 1983-1985 under supervision of Wil Nagelkerken (Institute of Archaeology and Anthropology, Curaçao) (*ibidem*, 77-82). During the latter researches, artefacts were located and identified with the use of SCUBA equipment, two wreck sites were identified and submerged seawall structures were investigated. Another survey, conducted with a magnetometer, followed in 1986. Different magnetic anomalies near the shore were identified as pier timbers, pipes, modern machine engines and other ship-related artefacts (*ibidem*, 84) (figure 6). Even more fieldwork was carried out after that, whereby the former discovered surface material has been mapped and identified (*ibidem*, 87-90). This time, four more shipwreck sites were discovered. These appeared as artificial reefs due to the abundance of flora and fauna on the remains. Additional underwater research by means of mapping, measuring and photographing has been carried out in 1988 (*ibidem*, 93). The remains of the shipwrecks and reconnaissance surveys

confirmed that UCH associated with Sint-Eustatius' maritime heritage do survive in Oranje Bay. Bequette also pointed out that additional survey work could reveal more hull remains under the sand or locations of remaining hull structures (*ibidem*, 143).

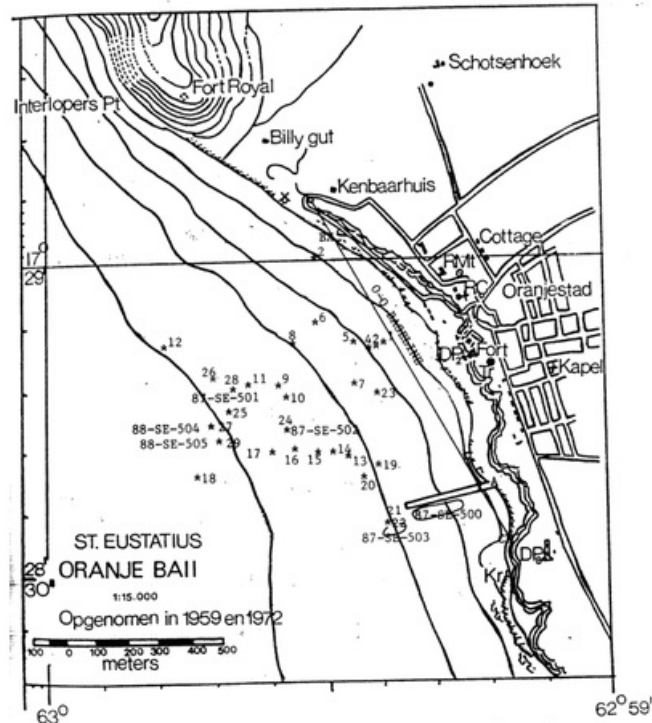


Figure 6: An overview of Oranje Bay (St. Eustatius), with the numbers as magnetic anomaly placements and codes of shipwreck sites. Presented in the master's thesis of Kathryn E. Bequette (1992, 13, Figure 3).

In 2010, Ruud Stelten described all cannon and anchors that have been discovered on and around St. Eustatius in his master's thesis *Relics of a Forgotten Colony, The Cannon and Anchors of St. Eustatius* (Stelten 2010). A total of 72 cannon have been found, of which thirteen underwater (*ibidem*, 55). Thirteen of the sixteen anchors that have been found were also situated underwater (*ibidem*, 69). Stelten, who works as archaeologist at the St. Eustatius Center for Archaeological Research (hereafter SECAR) expects more artefacts to be present on the island and in the water.

A blue bead is a famous souvenir on St. Eustatius (personal communication with Ruud Stelten, 29 April 2015). Divers can find them in the so-called "Blue Beads Hole". It is a popular activity to get them and it is therefore important for tourism. The beads are the only artefacts that tourists are allowed to take with them. Even restaurants are named after the beads, such as the *Blue Bead Bar & Restaurant*

(statiatourism.com). The legend tells that “one does not find a blue bead, the blue bead finds you” (scubaqua.com/inet). According to the dive centre Scubaqua, the Dutch East India Company has used the blue beads to conduct trade in the 17th century, and the ones that have been found on St. Eustatius were used as a currency for slaves. After the abolition of slavery, the slaves would have thrown the beads into the sea to celebrate their freedom. Another theory states that the beads are from a sunken ship (personal communication with Ruud Stelten, 29 April 2015).

The Marine Park that surrounds St. Eustatius also provides information on UCH. Popular dive sites of the park include (artificial) reef and wreck sites, among which the 20th century Charles Brown, Hangover, Double Wreck and an unnamed historical wreck site. Other dive sites are the historic Bay Front Ruins, Blue Bead hole, the artefacts at Crooks’ Castle and the underwater wall within Oranje Bay (MacRae and Esteban 2007, 68).

The official tourism site of St. Eustatius mentions underwater cultural sites at its webpage, such as tangled shipwrecks located at a depth of about 20 meters, which attract much wildlife (statiatourism.com/diving). The webpage further mentions the possibility of archaeological dives, by which one can find glass shards from old plates, wine bottles, blue beads or an old Dutch clay pipe.

2.5 UNKNOWN RESOURCES

Usually, one starts with value or predictive maps to research and protect archaeological remains. However, in the Caribbean Netherlands these maps do not include archaeology underwater (Appendix 2), which shows that this type of resources is unknown. However, the maps show lots of activities on the coastal areas and this is a reason to expect archaeology that extends over the water. The unknown resource stands for cultural remains that are undocumented and still remain *in situ*, or are destroyed by post-depositional processes (Manders 2012b, 4). Different methods are useful to shed light on the currently unknown archaeological resource. There are different models to predict this resource, but they are unfortunately not always accurate due to the degradation of a site. According to Manders and colleagues, there is a difference in the prediction of UCH related to navigation and UCH related to habitation (Manders et al. 2014, 9-10).¹ For example, to determine

¹ This has been described in the document *De gelaagde geschiedenis van de Westerlijke Waddenzee* (stratified history of the Western Wadden Sea) (2014), which is a document that has been set up by the

whether pre-historical sites are present one can use geological and (geo) morphological knowledge of the soil, but to determine whether navigational sites are present one also needs the knowledge about the use of the water and the adjacent shorelines.

Sea-level rising curves are important for the prediction of submerged sites, and also historical maps and soundings can be of use for the more recent periods (Manders *et al.* 2014, 9-10). As mentioned in paragraph 2.3, sea levels have risen about five meters, which suggests that habitational sites can be present underwater along the shores. Evidence of habitational sites could be shell middens (Wilson 2007, 89), coastal defensive structures or survivor camps (Leshikar-Denton and Luna Erreguerena 2008, 25). Furthermore, the tools that people have used to retrieve food from the sea are an indication of habitation (Newsom and Wing 2004, 26-34). The known resources discussed in paragraph 2.4 show, for example, that middens or coastal defensive structures are present in the Caribbean Netherlands.

Information about the use of water is presented in, for example, scientific papers about archaeological research or historical documentation. The earliest archaeological evidence of seafaring in the Caribbean has been found in the form of watercrafts, such as dugouts, and paddles (Callaghan 2001; Fitzpatrick 2013) (figure 7). There has not been found such archaeological evidence in the Caribbean Netherlands. One of the reasons could be the focus of archaeological surveys and excavations, of which the results mainly show underwater remains from historical periods (paragraph 2.4). Nowadays, research conducted in the Caribbean Netherlands and other Caribbean islands by scholars and students of the Leiden University is focused mainly on pre-colonial and early-colonial periods, as well as on the mobility of people and the exchange of goods and ideas from a pan-Caribbean perspective (Hofman and Haviser 2015, 31).

According to historical documentation there must be shipwrecks situated close to the Caribbean islands. Ships from the 17th and 18th centuries often capsized and sank close to the Dutch islands due to storms and tornados (De Jong 1870, 126-30; Marx 1987, 263-4). Such historical information has led before to the discovery of a shipwreck site (Nagelkerken and Hayes 2008, 298-300).

Cultural Heritage Agency of the Netherlands and serves as a handle for the municipalities that have to manage their underwater cultural heritage (Manders *et al.* 2014).



Figure 7: Fragments of a canoe (top), which have been found at the Los Buchillones site (Cuba). It is presented in a local museum. Photo made by Jago Cooper (Fitzpatrick 2013, 109-10, Fig. 2).

CONDITION OF RESOURCES

Prediction of the unknown underwater resource is partly dependent on the condition of the remains, which can change over time with respect to the post-depositional processes. The main threats to the preservation of UCH are physical-mechanical, biological, chemical and human threats (Manders 2012c, 6). Physical-mechanical threats are for example erosion or abrasion, caused by the movement of water. Besides the movement of water, fishery and anchoring can also cause erosion, although these are threats created by humans. According to Buchan, sedimentation and fishery are two of the three main impacts on the marine environment of Saba (Buchan 1998, 187), which means that it can also have impact on the cultural heritage. Biological threats are for example marine borers, fungi or bacteria. Frequently occurring threats to historical, wooden shipwrecks are the marine borers, and the currents when the wreck is exposed in the seawater column (Björdal 2011, 78). One of these borers, the shipworm (*Teredo navalis* L.), has affected many ships, especially in tropical and sub-tropic waters (Manders and de Bruyn 2011, 83). An example is the damage that was caused to the ships *Gallega* and *Vizcaína* from Christopher Columbus' fleet, which occurred near Panama during his fourth voyage at the

beginning of the 16th century. The third type of threat, mechanical processes, can affect the integrity of artefacts such as metal (Manders 2012c, 6). The archaeological environments in the Caribbean (which can be temperate, tropical, arid, marine or freshwater sites) can affect metal artefacts as they are exposed to aqueous corrosion (Fox 2014, 151).

Humans can also pose large threats to the underwater archaeological record. Newspapers, for example, publish news about salvaged shipwrecks that have been transporting valuable cargo (dailymail.co.uk). Also, videos on YouTube show how scuba divers dive at and record shipwrecks (youtube.com; see for example “Ghost Ship of Saba Banks, Caribbean”). These examples show that it has become easier to investigate or search through UCH for objects. In the 1990’s, Bequette wrote in her archaeological report about the occurrence of looting in Oranje Bay, St. Eustatius. It resulted in the loss of valuable artefacts and the destruction of the archaeological record (Bequette 1992, 3). Furthermore, local dive shop operators used to take scuba divers to popular locations within the harbour, which were called the “Glory Hole” or “The Supermarket Wreck” (*ibidem*, 5). In addition, diving magazines published information about excursions led by these dive operators. Beside salvaging or scuba diving, developments in infrastructure can also damage or destruct UCH, such as the placement of undersea cables. Furthermore, it has occurred that archaeological values were not assessed in advance of the expansion of the Zeehaven harbour at St. Eustatius (personal communication with Gerda de Bruijn, Rijkswaterstaat, 30 March 2015). As a result, the activities of the harbour expansion caused damage to the archaeological remains, as rock was dumped instead of sand for *in situ* protection.

It is important to bear these threats to UCH in mind, as it can result in (complete) destruction of both the known and unknown heritage. Mitigation of these threats is necessary to protect the heritage.

FUTURE RESOURCES

Future resources are those that are not yet part of the archaeological record, because of age, lack of interest or due to political choices (Manders 2012b, 12-3). For example, ships that sank recently are often not seen as heritage, even though they could be seen as UCH in the future. Also, the desire for coastal development for tourism can lead to a choice between the development of tourism and the preservation of the island’s cultural heritage. According to Wilson, this often results in the choice for tourism development (Wilson 2007, 170-1). According to Manders,

knowledge of this source will attribute to the safeguarding and mitigation of UCH. A future archaeological resource provides thereby a management tool that can help create awareness among archaeologists, policy makers and the general public.

2.6 CONCLUDING REMARKS

This chapter provides different examples of UCH in the Caribbean Netherlands, although the amount and kinds differ per island. Not much is known about the UCH of Saba in comparison with the nearby island St. Eustatius, or Bonaire. This could have to do with the fact that almost no underwater archaeological research has been conducted in the waters of Saba. The evidence of fishing, the use of watercrafts, and sea level rising in the Caribbean suggest that pre-colonial UCH can be found in the Caribbean Netherlands, beside the more recent or colonial remains such as shipwrecks and forts. Pre-colonial remains have yet to be encountered underwater. Reasons could be that this kind of heritage simply does not exist anymore; or that pre-colonial remains are hard to recognize or deteriorated; or that there has not been a focus on the pre-colonial period at all. However, the histories of the pre-colonial period suggest that people had to reach the islands by means of navigation on the water. The archaeological research and written sources that has been discussed focused mostly on historical remains, and not on the pre-historical or pre-colonial period. This has not changed since 2010. The archaeological research that is examined in this chapter, and the (dive) sites that are mentioned by the marine parks or diving operators, demonstrate that UCH at least exists in the Caribbean Netherlands in the form of wreck sites, ruins, anchors or just artefacts. More underwater archaeological research could reveal more UCH, and possibly also pre-colonial or pre-historical remains. Moreover, in the archaeological reports discussed above also has been mentioned that additional surveys could reveal more archaeological remains underwater. Therefore, additional surveys are recommended. In addition, people other than the authorities (such as divers) might have information on UCH as well. This information contributes to our knowledge of the archaeological record underwater. Also, there might be resources that we do not see as UCH at this moment, but they have the potential to become of interest. Therefore, it is important that underwater cultural remains are documented and safeguarded for the future. Furthermore, it has been demonstrated that UCH is in danger, because of sedimentation, fishery, looting, marine borers or underwater constructions such as

undersea cables. The fact that blue beads can be collected and that archaeological dives (to find artefacts) are organised results in a “grey area” of regulation concerned with archaeological remains and this can be confusing for divers and other stakeholders of UCH. People might decide to take other artefacts as well (chapter 4 discusses the regulation of marine parks and diving operators). It is not clear to what extent UCH is threatened in the present, because not much or no monitoring with regard to this kind of activity has taken place and no information is available on the consequences of actual threats. Monitoring is, however, necessary for a better understanding of the current threats and contributes to an effective mitigation.

3 LEGAL FRAMEWORK

3.1 INTRODUCTION

Legislation is necessary for protecting heritage on local, regional, national and international levels, as described in the introduction of this research. A legal framework is also the starting point for site management, as it defines the management process, encourages preservation and provides provision for punishing of, for example, looters (Green 2004, 370). This chapter will give insight into the legal framework of the Caribbean Netherlands. In the Netherlands, both the national government and municipalities share the responsibility of managing heritage. Within the legislation a solid basis has been formed so that heritage can be protected against threats such as looting and destruction. Such regulation became effective with the adoption of the *Monumentenwet 1988* (Monuments and Historic Buildings Act 1988) and the implementation of the *European Convention on the Protection of Archaeological Heritage* (Valletta, 1992) in 2007. It does not, however, automatically mean that the treaty is implemented in the Caribbean Netherlands. Laws of the former Netherlands Antilles partly remained in force after the 10th of October 2010, whereas some laws were replaced with newer island municipal laws. It would not have been possible to introduce all of the Dutch legislation in the Caribbean Netherlands, since it is mostly designed for the European situations (government.nl). The legislation that is concerned with the protection of UCH in the Caribbean Netherlands is the *Monumentenwet BES* (BES Monuments and Historic Buildings Act), the *Monumenteneilandsverordening* (Monuments Ordinance), and the *Wet maritiem beheer BES* (BES Maritime and Management Act). These laws will be further explained below, including the relevant international treaties.

3.2 INTERNATIONAL LAW (TREATIES)

THE VALLETTA CONVENTION (1992)

The *European Convention on the Protection of the Archaeological Heritage (revised)* (1992), also known as the Valletta Convention, Valletta Treaty, or in Dutch, *Verdrag van Malta*, provides useful guidelines for the protection of cultural heritage situated both on land and underwater. The main focus of this Convention is not only based on

how to treat archaeological objects and sites after they are discovered, but more importantly on how to manage the archaeological heritage in its entirety (Dromgoole 2013, 45-6). Each State Party has to undertake, for example, procedures to authorise and supervise archaeological activities; measures for physical protection of archaeological heritage (preferably *in situ*); procedures to take archaeological values into account in spatial planning; and measures whereby the costs of the accompanying archaeological activities will be covered by finances from the governmental or private sector, when large private or public development projects are undertaken. In the Netherlands, the Valletta Convention has been implemented as the *Wet op de archeologische monumentenzorg* (hereafter WAMZ) in 2007, which was an amendment to several laws, among which the *Monumentenwet 1988*. As per the 1st of July 2016, there will be a new Dutch law effective, called *Erfgoedwet* (Heritage Law). Several laws that are concerned with the protection and management of cultural heritage (such as the *Monumentenwet 1988*) will be bundled into the new law (cultureelerfgoed.nl/dossiers/erfgoedwet). This law, however, will not be implemented in the Caribbean Netherlands. The current laws are designed for the European part of the Netherlands and since there are differences in problematic nature between the European and Caribbean situation, the new laws will not be applicable.²

Before the transition in 2010, the islands of the Caribbean Netherlands were part of the Netherlands Antilles. The Netherlands had ratified the Valletta Convention for both the Netherlands and the Netherlands Antilles. The Netherlands Antilles, however, did not implement the treaty. In 2010, in a memorandum with reference to the parliamentary report, was stated that implementation of the principles of the Valletta Convention are of high interest because of the island's status change, the obligations as a result of ratification of the treaty, and the increasing construction activities on the islands³.

Since the treaty is not fully implemented in the Monuments and Historic Buildings Act or in the monuments ordinances of the islands, the National Archaeological Anthropological Memory Management (hereafter NAAM; established on Curaçao) was ordered by the Ministry of Education, Culture and Science (hereafter OCW) to gain insight into the situation and to research what must be done for further

² An explanation of this case can be found in: Kamerstukken II 2014/2015, 34 109, no. 7, 4; and in Kamerstukken II 2014/15, 34 109, no. 3, 9; and in the publication of the law in *Staatsblad* 2015, 511.

³ Kamerstukken II 2009/10, 32 047, nr. 7, 2.

implementation (Dijkshoorn *et al.* 2012). Research has been carried out with a working party and professionals, looking into existing legislation and policies concerned with the protection of archaeological heritage, and into archaeological work. Several critical points made by NAAM are discussed further in this thesis.

According to Claudia Kraan, who is Senior Archaeologist and Deputy Director of NAAM, Bonaire has specifically asked NAAM to look into the implementation on Bonaire (personal communication with Claudia Kraan, 27 May 2015). The request consisted of a project proposal, which helps setting up an archaeology policy document, the construction of a cultural heritage map and a database of archaeological sites in a Geographical Information System (hereafter GIS), and the amendments of local ordinances (National Archaeological Anthropological Memory Management 2012, 4). Maritime heritage sites will be included in the database (*ibidem*, 9). Furthermore, there will be several products for the protection of monuments on land and underwater, such as documents with designation criteria, buffer zones, a plan for monitoring, and a register of protected monuments (*ibidem*, 14-5).

THE ICOMOS CHARTER (1996)

The *Charter on the Protection and Management of Underwater Cultural Heritage* was ratified by the 11th General Assembly of ICOMOS in Sofia, Bulgaria (1996). This Charter comprehends a set of principles that eventually formed a basis for the Annex of the 2001 UNESCO Convention (see below) (Dromgoole 2013, 57). The Charter is “[...] intended to assist in bringing a high standard of archaeological expertise to bear on such threats to underwater cultural heritage in a prompt and efficient manner.” and “[...] to ensure that all investigations are explicit in their aims, methodology and anticipated results so that the intention of each project is transparent to all.” This Charter thus provides important international norms for the protection of UCH. Also, the legislation in the Caribbean Netherlands refers to these “international norms” (see 3.3 BES Monuments and Historic Buildings Act).

THE UNESCO CONVENTION (2001)

The *UNESCO Convention on the Protection of Underwater Cultural Heritage* (2001) is an international agreement that provides basic principles for the protection of UCH. It contains provisions for an international cooperation scheme and it provides practical guidelines for dealing with such heritage. The Convention states that being a State

Party of the Convention prevents the commercial exploitation and dispersion of UCH; it guarantees that UCH will be preserved for the future and *in situ*; it helps the tourism industries concerned; it enables capacity building and the exchange of knowledge; and, it enables effective international cooperation. The Netherlands has ratified five of the six UNESCO conventions concerned with the protection of cultural heritage, except for this 2001 Convention (unesco.nl/vertegenwoordiging.org). The Netherlands is, however, commissioned to the Annex of the Convention. The 36 Rules of the Annex have become a reference document in the field of underwater archaeology, setting out regulations for the responsible management of UCH (United Nations Educational Scientific and Cultural Organization n.d., 16).

The Advisory Committee on Issues of Public International Law (hereafter CAVV) published a report in 2011 about the possible conflict with the United Nations Convention on the Law of the Sea (hereafter UNCLOS) (Commissie van advies inzake volkenrechtelijke vraagstukken 2011). The CAVV concluded that ratification of the 2001 Convention does not result in a conflict. Furthermore, the National UNESCO Committee of the Netherlands provided a positive advice in which it stated that the Convention is the only adequate instrument for an effective worldwide protection of UCH (Nationale UNESCO Commissie 2011, 1-3). According to the Committee, both the Valletta Convention and UNCLOS do not offer sufficient protection of UCH, and it further points out that for effectual implementation awareness to the protection of UCH amongst divers, the public and officials is necessary.

Andrea Klomp, who is Senior Policy Adviser Maritime Heritage at the Rijksdienst voor het Cultureel Erfgoed (hereafter RCE), explained in an early phase of this research that a departmental project group was undertaking research into the financial and legal implications of signing the Convention, its pros and cons, and other related matters (personal communication with Andrea Klomp, 10 April 2015). The group consisted of policy advisors and legal experts from both the Cultural Heritage Agency and the Department for Arts and Heritage. As of the 19th of May 2016, the government decided to ratify this treaty (Bussemaker 2016).⁴ Since this news has only been announced recently, it could not be taken into consideration during this research.

⁴ More information about the ratification can be found at <https://www.unesco.nl/artikel/nederland-start-ratificatie-van-unesco-verdrag-ter-bescherming-van-erfgoed-onder-water>, accessed 14 June 2016.

3.3 BES MONUMENTS AND HISTORIC BUILDINGS ACT

The *Monumentenwet BES* (BES Monuments and Historic Buildings Act) (2010) is the Caribbean equivalent of the *Monumentenwet 1988* from the European part of the Netherlands. The law defines (protected) monuments, (protected) city and townscapes, monuments ordinances and archaeological heritage (the last one consistent with the Valletta Convention). It obliges the Island Councils of Bonaire, St. Eustatius and Saba to establish a monuments ordinance wherein legal provisions are included to preserve monuments, city and townscapes (Art 2). All public bodies of the Caribbean Netherlands have such a monuments ordinance (Paragraph 3.5). The Executive Councils can further designate protected monuments on the basis of this law, but it does not regulate the designation of archaeological sites or areas with the expectancy of archaeology (Dijkshoorn *et al.* 2012, 10). These kinds of designations are based on, for example, archaeological predictive maps (Paragraph 4.2). There are no underwater monuments designated for protection in the Caribbean Netherlands, unlike the mainland of the Netherlands. Some examples from the mainland are the Burgzand Noord area in the Wadden Sea, close to Texel, which contains at least thirteen shipwrecks (cultureelerfgoed.nl/nieuws); or the VAL shipwreck in the IJsselmeer, which dates to 1460 (lelystad.nl). The *Monumentenwet BES* further obliges a permit for activities concerned with monuments, such as moving, altering, restoring or utilizing (Art 5, §1). Also, it prescribes that maintenance and restoration of a protected monument has to occur according to “good management”, but an explanation as to how this is to be done, is absent (Art 6, §1). According to Dijkshoorn and colleagues, relevant legislation should provide a basis for policy with regard to monitoring and maintenance of legally protected monuments (Dijkshoorn *et al.* 2012, 38).

The *Monumentenwet BES* has been amended in 2011, to include regulation with regard to maritime archaeological heritage⁵. The amendment includes five new definitions, among which “maritime archaeological heritage”, “roadstead” and the definitions of the maritime zones (such as “territorial sea”). A new chapter with regulation concerned with the protection of maritime archaeological heritage was added. Article 9 got two new sections: the first obliges a maritime reporting point (*maritiem meldpunt*) (Art 9a) and the second obliges the protection of maritime heritage within the monuments ordinance (Art 9b). One of the conditions for the

⁵ *Staatsblad* 2011, 33, 240-3.

second section is that “international norms” are considered when an exemption is granted. At the time of writing this thesis, the islands do not have an official maritime report point. However, NAAM at Curaçao acts as such a body (Dijkshoorn et al. 2012, 20), while also supporting the development of this report point for Bonaire (National Archaeological Anthropological Memory Management 2012, 16). People will be able to report finds or illegal activities at this report point, however, there is already a telephone number in use (number 913) for reporting illegal maritime activities and to get in contact with the coast guard (Dijkshoorn et al. 2012, 42). According to Dijkshoorn and colleagues, there is no special attention to illegal activities such as divers who take artefacts from UCH sites (*ibidem*, 23, 26). They also raised the question if customs or security officers would be able to recognize archaeological artefacts. A prevention plan to stop the looting on all UCH sites, however, has been made in 1989 (Bequette 1992, 143). This plan encompassed amendments to relevant legislation, law enforcement at the harbour and airport, and an UCH inventory programme and efforts at public education made by archaeologists. It was presented to the island government, but at that time they did not show interest due to economic matters. It is not clear whether such a plan has been made again. In 2006, NAAM and SECAR made effort to prevent illegal transport of archaeological artefacts from the islands (Dijkshoorn et al. 2012, 23). This has been a successful attempt and the objects are now managed by SECAR (personal communication with Ruud Stelten, 31 May 2016).

3.4 BES MARITIME MANAGEMENT ACT

The *Wet maritiem beheer BES* (BES Maritime Management Act) is the second important national law with regard to the protection of UCH. It includes the following definition of “maritime archaeological heritage” as “All under water situated heritage, constructed at least fifty years ago, which is of public interest with regard to its beauty, scientific meaning, cultural historical value, or areas of public interest with regard to the in the area existing aforementioned cases.” (Art 1, §i). Important to point out here is “fifty years” as minimal age, which is neither consistent with the minimal age of UCH in the 2001 UNESCO Convention (a hundred years) nor with the definition of “monuments” in the WAMZ (no minimal age) or “archaeological

monument”, “archaeological find” or “cultural heritage” (no minimal age) in the *Erfgoedwet* of 2016.⁶

Article 20 and 21 of the *Wet maritiem beheer BES* are both important with respect to UCHM. Article 20 outlines that it is prohibited without or in contravention to a permit to obtain constructions, to anchor in or on the bottom of the Territorial waters or the Exclusive Economic Zone (Art 20, §1). With regard to applying for permits, *Rijkswaterstaat* is the acting institution that grants the permits and the *Rijksdienst voor het Cultureel Erfgoed* (“the Minister of OCW”) provides advice (see paragraph 4.2 for the role of both governmental institutions). The idea is, however, that eventually the public bodies will be authorised to conduct small tasks and to provide advice with regard to this law (personal communication with Janneke Bos and Eddy Erdtsieck, *Rijkswaterstaat*, 13 January 2016). Article 21 specifies that if the permit application is assessed, one must explicitly consider the effects of the anchoring and the utilization of the construction on the marine environment, nature, safety of navigation and maritime archaeological heritage (Art 21, §1-8). In case research is required for the assessment of a permit application, the costs of the research will be, Article 10 remaining in full force,⁷ for the applicant. This regulation is consistent with Article 6 of the Valletta Convention, or the so-called *verstoorder-betaalt-principe* (the disturber pays principle). A permit application can be denied if one or more interests, as termed in Article 21 lid 1, suffer due to the permit granting. Also, regulations and restrictions can be attached to the permit, in interest of navigation and the protection of the marine environment, the nature and the maritime archaeological heritage.

3.5 MONUMENTS ORDINANCES OF BONAIRE, ST. EUSTATIUS AND SABA

All three islands of the Caribbean Netherlands have a Monuments ordinance concerned with the care and protection of monuments. These are the *Monumentenverordening Bonaire* (2011), the *Monumenteneilandsverordening Saba 2010* and the *Monumenteneilandsverordening Sint Eustatius* (2010). The ordinances

⁶ *Wet op de archeologische monumentenzorg 2007; Staatsblad 2015, 511.*

⁷ Article 10 prescribes that the Minister of Transport, Public Works and Water Management (now: Minister of Infrastructure and the Environment) can declare compensation, indebted by the persons on whose behalf the manager or people in order of the manager conducted or extended operations. Compensations can be determined by the islands ordinance.

regulate that a Monuments Council has the task to give advice to the Executive Council and the Island Council, whether on request or by their own initiative, about the bylaws and other aspects regarding the monument's care (Monumentenverordening Bonaire 2011, Art 3; Monumenteneilandsverordening Saba 2010, Art 3; Monumenteneilandsverordening Sint Eustatius 2010, Art 3). The Monuments Council also provides advice when one wants to partially or totally destruct a protected monument without restoration (*ibidem*, Art 10; *ibidem*, Art 9; *ibidem*, Art 8). The ordinances further prescribe that the Executive Council grants the permit and can also attach conditions if necessary (*ibidem*, Art 10; *ibidem*, Art 10; *ibidem*, Art 9).

According to the research of NAAM, the Valletta Convention is not fully implemented in the bylaws of St. Eustatius and Saba (Dijkshoorn *et al.* 2012, 11-3). Bonaire has the Convention for the most part implemented, except for some elements, such as taking heritage into account in spatial planning. Furthermore, Bonaire has added a part to the ordinance in which it forbids (archaeological) excavations without a permit (Monumentenverordening Bonaire 2011, Art 9). The ordinances of St. Eustatius and Saba do not include such regulation. Furthermore, Articles 9 till 11 of the ordinance of refer to maritime heritage. Article 9 regulates the obligation of a permit to excavate, remove, move and damage or otherwise disturb (parts of) archaeological and maritime archaeological heritage in the soil, inland waterways or territorial sea (*ibidem*, Art 9, §4). "Maritime archaeological heritage" is therefore defined by the ordinance, and in addition to that the ordinance defines the national and international laws (treaties) discussed above (*ibidem*, Art 1). "Archaeological heritage" is defined by both the Monuments ordinances of Bonaire and Saba, but the Monuments ordinance of St. Eustatius does not define archaeological heritage at all (*ibidem*, Art 1, §j; Monumenteneilandsverordening Saba 2010, Art 1, §f).

3.6 CONCLUDING REMARKS

Both the Valletta and UNESCO Convention are important treaties for the protection of UCH in Europe or worldwide. The Valletta Convention has partly been implemented in the laws discussed above, however, Bonaire is implementing the Valletta Convention on a local level (in the bylaws) with support from NAAM. With a view on the monuments ordinances, both Saba and St. Eustatius neglect the

protection of UCH. Nevertheless, both BES laws regulate important aspects of the Valletta Convention, such as measures for protection (designation of protected monuments and mandatory reporting) or procedures to prevent illicit excavation or removal of elements of the archaeological heritage. Archaeologically relevant underwater sites should be designated as legally protected, such as in the European part of the Netherlands. Otherwise the site would still be vulnerable to, for example, destruction or looting. Before 2010, at least one attempt to prevent looting and one attempt to prevent illegal transport of artefacts have been made. The first attempt did not succeed, however, the second one did and the artefacts are still stored at the archaeological institution. Nevertheless, such plans should be enforced in practice, especially since different kinds of threats are becoming more present (see paragraph 2.5). A report point in the form of a webpage for each island, in addition to the coast guard number that can be called, shall provide easier access for reporting archaeological finds or illegal activities directed at UCH. In the latter case, however, the coast guard has to know how to respond to such activities or what to do with archaeological finds. Combined with the possibility to publish research, it will act as a platform for different matters related to the protection of UCH, and most importantly, the local community can participate in UCHM. However, it has to be clear to the community which, and why certain activities are illegal. Municipalities and other institutions have to play an active role in the education of the local communities, to create more awareness and increase their participation in UCHM.

Measures to ensure excavations that are carried out by qualified and authorised persons are not enforced by law, which should be the case with regard to the Valletta Convention. Furthermore, it is prescribed that maintenance and restoration of monuments have to occur according to “good management”, but this is not amplified. As long as there are no standards for archaeology or heritage management, these kinds of activities might be insufficient. Another important aspect of the Valletta Convention, the so-called “disturber pays principle”, is implemented in the BES maritime management act. This way, finances for archaeological research are ensured when development projects take place.

The amendment to the BES Monuments and Historic Buildings Act defines “maritime archaeological heritage”. However, not all UCH necessarily is “maritime” and that makes the definition disputable. The definition (of both BES laws) further considers maritime archaeological heritage to have a minimum age of 50 years. The value of archaeological heritage in the Netherlands is associated with its cultural

significance and not necessarily with age. The Caribbean Netherlands should not consider age as a value, because underwater cultural remains can be of great significance due to their beauty, scientific relevance, their history, or the cultural value (and not necessarily age). UCH that is younger than fifty years also has the potential to become significant.

The current ratified treaties do not provide sufficient regulation for protection of UCH. UNESCO considers it to be necessary that attention has to be given to raising awareness amongst all stakeholders of UCHM. Stakeholders need to be aware of the issues concerned with the protection of UCH in order to create a basis for public support. The next chapter will give more insight in the role of stakeholders in relation to the management of UCH.

4 STAKEHOLDERS OF UNDERWATER CULTURAL HERITAGE MANAGEMENT

4.1 INTRODUCTION

An important part of the management process is to identify interest groups, which are commonly referred to as stakeholders. Stakeholders are individuals or organisations who are directly or indirectly involved with UCHM. However, not every stakeholder of UCHM has the aim to preserve the heritage. The actions of stakeholders could damage or destruct UCH (as is shown in paragraph 2.3), but stakeholders can also contribute to the protection as soon as they become active partners in the management process. In order to become active partners one has to identify, involve, address, and to negotiate with the stakeholder (Manders 2012a, 13-5). At this point, it is crucial to create awareness amongst scholars, policy makers and the general public. Jeremy Green nicely described this as “changing attitudes”, which is one of the fundamentals of the management process (Green 2004, 369-70). A public desire (local, national and international) that UCH sites should be protected, or in other words public support, is needed to effect change. According to Green, if one is about to make a management plan, it should start with identifying the issues; thereupon identifying the resource; and third, identifying interest groups (Green 2004, 371-3). Of course more steps follow, but this chapter will discuss a number of important stakeholders who are involved in UCHM and how they contribute to the protection of UCH.

4.2 THE MUNICIPALITIES

Policy makers play an important role in the protection of UCH. Policy officers from municipalities are able to give cultural heritage a place in environmental planning (handreikingerfgoedenuimte.nl/gemeente-praktijk). There are several ways to accomplish this. In the *Handreiking Erfgoed en Ruimte* (assistance heritage and environment; provided by the Ministry of OCW) one can read about four themes in which several points of interest are explained. Here, a number of these points will be examined. According to the first theme, a municipality can map its cultural history by constructing an archaeological value or predictive map. These maps can be used to

support a policy plan or zoning plan. A municipality is obliged to have a zoning plan and to take heritage into account in the spatial planning. A zoning plan is one of the legal instruments that are discussed in the second theme. Other legal instruments are a structure plan or vision, an environmental impact assessment (hereafter EIA) and bylaws. The zoning plans shall be examined in this chapter, whereas the bylaws are already gone through in Chapter 3.4. Examples of an EIA are the reports made by Deltares (Slijkerman et al. 2011) or Royal Haskoning⁸ (Thornton and Hoencamp 2011), which were necessary for the Harbour extension and NuStar jetty construction on St. Eustatius. A structure plan encompasses spatial developments, which are used to found zoning plans and permits. One of the possibilities is to make such a structure plan about cultural heritage. Structure plans are also not discussed in this chapter, because no structure plans have been published for the Caribbean Netherlands (ruimtelijkeplannen.nl). In the European part of the Netherlands is it forced by the *Wet Ruimtelijke Ordening* (Spatial Planning Act) and *Besluit Ruimtelijke Ordening* (Spatial Planning Decree) to have at least one structure plan to outline spatial policy (handreikingenrfgoedenruimte.nl/structuurvisie). However, the *Wet VROM* does not oblige such thing. Public support and collaboration (third theme) are necessary as well to put cultural heritage in environmental planning. In this case, the municipality can distribute knowledge about heritage through different media or organise readings and meetings. The fourth theme is about finances, and it explains in which ways the development of heritage can be financed. Examples are: financial support by the state (such as subsidies and loans); financial support from the province or municipality (such as different grant schemes); or financial support from privates (such as funds or crowd funding). The ways in which municipalities can contribute to the protection of UCH, as shown above, are also examples of mitigation methods for UCHM. Below follows the examination of these methods in the Caribbean Netherlands.

ARCHAEOLOGICAL VALUE OR PREDICTIVE MAP

There are two archaeological value maps available on Saba and St. Eustatius (Appendix 2). These are made by ARGEOgraph and directed by the Leiden University, with support from the Saba Archaeological Center and the St. Eustatius Center for Archaeological Research (De Waal et al. 2013; De Waal et al. 2015). The maps show

⁸ Royal Haskoning is now called Royal HaskoningDHV, because of the fusion with DHV in 2012 (royalhaskoningdhv.com).

known archaeological values on land and thereby they indicate predictions of archaeological values. Underwater archaeological values are, however, not included on this version of the map. However, it can be assumed that values close to the shores once extended into the water. According to Stelten, an underwater archaeological value map for St. Eustatius is currently in progress (personal communication with Ruud Stelten, 29 April 2015). According to Kraan, they are also working on a maritime heritage map for Bonaire (personal communication with Claudia Kraan, 27 May 2015). At the moment, there is no archaeological value or predictive map for Bonaire, but NAAM is going to produce this culture historical value map with regard to the collaboration protocol between the Executive Council of Bonaire and NAAM (Dijkshoorn et al. 2012, 28).

SPATIAL PLANNING

The municipalities are obliged to include archaeology that is situated in the municipal water soils into their zoning plan (archeologiein nederland.nl/archeologie-het-bestemmingsplan). This is still an on-going process in the European part of the Netherlands, because only a percentage of municipalities have actually included maritime or underwater cultural heritage into their zoning plan (personal communication with Marie-Catherine Houkes, Maritime Programme, Cultural Heritage Agency of the Netherlands, 11 February 2016).⁹ The zoning plans in the Caribbean Netherlands however, are named differently: in the European part we speak of *bestemmingsplannen* (zoning plans) whereas in the in the Caribbean Netherlands they have *ruimtelijke ontwikkelingsplannen* (spatial development plans).

The most recent spatial development plan for Bonaire is the *Ruimtelijk Ontwikkelingsplan Bonaire* (hereafter ROB), established in 2010 (Dienst Ruimtelijke Ontwikkeling en Beheer 2010b). The ROB has designated areas with archaeological values. These areas have to be used for the preservation, restoration and extension of archaeological values (*ibidem*, 57, 214). Meaning that no other designations are to be allocated to these areas and that it is prohibited to build on the designated grounds. Furthermore, specific activities are not allowed without a permit, which the Executive Council can only grant if the archaeological values will not be affected. The ROB does not specifically refer to maritime or underwater archaeological heritage,

⁹ Additional information on heritage, water soils and spatial planning can be found in the brochure *Erfgoed, waterbodems en het bestemmingsplan* from the Rijksdienst voor het Cultureel Erfgoed (de Jongh-Lempke and Lascaris n.d.).

but the Bonaire Marine Park is included as a zone of the plan. The corresponding map further shows different areas of archaeological value, however, archaeological values for the water soils are not visible (Dienst Ruimtelijke Ontwikkeling en Beheer 2010a).

A *Strategic Development Plan* (hereafter SDP) has been made for St. Eustatius under authority of the municipality (Hoogenboezem-Lanslots et al. 2010). The SDP became definite on the 22nd of October 2010 and it is only a starting point for development, which contains mostly ideas. One relevant key focus of the SDP is to “Preserve existing qualities such as culture, nature, rich heritage and the authenticity of a Caribbean island.” (*ibidem*, 7). Several heritage sites are indicated on the corresponding map, but these are not situated in the water (*ibidem*, 16). Two sites are, however, close to the shore. Even though UCH is mentioned in the SDP, as divers can visit it, it is not clear whether this kind of heritage is part of the plan to be preserved (*ibidem*, 25 and 43).

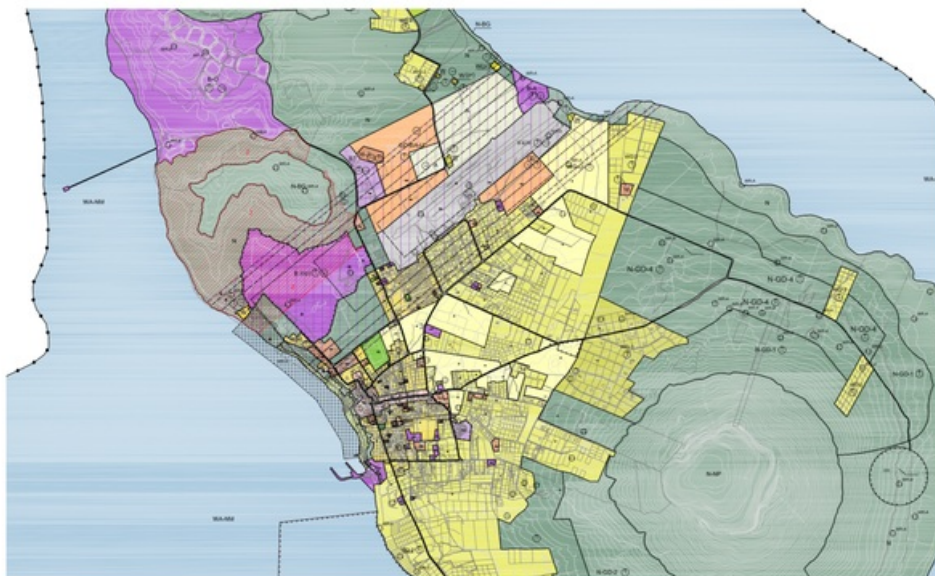


Figure 8: The zoning plan of St. Eustatius, whereby the zone of archaeological value around Lower Town extends over the sea (after RBOI Rotterdam 2011).

The *Ruimtelijk Ontwikkelingsplan Sint Eustatius* is closely associated with the content of the SDP (van der Velde et al. 2011, 4). This spatial plan has the double destination with archaeological value as well. This destination is mostly situated in areas such as the old plantations, fortification structures and foundations, and some are situated close to the shores (*ibidem*, 31). Interesting to point out is that there is

one zone that extends over the sea, namely the whole Lower Town zone (RBOI Rotterdam 2011) (figure 8).

Saba has no spatial development plan or something similar published, but advice has been given to make one, with regard to the implementation of the Valletta Convention (Hammersma 2013).

CULTURE OR ARCHAEOLOGY POLICIES

Bonaire has a culture policy document developed to guarantee the preservation of cultural activities, authentic traditions, and characteristics of the island and the native inhabitants (Dienst Educatie en Cultuur 2010).¹⁰ Within the policy a Cultural Action Plan has been established to achieve different objectives (*ibidem*, 45-69). Goals with different spearheads are included, such as the promotion of cultural collaboration by means of a protocol between the three Leeward Islands for cultural exchange. It will also stimulate the collaboration between local organisations and sister-organisations on other Caribbean islands (*idem* 39-40). According to the policy, there is no or limited mutual collaboration between different actors in the field. Examples of other goals are the advancement of education on culture; the improvement of the cultural documentation and registration; the promotion of culture via the media; the advancement of cultural tourism; and the improvement of cultural infrastructure. According to Dijkshoorn and colleagues, the culture policy is however not provided with an archaeological procedure to preserve heritage (Dijkshoorn *et al.* 2012, 26). The *Dienst Ruimtelijke Ontwikkeling en Beheer* (hereafter DROB), which also made the ROB, therefore uses the archaeology policy of Curaçao.

In 2012, the *Sint Eustatius Investment Guide* was made. This does not necessarily concern a culture or archaeology policy for St. Eustatius, but the guide points out that a legal and regulatory framework and policy guidelines will be established to encourage and facilitate the involvement of the private sector in realizing the objectives. Within the development of tourism policy, the government aims to ensure “[...] the integrity of the island’s tourism product and assets through the enactment of legislation to preserve nature and historical buildings, including the Historical Core Plan, Statia Marine Park, Botanical Garden, protection of fauna, flora and sites of historical importance” (St. Eustatius Government 2012, 12).

¹⁰ The context of the document follows the concept *Masterplan Strategische Ontwikkeling Bonaire 2010-2025* (Van Werven *et al.* 2009).

Saba does not have a culture or archaeology policy published. With regard to all three islands, a policy with selection criteria and motivations for protection could increase public support to the preservation of protected heritage (Dijkshoorn et al. 2012, 43).

COLLABORATION AND PUBLIC SUPPORT

Some forms of collaboration exist in the form of cooperation protocols between NAAM and the Executive Councils of each island of the Caribbean Netherlands (Dijkshoorn et al. 2012, 24-5, 31). However, the collaboration with Bonaire is more extensive, which is due to the local implementation of the Valletta Treaty (National Archaeological Anthropological Memory Management 2012) (see chapter 3.1 for more information on this topic). Other forms of collaboration exist between the archaeological organisations and other institutions, which will be explained in paragraph 4.3. With regard to public support, the government does not seem to create awareness amongst the public on a structural basis (Dijkshoorn et al. 2012, 23, 30). On the other hand, SECAR (St. Eustatius) does raise the awareness amongst the public by means of exhibitions and education via different media (*ibidem*, 23).

DISTRIBUTION OF KNOWLEDGE

The archaeological institutions and museums presumably distribute most of the knowledge. The local governments do not show whether or how they are involved, however, the islands do have museums with (archaeology) exhibitions (see paragraph 4.3 for archaeological institutions). Bonaire has several museums, such as SKAL, *Museum Boneiru* and *Museum Mangazina di Rei* (Rijkstdienst Caribisch Nederland, 68). The latter one is an open-air museum with replicas of historical houses and a botanical garden. It is possible to attend exhibitions and workshops here. Furthermore, there is a new archaeological and historical museum at the Terramar complex (terramarmuseum.com). The Terramar complex offers apartments, shops, and thus a museum as well. St. Eustatius has the Historical Foundation Museum. SECAR has organised an exhibition here before (personal communication with Ruud Stelten, 29 April 2015). SABARC on Saba provides a place for youth and community heritage programs and in addition it houses the Saba Heritage Center ([facebook.com/sabarchaeology](https://www.facebook.com/sabarchaeology)). Furthermore, the Saba Conservation Foundation (hereafter SCF), which manages the heritage within the Saba National Marine Park, has the aim to educate and raise awareness about the

importance of nature conservation (sabapark.org). The foundation does not mention whether the cultural heritage is part of these courses or not.

FINANCIAL SUPPORT

The Ministry of OCW and the National Restoration Fund provide financial support for protected monuments on Bonaire, Saba and St. Eustatius (Nationaal Restauratiefonds 2012). The owner of a monument can apply for financial support for (restoration) work on the monument if necessary, but there is no clarification on whether finances are provided to preserve a monument underwater. The Ministry of OCW, or more specifically the Maritime Programme (see paragraph 4.3), has funded the UNESCO Foundation Course that took place on St. Eustatius.

With regard to the archaeological institutions (see paragraph 4.3), financial support comes in the form of a salary for the directors of SABARC and SECAR (personal communication with Ryan Espersen, 28 April 2016; and Ruud Stelten, 29 April 2015). This kind of subsidy is not sufficient for archaeological projects. The Malta regulation should work for larger projects, however, this has not occurred on Saba yet. On the contrary, NuStar has funded the underwater archaeological research of the jetty at St. Eustatius (Stelten 2014, 1). Also one Malta project has taken place at Bonaire, but no information has been provided whether it concerned land or underwater archaeology (Dijkshoorn et al. 2012, 28-9). Funding for archaeological research on Bonaire came for a great part from NAAM in 2012, where it was part of the budget. The Leiden University, *Stichting Nationale Parken Bonaire* (hereafter STINAPA Bonaire) and the Bonaire Archaeological Institute (hereafter BONAI) also funded a project, with both money and manpower. Other funds have been obtained from the Pr. Bernhard Foundation and the *Mondriaanstichting* (Dijkshoorn et al. 2012, 49). These foundations also funded projects on Saba, whereas the first provided funds for SABARC equipment and the latter provided funds for the initiative to set up the Saba Heritage Center (personal communication with Ryan Espersen, 6 June 2016). At St. Eustatius, American students often fund the excavations in which they participate, and volunteers from SECAR pay a tuition fee (personal communication with Ruud Stelten, 29 April 2015).

4.3 GOVERNMENTAL INSTITUTIONS

RIJKSDIENST CARIBISCH NEDERLAND

The *Rijksdienst Caribisch Nederland* is the new name for the *Rijksoverheid* on the islands of the Caribbean Netherlands. The department Education, Culture and Science is the outpost of the Ministry of OCW in the Netherlands (*Rijksdienst Caribisch Nederland*, 33). Employees of the department OCW deal with “monuments”, but the guide does not explain the meaning of this task.

RIJKSDIENST VOOR HET CULTUREEL ERFGOED (CULTURAL HERITAGE AGENCY)

The *Rijksdienst voor het Cultureel Erfgoed* (Cultural Heritage Agency of the Netherlands) is part of the Ministry of OCW and plays a central role in the maritime archaeological monuments care (cultureelerfgoed.nl/dossiers). The Kingdom often owns or disturbs the maritime heritage, and it is thereby the only proper authority. The Maritime Programme (2010-2016) of the RCE is focused on research into shipwrecks, bridges, harbours, and maritime landscapes (maritiemprogramma.nl). The aim of the programme is to provide a solid base for knowledge, research, policy, education and collaboration with local authorities and stakeholders. It is further oriented towards the research of water soils with different methods and techniques (for example diving, ROV¹¹ and sonar). The RCE manages the maritime heritage that is of national and international interest. Interestingly, both the BNMP and Saba have been placed on the UNESCO Tentative List, and therefore they are of national, even international, interest (Ministerie van Infrastructuur en Milieu 2012, 55). However, the BNMP is nominated only because of natural values, and the nomination does not include any underwater cultural values. Saba is nominated as a mixed site, but it is not clear if any underwater cultural values are included. Municipalities and provinces are free to research and protect maritime sites of local or regional interest.

One of the projects of the Maritime Programme is *Managing Cultural Heritage Underwater* (hereafter MACHU) (Manders et al. 2008, 144). This was a project that involved seven countries and was sponsored by the Culture 2000 program of the European Union. The MACHU GIS is one of the four datasets that provides information concerning maritime or underwater archaeological remains. The other datasets are ARCHIS (RCE), Wreck Register (Hydrographical Service), and SonarReg

¹¹ A remotely operated vehicle that can be used for underwater research.

(Rijkswaterstaat) (Manders *et al.* 2014, 14). In addition there is a *Nationaal Contactnummer* (hereafter NCN) made for the three governmental agencies, by PERIPLUS, which combines the overlapping information from the latter three databases with a unique number (periplus.nl). The NCN, however, does not relate to Caribbean datasets. The RCE promotes the use of MACHU, but information on UCH in the Caribbean Netherlands has not yet been added to this database (machuproject.eu). Another project in which the Maritime Program collaborated is the international training provided by the UNESCO Foundation Course (Manders and Underwood 2012). The Foundation Course started in 2009, when UNESCO Bangkok initiated a regional capacity-building project to improve the management and protection of underwater cultural heritage in Asia and the Pacific. Three Foundation Courses (duration six weeks) and two Advanced Courses (duration ten days) took place over the following three years. With this experience, a further two Foundation Courses were organised in the Caribbean, on Jamaica and St. Eustatius (nl.magazine.maritiemprogramma.nl). The latter was held in collaboration with SECAR and the local Scubaqua dive centre. The aim of the course was to study the historical remains in a section of the Oranje Bay area, with a focus on the old pier (Louis *et al.* 2014). Whereas the participants focused on theory in the first two weeks, in the third week they conducted surveys and they made a management plan. The management plan and survey maps were finalized in the last week, and a series of story boards for a public exhibition were created.

CULTURE IN THE CARIBBEAN NETHERLANDS, A GUIDE

Cultuur in Caribisch Nederland, Een Handreiking (Culture in the Caribbean Netherlands, a Guide) concerns an internal document for the special municipalities, with which the Ministry of OCW supports the design of their tasks related to culture. The document is divided into five policy areas: cultural heritage, arts, cultural education, libraries, and media. Every policy area or subtopic (such as “archaeology”) has a short overview of policy and/or legislation, the parties involved and their responsibilities, and the actions that have to or could be undertaken in the following years. The guide further provides an insight into the institutions that can assist. At the moment of writing, only Bonaire had a Culture Guide established (personal communication with Flora van Regteren Altena, Ministry of Culture of the Netherlands, Arts and Heritage Department, 13 April 2015).

RIJKSWATERSTAAT

Rijkswaterstaat (the Directorate General of Public Works and Water Management) (hereafter RWS) is the manager of 25.000 kilometres Caribbean Sea since the 10th of October 2010 (Nieuwsbrief Integraal Beheer Noordzee 2011, 3). The tasks of RWS (department Sea and Delta) in the Caribbean Netherlands are mainly concerned with permit granting for constructions in sea, anchor prohibition and places, and material discharges into the sea (on the basis of *Wet maritiem beheer BES*); enforcement (on the basis of *Wet maritiem beheer BES* and permit conditions); and dealing with incidents. The permit applications are most applicable to the protection of UCH.

PERMIT APPLICATIONS

As nautical manager in the sea regions of the Caribbean Netherlands, RWS grants permits for scientific research, the possession of constructions, or anchoring in the territorial sea or the exclusive economic zone (hereafter EEZ) of Bonaire, St. Eustatius and Saba (*Wet maritiem beheer BES*, Art 20, lid 1 and Art 30, lid 1). The assessment of the application has to consider the effects of anchoring and utilization of the construction on the maritime archaeological heritage and has to occur in accordance with the Minister of OCW (*ibidem*, Art 21, lid 1-3). Therefore, RWS seeks advice at the RCE. Applications that were assessed in the past are, for example, the request to place an anchor or floating dock; the request to perform transshipments at piers or to own such a pier; the request to place cables underwater; or the request to place an intake point for seawater (personal communication with Gerda de Bruijn, 30 March 2015). According to Erdtsieck, who is Adviser Caribbean Netherlands and Liaison Enforcement at Rijkswaterstaat, Netherlands Coastguard, applications have not been withhold until now and advices from the RCE have not been negative with regard to articles 20 or 30 from the *Wet maritiem beheer BES* (personal communication with Eddy Erdtsieck, 20 May 2016). Advice from the RCE mostly includes the requirement to consider the prevention of damaging maritime archaeology. Advice also often includes that finds have to be reported and that archaeological values should be monitored when natural values are being monitored, especially when UCH is expected to be in the particular area. An example is the research by NuStar Terminals. NuStar has to monitor and assess their jetty in accordance with Article 26 of the permit and with regard to the advice from the Minister of OCW. Divers from

NuStar and SECAR investigated the seabed around several NuStar structures with a diving and a side scan sonar survey (Stelten 2014).

Scientific research that has been conducted underwater (for other purposes than archaeology) can provide valuable information about UCH. For example, research of the French Research Institute for Exploitation of the Sea in the EEZ of the Caribbean Netherlands encompassed seismologic investigations and high frequency multibeam surveys. The data that has been received with these measurements could be very useful for UCHM (personal communication with Gerda de Bruijn, 30 March 2015). Furthermore, the NLHS shares survey data with RWS. They conduct multibeam surveys in the deeper parts of the sea once every ten years and surveys with small ships in the surroundings of the islands on a regular basis (personal communication with Janneke Bos and Eddy Erdtsieck, 13 January 2016). The information that is retrieved by NLHS or RWS is shared by means of agreement, called *Nederlands Hydrografisch Instituut*. The RWS can take management measures based on this data.

4.4 ARCHAEOLOGICAL INSTITUTIONS

Each island of the Caribbean Netherlands has an archaeological institution. Below follows a description of each institute and its activities.

BONAI, the *Bonaire Archaeological Institute*, was established by Jay Haviser in 2003 (Haviser 2014b, 75). It has the aim to work with local people, who receive education and training in scientific methods for research into the culture and history of Bonaire. It has the aim to publish projects in media to promote the work and to create enthusiasm amongst the inhabitants. Artefacts can be examined, identified and stored at the institute. Bonaire is establishing a depot, but there is no formal manager yet (personal communication with Ruud Stelten, 29 April 2015). According to NAAM, finds are currently deposited at BONAI and at other locations (National Archaeological Anthropological Memory Management 2012, 10). It works as archaeological service for Bonaire, at least until the end of 2016 (personal communication with Claudia Kraan, 27 May 2015). NAAM further publishes articles in the newspapers of both the Leeward and Windward islands (Witteveen 2014, 249). It also has a webpage that contains information about cultural heritage, research, collections and education (naam.cw). In addition, a webpage for reporting finds or illegal activities (*maritiem meldpunt*) is going to provide the possibility to publish research on Bonaire. NAAM will manage this webpage (National Archaeological

Anthropological Memory Management 2012, 16). This webpage does not yet exist, but a report point does (paragraph 3.4). However, it is unclear whether Saba and St. Eustatius are getting a similar webpage for publications. Besides publishing research, NAAM also develops material for primary schools; it stages exhibits; produces digital maps; and provides advice with regard to legislation (Witteveen 2014, 249).

The reason why NAAM acts as archaeological service for Bonaire is because it established a collaboration protocol with the Executive Council in 2009. On the basis of this protocol, the Executive Council of Bonaire has requested NAAM to assist in the implementation of the Valletta Convention (Ananso and Kraan 2015, 94). Collaboration protocols also exist between NAAM and the Executive Councils of Saba and St. Eustatius (Dijkshoorn et al. 2012, 24, 31). Other collaborations took place between BONAI and STINAPA, the Leiden University (Faculty of Archaeology) and SKAL, in the Slagbaai-Gotomeer project in 2010. Students from the St. Maarten Archaeological Research Center (hereafter SIMARC) participated in this project as well (Haviser 2015, 195-6). The project encompassed fieldwork in the entire circumference of the Washington Slagbaai National Park, the Slagbaai and Gotomeer. The surveys that were conducted, however, did not extend into the bays.

SECAR, the St. Eustatius Center for Archaeological Research, was established in 1997 and got its first director, Richard Grant Gilmore III, in 2004 (Haviser and Gilmore III 2011, 138-9). SECAR mainly conducts archaeological research, with the help of students. It also aims to develop new methods and techniques to protect underwater and terrestrial cultural heritage, and to support local, regional and international organisations (Gilmore III 2014, 322-3). SECAR has a webpage on which it shares information about the institution and projects (secar.org). It further educates local inhabitants by means of different media (Dijkshoorn et al. 2012, 23). Also the St. Eustatius Historical Foundation (hereafter SEHF) has the aim to diffuse knowledge about the history and culture of St. Eustatius (*ibidem*, 17). Both SECAR and SABARC (see below) make use of an Excel database for finds and an Access database for archaeological sites (personal communication with Ruud Stelten, 29 April 2015). This database includes UCH. SECAR also makes use of a GIS database with elevation models, historical maps, satellite images, et cetera (*ibidem*). Archaeological finds are deposited in different places, among which the buildings of SECAR and NAAM (Dijkshoorn et al. 2012, 21).



Figure 9: (From the left to the right) Captain Pouchi Dozlyn, Ryan Espersen (SABARC), Ruud Stelten (SECAR) and Jay Haviser (SABARC-SIMARC) during the ocean bottom-mapping project in October 2015 (thedailyherald.sx).

SABARC, the *Saba Archaeological Center* has been established on Saba to preserve and promote the cultural heritage by means of archaeological research and outreach initiatives (facebook.com/sabarchaeology). Youth are involved in the archaeological research. The organization also conducts Malta-compliant small-scale archaeological mitigation projects when necessary. Like BONAI, SABARC does not have a webpage or it is difficult to locate. SABARC is, however, very active on its Facebook page (*ibidem*). According to Dijkshoorn and colleagues, there is no structural diffusing of knowledge on Saba (Dijkshoorn et al. 2012, 31). It is, however, possible to visit excavations (personal communication with Ryan Espersen, 28 April 2015). Information from excavations and surveys, such as sites and finds, is stored in an Access and Excel database. Saba also has a GIS archive in which the public can access several maps (sabagis.org). The maps show the island, but moorings, dive sites and marine park boundaries are also visible. The main building of SABARC, the Saba Heritage Center, houses the lab, artefact storage space, office, and a display area with display cases and themed posters (personal communication with Ryan Espersen, 6 June 2015). Material and documentation is further deposited at the Leiden University (Faculty of Archaeology) in the Netherlands and at the building of NAAM (Dijkshoorn et al. 2012, 31). With regard to research material, both SABARC and SECAR make use of equipment for underwater archaeological research. SABARC further makes use of a Differential Global Positioning System (hereafter DGPS) for this kind

of research and SECAR has a sonar device for side scan. BONAI and NAAM make use of a GPS (GeoXH Explorer) with ArcGISArcPad, and other instruments are hired if necessary (personal communication with Claudia Kraan, 4 May 2016). In October 2015, an ocean bottom-mapping project took place, whereby SABARC, SECAR and SIMARC collaborated (thedailyherald.sx) (figure 9). The side scan sonar system was used for this project, and the SCF supported the project with a boat. The project is part of an on-going UCHM plan between the three organisations.

QUALITY STANDARDS DUTCH ARCHAEOLOGY

The archaeological record has to be approached carefully and therefore one has to comply with a set of rules (archeologiein nederland.nl/regels-en-beleid). In the Netherlands, these rules can be found in the cycle of the Archaeological Monuments Care (AMZ-cyclus). The AMZ-cycle consists of several phases that are concerned with to find, value and safeguard archaeological remains. It is important to be aware of the difference in phases between water soils and land soils (Appendix 3). The realisation of the phases has to occur in conformity with the specifications of the *Kwaliteitsnorm Nederlandse Archeologie* (hereafter KNA; Quality Standards Dutch Archaeology), in which corresponding protocols and guidelines can be found (sikb.nl/protocollen). These guiding principles and protocols were brought into existence after the ratification of the 1992 Valletta Convention. The protocols are supported with a *Programma van Eisen* (hereafter PvE), a specialist research and a depot management.

On Bonaire, one of the conditions for a permit application for archaeological project on land (at DROB) is that a PvE is made (Dijkshoorn et al. 2012, 26-7). Also, a Bonaire-specific KNA will be a product from the implementation of the Valletta Convention, just like a *Nationale Onderzoeksagenda Archeologie* (hereafter NOaA; National Research Agenda Archaeology) (National Archaeological Anthropological Memory Management 2012, 12-3). SECAR does not have a published research agenda, but they focus on themes, such as underwater archaeology, prehistoric sites and archaeology, and slavery (personal communication with Ruud Stelten, 31 May 2016). According to Dijkshoorn and colleagues, archaeological quality procedures are not established in a policy and there is no supervision from the local authorities (Dijkshoorn et al. 2012, 20). However, the archaeological institutions endeavour working in accordance with the Dutch KNA (personal communication with Ruud Stelten, 29 April 2015; and Ryan Espersen, 28 April 2015).

4.5 MARINE PARKS

All three special municipalities are surrounded by a Marine Park (Appendix 4). Bonaire has the Bonaire National Marine Park and the Washington Slagbaai National Park. Both parks have the STINAPA Bonaire as manager (stinapa.org). Most of the 28,000 tourists that visit the park every year are active in diving or snorkelling (De Meyer and MacRae 2006a, 38). The mission of the BNMP is “To conserve and manage the natural, cultural and historical resources, allowing their sustainable use for the benefit of current and future generations.” (*ibidem*, 90). One of the recommendations provided in the management plan is the construction of a zoning plan that includes cultural features as well (*ibidem*, 104-5). A second recommendation is the establishment of a GIS system, with the involvement of people who make decisions on which resources are significant, especially in relation to historical and cultural resources.

Saba has the Saba National Marine Park, which is administered by the Saba Conservation Foundation (sabapark.org). According to their *Semiannual Report 2011*, the SCF has the wish to create an artificial reef or wreck (Saba Conservation Foundation 2011, 7). This could improve marine biodiversity, but would also provide a new attraction, which is good for the eco-tourism in general. Also the shipwreck that was discovered by the NLHS in 2006 has this potential. The park furthermore attempts to protect the marine environment around Saba through monitoring, education for users and local inhabitants, enforcement of rules and legislation and scientific research (Schultz *et al.* 1999, 13). In addition, there is a small visitor centre to provide visitors with information about the park.

St. Eustatius has the St. Eustatius National Marine Park, with two reserves that are managed by St. Eustatius National Parks (hereafter STENAPA) (statiapark.org). According to the STENAPA Management Plan, the main reasons for tourists to visit the park is for diving and the natural environment (MacRae and Esteban 2007, 57). The numbers of divers has been increased from almost 700 divers in 2002 to more than 2200 divers in 2008, but it decreased to less than thousand in 2011 and 2012 (STENAPA 2012).

RULES CONCERNED WITH UCH

The BNMP has rules and guidelines provided on information boards and in relevant brochures (De Meyer and MacRae 2006b, 64-5). The photo of the information panel shows a rule concerned with collecting of conches, which is not allowed, but it does not mention the collecting of artefacts (figure 10). However, in the brochures and on posters around the island the following rule is included: “It is forbidden to remove anything alive or dead from the Bonaire National Marine Park.” In this case it is clear that artefact collecting is forbidden. Also anchoring is forbidden, since it damages the reef (*ibidem*, 86).



Figure 10: Information panel in the Bonaire National Marine Park (De Meyer and MacRae 2006b, 64).

The Saba Marine Park established a number of rules and regulations to protect the reefs (Schultz et al. 1999, 12-3). For example, anchoring is only allowed in specific areas with a sandy bottom. Anchoring also occurs on the Saba Bank, however, it is not clear whether this is a threat to UCH (personal communication with Ryan Espersen, 28 April 2015). Fishing, touching, collecting and littering are also forbidden in the reserve (which suggests that collecting cultural artefacts is not allowed). Furthermore, there are different zones in the park based on types of activities, such as fishing and diving. About one-third of the park is available for diving.

The management plan of the St. Eustatius National Marine Park also includes guidelines for diving and snorkelling (MacRae and Esteban 2007, 83-4). One specific rule that is concerned with the protection of UCH is: "Leave historical artefacts undisturbed to allow future divers to enjoy them." There are also rules for anchoring if the appropriate moorings are not available, although these do not specifically refer to the possibility of UCH. There is, however, a concern about the artefacts such as blue beads that are collected by locals and visitors (mainly divers) (*ibidem*, 95 and 108). With regard to the Marine Park Management Activities, staff and volunteers were trained on how to recognise cultural sites and artefacts (*ibidem*, 97).

4.6 DIVING OPERATORS

The islands of the Caribbean Netherlands are very attractive for tourists because of their many possibilities to dive. They are also most likely the ones who can reach UCH to watch, touch it or even take something from it. As mentioned above, the parks already have regulation concerned with these activities. However, the dive operators are important stakeholders of UCHM as well.

There are many diving schools at Bonaire, according to the Beautiful Bonaire Divers Paradise website (beautiful-bonaire.nl). All diving takes place in the BNMP and therefore everybody has to comply with the park's rules. Several webpages of diving operators mention that the rules of the park will be explained when diving gear has been bought or when one goes diving (oceanbluebonaire.com; bontravel.com). The webpages do not specifically mention rules of the particular diving organisation.

A few diving operators are established on Saba and there are about thirty known dive sites (beautiful-saba.nl). Also dive operators mention the rules of the Marine Park, but there are no other particular rules shown on the webpages of these dive operators (sabadeep.com; sabadivers.com). The Saba Tourist Bureau, however, does mention rules on their website (sabatourism.com). For example: "Don't touch the coral, harass the wildlife or remove anything from the Marine Park".

St. Eustatius has a number of diving operators, but like Saba not as many as Bonaire. The Scubaqua FAQ mentions that only blue beads artefacts can be taken from the seabed (scubaqua.com/nl). Another diving operator even refers to the law that forbids historical artefacts or marine life to be removed from the waters (goldenrockdive.com).

4.7 CONCLUDING REMARKS

The municipalities are able to pay a great contribution to the protection of UCH by giving it a place in environmental planning. A number of ways to accomplish this have been discussed. The mandatory value maps that form a basis for cultural heritage in environmental planning are published for Saba and St. Eustatius, but for the most part they show no UCH sites or areas with an expectation of UCH, except the Lower Town area on St. Eustatius that extends over the sea. On the other hand, steps towards making underwater heritage or value maps have been made by archaeological institutions. In the future, these maps can be used to protect heritage from, for example, infrastructural developments. It should be clear why the municipality wants to protect archaeology, thus it is highly recommended to support the environmental planning with a structure plan or (at least) an extended explanation of a spatial development plan. A spatial development plan and culture or archaeology policy for Saba has not been published, which suggests that the protection of cultural heritage in environmental planning is not ensured this way. The archaeological values that are visible in the coastal areas of the archaeological predictive maps indicate that activities most likely occurred on the shores and could have extended over the sea. Therefore (and also with a risen sea level in mind), archaeological remains can be present underwater, close to these areas of archaeological value. The culture policy of Bonaire appears comparable to a structure plan or archaeology policy because of the presented goals and spearheads to protect heritage. It sets an example for the other two islands, although, this kind of management tool does not provide legal provisions. Therefore, relevant legislation has to be amended as discussed in chapter 3.

It is hard to say how much collaboration takes place between the municipalities and other organisations in the field of heritage protection, with the exception of the protocols that have been set up with NAAM. Unfortunately, the information provided does not show to which extent the protocols contribute to effective UCHM. It is clear, however, how such a protocol contributes to the implementation of the Valletta Convention on Bonaire (and which is also necessary to protect the heritage). NAAM is most likely able to provide legal support and other kinds of advice or recommendations, for Saba and St. Eustatius as well. The archaeological institutions collaborate with other organisations or with each other as well. This way, they

accomplished to do underwater research, which is a promising method for future research. Public support is a very influential aspect of UCHM, for which stakeholders should become active partners. Distribution of knowledge is one way to achieve this, but it seems that only archaeological institutions or historical foundations accomplish this.

Both SABARC and SECAR have contributed to UCHM by extending archaeological research to the sea. Noteworthy is that they have equipment that can be used to conduct underwater research. However, space for documentation, material and archaeological remains is a point of interest, because on Bonaire and St. Eustatius finds are deposited in multiple places, and publications of archaeological research or information that is collected by divers are not easy to be found, if not at all. A central depot and archive is desirable, because this is more practical for those who want to research artefacts or documentation. Digital documentation of academic research should be accessible at, for example: the report point (webpage) that is being developed; at webpages of archaeological institutions, such as the one from SECAR; or in an online regional and/or national database. Interesting is the Bonaire-specific KNA that is being developed. Saba and St. Eustatius should get such an island-specific KNA as well, or if applicable, the same one as Bonaire. In addition, PVE's should be compulsory for archaeological projects, as already applies to Bonaire. When the three islands work according to the same quality standards, it will make the archaeological work more consistent and regulated.

The Marine Parks have established regulations that prohibit the collecting of artefacts, but there is no information on whether or how these rules are enforced. The St. Eustatius National Marine Park has organised staff training to recognise artefacts, but the training did not provide information on how to document or preserve such material after being taken out of context. Trainings such as provided by the UNESCO Foundation Course set an example of collaboration between a governmental agency, an archaeological institution and local divers. In addition, the UNESCO Foundation Course has been carried out under the 2001 UNESCO Convention guidelines, which is a good starting point for management activities on site level. This is an excellent step towards the implementation of the Convention and both the Convention and trainings are important elements of UCHM. Moreover, the accompanying management plan is an example of a mitigation tool and the storyboards contribute to the distribution of knowledge. Another point to mention with regard to the marine parks is the creation of dive sites within the parks. On Saba,

for instance, they have the aim to develop an artificial reef or wreck. Wreck sites could turn into potential dive sites, which will also raise awareness for the protection of UCH. However, as soon as UCH becomes of interest for tourists, more attention is needed for the management of these sites, because other threats, such as looting (which might increase if a site becomes popular) have to be mitigated. Therefore, enforcement of legislation is imperative.

Finances are a complicated element of UCHM. In the past, projects have been sponsored, universities and volunteers (such as students) have contributed, and the first few Malta-projects have taken place. However, this is not sufficient for a proper management of UCH. There is no structural budget for archaeological research or other elements of UCHM. Management would improve if the municipalities and government provide finances. This could be a task for the RCN, since it informs the public that monuments – thus underwater monuments should be included as well – are a responsibility of the job. However, the RCN does not provide information on how these activities are organised and how finances are distributed. It is of concern that a budget is set aside for management of monuments underwater.

The Maritime Programme (RCE) has contributed to the development of the international MACHU GIS database, but so far the municipalities or archaeological institutions have not made use of it. An UCH database is a very important tool voor UCHM, since it provides essential information for the manager. The use of a national (or international) database is preferable for management on national level, but the islands should at least make use of a convenient regional database.

5 DISCUSSION

5.1 THE UNDERWATER CULTURAL RESOURCE

Bonaire has several UCH sites, of which mainly wreck sites (18th century and later) and historic anchorages. There has been spoken about possible shipwrecks and more than a hundred anchors on or in the water surrounding Saba, which have been encountered by divers. At least one shipwreck has been discovered on the Saba Bank. The following archaeological remains or areas have been discovered in the waters of St. Eustatius: shipwreck sites; historic anchorages; artefacts (among which the popular blue beads); and canon and anchors. The difference is that the knowledge of these remains on Bonaire and St. Eustatius is derived from both underwater archaeological research and the diving organisations or marine parks. The heritage of Saba is for the most part undocumented and unpublished and therefore, unknown. Different reasons exist why no archaeological research has taken place around Saba. On the contrary, the results of the seafloor-mapping project that was organised by archaeologists from SABARC, SECAR and SIMARC are not yet published and might give more insight in the situation of Saba. On all three islands, however, no pre-historical or pre-colonial remains have been found underwater, but it cannot be said what the exact reason is.

In contrast with Bonaire and Saba, collecting artefacts (in particular blue beads) is allowed on St. Eustatius. It is not shown which threats actually occur in the waters of all three islands, except that it is plausible that such threats exist. Regular monitoring should shed light on the occurrence of these threats, however, it cannot be said that monitoring as enforcement of protective legislation actually takes place.

5.2 LEGAL FRAMEWORK

The Caribbean Netherlands has not yet fully implemented the principles of the Valletta treaty, even though the islands should have done it before 2010, at the time they were part of the Netherlands Antilles. Interestingly, the former Maritime Management Act, in Dutch *Landsverordening maritiem beheer* (effective until 2010), had the same regulation with regard to maritime heritage as the *Wet maritiem beheer*

BES.¹² Articles 20 and 21 of both laws are similar. The former law also included regulation (articles 32 and 33) that is similar to the regulation of Article 9a and 9b of the *Monumentenwet BES*. This shows that this particular regulation has not changed since the transition in 2010. There is, however, a difference between the Monuments Act of the Caribbean Netherlands and the European part of the Netherlands. This difference is the minimal age for archaeological heritage: the Caribbean Netherlands still applies a minimal age of fifty years, whereas the European part of the Netherlands has no minimal age for monuments (or heritage). Why would the Caribbean Netherlands keep this minimal age for heritage? Furthermore, the *Monumentenwet BES* does not regulate the designation of areas with (the expectation of) archaeological value, in contrary to the European part of the Netherlands.¹³ Also, there are no underwater-protected monuments in contrast to the European part of the Netherlands.

All three islands of the Caribbean Netherlands have a monuments ordinance, which regulates the task of the Monuments Council to provide advice about bylaws or restoration of monuments, and of the Executive Council to grant permits. Saba and St. Eustatius have not fully implemented the Valletta Convention in its local bylaws, whereas Bonaire has implemented it for the most part. The bylaws of Bonaire oblige a permit for (archaeological) excavations, and in particular they refer to “maritime archaeological heritage”, national and international laws. However, all three islands do not have measures in their bylaws to ensure quality procedures for excavations.

A maritime report point (*maritiem meldpunt*; as is obliged by the *Wet maritiem beheer BES*) is not yet established on the three islands. However, archaeological finds and illegal activities directed at UCH can be reported at NAAM on Curaçao. NAAM is also working on such a report point (in the form of a webpage) for Bonaire, but there is no information on whether the other two islands are developing a report point.

5.3 STAKEHOLDERS OF UNDERWATER CULTURAL HERITAGE MANAGEMENT

Compared to how it has been arranged in the European part of the Netherlands, several tools that can be used to place cultural heritage in environmental planning,

¹² Kamerstukken II 2010/2011, 32 419, 26-7.

¹³ *Wet op de archeologische monumentenzorg 2007*, Artikel 44, Lid 1.

are absent. For example, the mandatory value or predictive maps that are part of this process are published for both Saba and St. Eustatius, in contrast with Bonaire. However, the maps do not (yet) show UCH sites or underwater areas of archaeological value. So far is known that archaeologists currently are working on maritime or underwater heritage maps for Bonaire as well as St. Eustatius. Another tool that can support the environmental planning is a structure plan, which has not been developed for the three islands. This is highly recommended, as is an extended explanation to the spatial development plans, in which the municipality amplifies on how to protect archaeological remains. Spatial development plans have been published for both Bonaire and St. Eustatius, including destinations of archaeological value. Saba does not protect its cultural heritage by means of environmental planning. Bonaire further has an archaeology policy, with many spear points and goals to achieve. This kind of management tool is absent for both Saba and St. Eustatius. It is recommended that Saba constructs (and publishes) a spatial development plan, and also that Saba and St. Eustatius set up an archaeology or culture policy.

Whereas collaboration between the three municipalities might be desired, it would probably be advantageous to focus on other, nearby islands as well. For example, Bonaire and Curaçao have set up an advanced collaboration, which Saba, St. Eustatius and St. Maarten could do as well. The distance between the islands signifies that different approaches might be needed, and therefore collaboration with nearby islands appeals. Archaeologists from SECAR, SABARC and SIMARC have already set an example with collaboration in UCHM, by means of underwater archaeological research. The municipalities can support each other in the field of legislation, for example, with mitigating the dangers to their UCH by setting up a culture or archaeology policy.

Public support can be achieved by means of diffusing knowledge, which is the aim of all three archaeological institutions. With regard to the museums, however, it is not clear whether exhibitions about UCH have been organised. All three municipalities should organise exhibitions, readings or workshops concerned with UCHM, since these are excellent ways to distribute knowledge, raise awareness and to involve stakeholders. It appears that the municipalities do not actively approach stakeholders, which results in minimal contribution.

A point for improvement is that (archaeological) reports should be accessible. There is, however, a “report point” in development, at least for Bonaire, and

publications shall possibly be made available on this webpage. However, if three “report points” or webpages function as an online space for publications, then still it can be unpractical as it is spread over several locations instead of one central database. At the moment, information from archaeological excavations is only accessible on the webpage of SECAR or NAAM and in dissertations or books, and not in a database such as the *e-depot Nederlandse Archeologie* (EDNA) from Data Archiving and Networked Services (DANS) (dans.knaw.nl). It is recommended that also archaeologists from the Caribbean Netherlands publish their reports in this this database.

Diving in the Caribbean Netherlands occurs in the marine parks that surround the islands. These marine parks have regulation that at least prohibits collecting (of artefacts). However, the regulation can be confusing for divers, because on St. Eustatius it is allowed to collect blue beads or other artefacts during archaeological dives. It is recommended that the park rangers have knowledge about which activities directed at UCH are allowed and which not.

5.4 UCHM IN THE CARIBBEAN NETHERLANDS

The study of UCHM in the Caribbean Netherlands has resulted in an overview of the known and unknown cultural resources, a legal framework, and an overview of several of the most important stakeholders.

As discussed above, the legal framework shows that the protection of UCH is not completely ensured, but a start has been made and several principles of the Valletta Convention are implemented in the BES laws. This research, however, did not discuss the enforcement of the laws, whereas this is an important aspect of UCHM. It does not show, for example, how often looting has occurred and how this has been handled. Another interesting point within the framework is the *Monumentenwet BES*, which obliges that maintenance and restoration of monuments have to occur according to “good management”. Here, the government is not clear about how to manage properly, and it is recommended to amplify this in a legal instrument and policy. Another term that can be confusing in relation to UCH is the definition of “maritime archaeological heritage” in the *Wet maritiem beheer BES* and bylaws of Bonaire, because archaeological remains of habitation might not be interpret as maritime, even though they could be situated underwater. A definition should

encompass all remains, such as “underwater cultural heritage” or just “cultural heritage”.

A second shortcoming of this research is that not all stakeholders are approached, which subsequently did not result in a complete description of the use of the area (which is part of the first main component of UCHM). A visit to the islands would have been necessary to talk with local people, such as local officials, divers, fishermen, or even people who are not stakeholders of UCHM (but can become one in the future). Unfortunately, it was beyond the scope of this research to approach more stakeholders.

6 CONCLUSIONS

UCHM is a branch that combines underwater archaeology and resource management in a very broad sense. It encompasses many components, such as structuring processes ranging from management on a site level to management on an international level, selection, and mitigation. The main goal of UCHM is to protect the underwater cultural resource, by means of a solid legal basis and identifying and involving stakeholders. With regard to the structuring processes, one has to know about the island history, environment, underwater resources, and the use of the area, legislation, and stakeholders. Selection of UCH sites is dependent on different factors, however, it can be concluded that no selection takes place at the moment. Furthermore, this research has discussed different tools that can be used to mitigate the dangers to UCH, such as protective legislation, policy, heritage in environmental planning, and quality standards for archaeology.

The UCH that has been found in the Caribbean Netherlands consists mainly of shipwrecks and shipwreck remains, ruins of warehouses, historic anchorages, cannon and anchors, blue beads and other artefacts. From the underwater archaeological research that has been conducted cannot be deduced that it was focused on pre-colonial or pre-historical remains. More remains of the navigational past are, however expected to be in the Caribbean Netherlands. There are also reasons to believe that pre-colonial remains, such as watercrafts or submerged habitational sites, still remain here because of the island histories, the underwater remains elsewhere in the Caribbean and the risen sea levels. However, additional geological and (geo) morphological knowledge of the soil is needed to predict the resource. Also, it can be stated that many underwater cultural resources are not documented and published, and therefore unknown.

The protection of UCH is partly ensured by means of legislation. Different aspects of the Valletta Convention (1992) have been implemented in the *Monumentenwet BES*, *Wet maritiem beheer BES* and the bylaws of Bonaire. Both Saba and St. Eustatius have to amend their bylaws to implement the principles of the treaty on a local level. The BES legislation obliges permit applications for constructions or anchoring in the marine environment, and it also regulates that underwater archaeological research is financed, if necessary. Protected monuments can be designated, yet there are no protected monuments underwater. Areas with archaeological values or the

expectance of archaeological values cannot be designated by means of legislation. Furthermore, the mandatory “maritime report points” are not yet established on the islands and measures to ensure that qualified and authorised persons carry out excavations are not enforced by law.

The municipalities contribute to the protection of UCHM by means of placing cultural heritage in environmental planning. Examples are archaeological predictive maps, however, UCH has not yet been included on these maps. Both Bonaire and St. Eustatius have spatial development plans that include designations of archaeological value, however, Saba has no such development plan yet. The municipality Bonaire is also involved in UCHM with the culture policy, by means of education, documentation and collaboration, amongst many other spearheads and goals. It cannot be concluded from this research that collaboration between the municipalities and other institutions have a positive effect on the UCHM, except for the collaboration between NAAM and the Executive Council of Bonaire, which is focused on implementing the Valletta Convention. Also, there is no sufficient financial support from the government or municipalities. The governmental institutions, however, are involved by means of granting the permits (as discussed above), providing advice, establishing a national database, distributing knowledge and providing UCHM training. The involvement of the RCN is, however, unclear. The archaeological institutions are involved in UCH through underwater archaeological research and providing of space for documentation and research material. However, it can be concluded that archaeological reports are, for a great part, not accessible. There are no archaeological quality standards for the Caribbean Netherlands, although Bonaire is establishing a local KNA with the help of NAAM.

The goal of this research was to provide an assessment of the underwater cultural heritage management system of the Caribbean Netherlands. The management processes have been discussed in the chapter two till four, and recommendations for improvement have been given in the discussion of chapter five. However, further research is strongly recommended to provide a complete assessment. The islands of the Caribbean Netherlands have made a start with managing underwater cultural heritage, yet they have a long path to follow.

6.1 SUGGESTIONS FOR FUTURE RESEARCH

- ❖ The protection of UCH is not yet completely ensured by means of legislation (for example, in spatial planning), therefore, further research, into which amendments of legislation will provide a solid legal basis for the protection of UCH, is necessary. Also, the enforcement of laws has to be taken into account.
- ❖ A research into the current threats to UCH, including both natural (such as sedimentation) and human threats (such as looting). Furthermore, a proper management plan should be set up to mitigate these threats.
- ❖ Analysing the involvement of local inhabitants, by means of interviews, to obtain information on their knowledge of existing UCH and their way of managing the heritage (such as storing artefacts), and to show their current attitude towards UCHM. In addition, training schemes or educational classes or readings could be set up.
- ❖ A research into a suitable way for publishing archaeological research and management of UCH in a database.
- ❖ A research into funding possibilities for UCHM.
- ❖ A research into which UCH can be considered to be designated as protected monument(s).

SUMMARY

This thesis concerns research into underwater cultural heritage management (hereafter UCHM) in the Caribbean Netherlands after the 10th of October 2010, the day when Bonaire, Saba and St. Eustatius became special municipalities of the Netherlands. The research encompasses an overview of the known and unknown (expected) underwater cultural resources, based on the history of the islands, its natural environment, archaeological research, and information dispersed by marine parks and diving organisations. Secondly, a legal framework has been created and shows to what extent national laws and local bylaws provide protection of underwater cultural heritage, and how international treaties (such as the 1992 Valletta Convention and the 2001 UNESCO Convention) herein play part. Third, an overview of stakeholders is presented, including the way in which they are involved with UCHM; it concerns mainly the municipalities, governmental institutions, archaeological institutions, marine parks and diving organisations. This research has the aim to provide an overview of the above; given that until present not much is known about the processes of UCHM in the Caribbean Netherlands. It appears that several aspects of UCHM are lacking. Despite the fact that underwater research in the past has shown that such heritage has to be protected against different threats (such as looting or infrastructural developments), its measures are not completely examined. Therefore, this research encompasses the measures that have been taken by means of legislation and other management tools, such as spatial planning, policy, collaboration, distribution of knowledge and public support. In addition, the tasks of the government and the contribution of archaeological institutions are examined. This contains the publishing of research, storage of finds and documentation, the use of databases, public outreach and quality standards for archaeology. The research ends with a discussion in which it becomes clear to what extent UCHM in the Caribbean Netherlands has made progress, and in which spheres it can be improved.

SAMENVATTING

Deze scriptie betreft een onderzoek naar onderwatererfgoed management in Caribisch Nederland na de transitie van 10 Oktober 2010, waarbij Bonaire, Saba en St. Eustatius speciale gemeenten van Nederland werden. Het onderzoek omvat een overzicht van het bekende en onbekende (verwachte) onderwatererfgoed, gebaseerd op historie en gegevens van de natuurlijke omgeving, archeologisch onderzoek en informatie dat verspreid wordt door mariene parken en duikorganisaties. Ten tweede is er een wettelijk kader geschetst, waaruit opgemaakt wordt in hoeverre de nationale wetten en lokale verordeningen voldoen in de bescherming van onderwatererfgoed, en welke rol internationale verdragen (zoals het 1992 Malta-verdrag en de 2001 UNESCO Conventie) hierin spelen. Ten slotte volgt er een overzicht van stakeholders en de wijze waarop zij betrokken zijn bij het onderwatererfgoed management; het gaat hier vooral om de gemeenten, overheidsinstanties, archeologische bedrijven, mariene parken en duik organisaties. Dit onderzoek heeft het doel gesteld om bovenstaande in overzicht te brengen, aangezien er tot op heden weinig bekend is over de uitvoering van onderwatererfgoed management in Caribisch Nederland. Hieruit blijkt dat er nog veel aspecten van onderwatererfgoed management ontbreken. Hoewel onderwater archeologisch onderzoek in het verleden al heeft uitgewezen dat dergelijk erfgoed beschermd dient te worden tegen diverse bedreigingen (zoals plundering of infrastructurele ontwikkelingen) zijn de maatregelen daartegen nog niet volledig onderzocht. Dit overzicht omvat dus de maatregelen die genomen zijn door middel van wet- en regelgeving en andere management tools, zoals ruimtelijke ordening, beleid, samenwerking, het verspreiden van kennis en draagvlak creëren. Tevens zijn de taken van de overheid (met name advies en vergunningverlening) en de bijdrage van de archeologische bedrijven onder de loep genomen. Hierbij kan men denken aan het publiceren van onderzoek, opslag van vondsten en documentatie, het gebruik van databases, publieksbenadering en onderzoekseisen. Het onderzoek eindigt met een discussie waarin naar voren komt in hoeverre het management van onderwatererfgoed in Caribisch Nederland gevorderd is en op welke vlakken dit verbeterd zou kunnen worden.

WEBPAGES

- <http://archeologiein nederland.nl/archeologie-het-bestemmingsplan-0>, accessed on 15 January 2015.
- <http://archeologiein nederland.nl/archeologisch-onderzoek-onder-water>, accessed on 14 June 2016.
- <http://archeologiein nederland.nl/regels-en-beleid/monumenten-zorg-en-onderzoek>, accessed on 19 January 2016.
- http://beautiful-bonaire.nl/activiteiten/duiken_duikscholen.html, accessed on 4 December 2015.
- http://beautiful-saba.nl/activiteiten_duiken_duikscholen.html, accessed on 4 December 2015.
- <http://bontravel.nl/bonaire/duiken/>, accessed on 4 December 2015.
- [http://commons.wikimedia.org/wiki/File:Île_de_Saint_Eustache_en_1781_\(haute_résolution\).jpg](http://commons.wikimedia.org/wiki/File:Île_de_Saint_Eustache_en_1781_(haute_résolution).jpg), accessed on 30 April 2016.
- <http://cultureelerfgoed.nl/dossiers/erfgoedwet>, accessed on 14 June 2016.
- <http://cultureelerfgoed.nl/dossiers/maritieme-archeologie/maritiem-programma>, accessed on 15 January 2016.
- <http://cultureelerfgoed.nl/nieuws/ook-onder-water-zijn-rijksmonumenten-voortaan-herkenbaar>, accessed on 21 April 2016.
- <http://dailymail.co.uk/news/article-2487043/Treasure-recovered-Caribbean-wreck-historical-value-bounty-Mary-Rose.html>, accessed on 1 May 2016.
- <http://www.dans.knaw.nl/nl/over/diensten/data-archiveren-en-hergebruiken/easy/edna>, accessed on 14 June 2016.
- <http://dcnature.org/islands/>, accessed on 14 June 2016.
- <http://facebook.com/sabarchaeology/>, accessed on 16 February 2016.
- <http://goldenrockdive.com/marine-park.php>, accessed on 7 December 2015.
- <http://government.nl/topics/caribbean-parts-of-the-kingdom/contents/bonaire-st-eustatius-and-saba>, accessed on 23 February 2015.
- <http://handreiking erfgoedruimte.nl/gemeentelijke-praktijk>, accessed on 26 January 2016.
- <http://handreiking erfgoedruimte.nl/structuurvisie>, accessed on 26 January 2016.
- <http://lelystad.nl/4/Ontspannen/Kunst-en-Cultuur/Erfgoed/Rijksmonument-scheepswrak-VAL-1460.html>, accessed on 23 May 2016.

<http://machuproject.eu/WIS-viewer.htm>, accessed on 15 January 2016.

<http://maritiemprogramma.wordpress.com/2014/12/09/combining-nature-and-cultural-heritage-management-in-a-bonaire-based-private-company/>, accessed on 1 May 2016.

<http://naam.cw>, accessed on 16 February 2016.

<http://nl.magazine.maritiemprogramma.nl/eMagazine-MP04-NL/#!/UNESCO-Foundation-Course-op-St-Eustatius>, accessed on 27 April 2016.

<http://oceanbluebonaire.com/Duiken>, accessed on 4 December 2016.

<http://padi.com/scuba/templates/du-adzone3.aspx?id=14042&LangType=1043>, accessed on 26 April, 2016.

<http://periplus.nl/home/nl/referenties/projecten/nationaal-contactnummer-ontsluit-databases-met-wrakken-en-obstructies-onder-water>, accessed 1 April 2016.

<http://royalhaskoningdhv.com/nl-nl/nederland/nieuws/nieuwsberichten/20120702pb-officiële-fusie-haskoning-dhv/1605>, accessed on 23 May 2016.

<http://www.rijksdienstcn.com/onderwijs/cultuur/cultuur?swords=monumenten>, accessed on 25 May 2016.

<http://ruimtelijkeplannen.nl/web-roo/roo/index>, accessed on 4 April 2016.

<http://sabadeep.com/#/1/0>, accessed on 7 December 2015.

<http://sabadivers.com>, accessed on 7 December 2015.

<http://sabagis.org>, accessed on 15 November 2015.

http://sabapark.org/about_scf/activities/, accessed on 28 April 2016.

<http://sabatourism.com/marinepark.html>, accessed on 7 December 2015.

<http://scubaqua.com/inet/scubaqua/sitenl.nsf/vcontent/2D4270E987DDAE5AC1257A1D002B065D?opendocument>, accessed on 26 April 2016.

<http://scubaqua.com/nl/8ulfs6-faqs.html>, accessed on 7 December 2015.

<http://secar.org/en/st-eustatius-center-for-archaeological-research>, accessed on 16 February 2016.

<http://sikb.nl/protocolen>, accessed on 27 April 2016.

<http://statiapark.org/about/index.html>, accessed on 30 November 2015.

<http://statiatourism.com/diving.htm>, accessed on 26 April 2016.

http://statiatourism.com/where_to_eat.htm, accessed on 26 April 2016.

<http://stinapa.org/index.html>, accessed on 20 November 2015.

<http://terramarmuseum.com>, accessed on 24 November 2015.

<http://thedailyherald.sx/islands/53218-side-scan-sonar-ocean-bottom-mapping-project>, accessed on 11 April 2016.

<http://tourismbonaire.com/bonaire-dive-sites>, accessed on 26 April, 2016.

<http://tourismbonaire.com/bonaire-dive-sites/hilma-hooker>, accessed on 1 May 2016.

<http://unesco.nl/vertegenwoordiging.org/nederland-en-unesco/welke-conventies-heeft-nederland-geratificeerd.html>, accessed on 12 November 2015.

<https://unesco.nl/artikel/nederland-start-ratificatie-van-unesco-verdrag-ter-bescherming-van-erfgoed-onder-water>, accessed 14 June 2016.

<http://www.government.nl/topics/caribbean-parts-of-the-kingdom/documents/publications/2013/04/22/koninkrijk-der-nederlanden>, accessed on 30 April 2016.

http://youtube.com/watch?v=EG9U4_rcp_Y, accessed on 29 April 2016.

LITERATURE

- Anaso, R. and C.T. Kraan, 2015. Chapter 4: Heritage Management on Bonaire and Curaçao: A step towards an integral approach to heritage, in C. L. Hofman and J. B. Haviser (eds), *Managing Our Past into the Future: archaeological heritage management in the Dutch Caribbean*. Leiden: Sidestone Press, 89–101.
- Attema, Y., 1976. *St. Eustatius: A short history of the island and its monuments*. Zutphen: De Walburg Pers.
- Barka, N.F., 1985. *Archaeology of St. Eustatius, Netherlands Antilles: An Interim Report on the 1981-1984 Seasons*. *St. Eustatius Archaeological Research Series 1*. Department of Anthropology, College of William and Mary, Williamsburg, Virginia.
- Bequette, K.E., 1992. *An Archaeological Reconnaissance of the Anchorage, Seawalls, and Shipwrecks within Oranje Bay, St. Eustatius, Netherlands Antilles*. Greenville (unpublished MA thesis East Carolina University).
- Björdal, C.G., 2011. Decay rate of shipwrecks, in C. G. Björdal and D. Gregory (eds), *WreckProtect: Decay and protection of archaeological wooden shipwrecks*. Oxford: Archaeopress Ltd, 78–9.
- Brugman, F. ed., 2015. *Underwater Cultural Heritage in Latin American and the Caribbean: Dossier, Cervera's squadron in Santiago de Cuba, Florence, Declaration*. The UNESCO Regional Office for culture in Latin American and the Caribbean.
- Brugman, F.H., 1995. *The Monuments of Saba: The Island of Saba, a Caribbean example*. Zutphen: Uitgeversmaatschappij Walburg Pers.
- Buchan, K., 1998. Saba, Netherlands Antilles. *Coastal region and small island papers 3*, 187–93.
- Bussemaker, J., 2016. *Datum: 19 mei 2016, Betreft: Toetreding Nederland tot het UNESCO Verdrag inzake cultureel erfgoed onder water 2001*. Ministerie van Onderwijs, Cultuur en Wetenschap.
- Callaghan, R.T., 2001. Ceramic Age Seafaring and Interaction Potential in the Antilles: A Computer Simulation. *Current Anthropology* 42(2), 308–13.
- Commissie van advies inzake volkenrechtelijke vraagstukken, 2011. *Advies over het UNESCO-Verdrag inzake cultureel erfgoed onder water, Advies No. 21, Den Haag, December 2011*.
- Cooper, J. and R. Boothroyd, 2011. *Living Island of the Caribbean: A view of relative*

- sea level change from the water's edge, in C. L. Hofman and A. Van Duijvenbode (eds), *Communities in contact: Essays in archaeology, ethnohistory & ethnography of the Amerindian circum-Caribbean*. Leiden: Sidestone Press.
- Council of Europe, 1992. European Convention on the Protection of the Archaeological Heritage (revised), Valletta, 16 January 1992. *Council of Europe Treaties* 143. <http://wetten.overheid.nl/BWBV0002031/2007-12-12>, accessed on April 21, 2016.
- Dienst Educatie en Cultuur, 2010. *Beleidsnota Cultuur Bonaire*.
- Dienst Ruimtelijke Ontwikkeling en Beheer, 2010a. *Eilandgebied Bonaire, Ruimtelijk ontwikkelingsplan Bonaire*. Available at: <http://publicatie.burovijn.nl/Bonaire>.
- Dienst Ruimtelijke Ontwikkeling en Beheer, 2010b. *Ruimtelijk Ontwikkelingsplan Bonaire, Vastgesteld 8 oktober 2010*.
- Dijkshoorn, S., C. Kraan and T. Timmers, 2012. *Verkenning van de Implementatie van het Verdrag van Malta op de eilanden van Caribisch Nederland, Bonaire, St. Eustatius en Saba*. Curaçao: National Archaeological Anthropological Memory Management.
- Dromgoole, S., 2013. *Underwater Cultural Heritage and International Law*. Cambridge: Cambridge University Press.
- Eriksson, N. and J. Rönby, 2012. "The Ghost Ship". An Intact Fluyt from c.1650 in the Middle of the Baltic Sea. *The International Journal of Nautical Archaeology* 41(2), 350–61.
- Favis, R.L., M.R. Manders and C.J. Underwood, 2012. Introduction, in M.R. Manders and C.J. Underwood (eds), *Training Manual for the UNESCO Foundation Course on the Protection of Underwater Cultural Heritage in Asia and the Pacific*. UNESCO Bangkok, 1–18.
- Fitzpatrick, S.M., 2013. Seafaring Capabilities in the Pre-Columbian Caribbean. *Journal of Maritime Archaeology* 8, 101–38.
- Fox, G.L., 2014. Ferrous and Nonferrous Metals, in B.A. Reid and R.G. Gilmore III (eds), *Encyclopedia of Caribbean Archaeology*. Gainesville: University Press of Florida, 151.
- Gilmore III, R.G., 2014. St. Eustatius Center for Archaeological Research (SECAR), in B.A. Reid and R.G. Gilmore III (eds), *Encyclopedia of Caribbean Archaeology*. Gainesville: University Press of Florida, 322–3.
- Green, J., 2004. *Maritime Archaeology: A Technical Handbook*. San Diego: Elsevier Academic Press.

- Hammersma, M., 2013. Date: 16 Apr. 2013, Subject: *Implementation of Malta Convention in Caribbean Netherlands*. Ministry of Education, Culture and Science.
- Haviser, J.B., 2014a. Bonaire (Dutch Caribbean; Former Netherlands Antilles) in B.A. Reid and R.G. Gilmore III (eds), *Encyclopedia of Caribbean Archaeology*. Gainesville: University Press of Florida, 73–5.
- Haviser, J.B., 2014b. Bonaire Archaeological Institute (BONAI), in B.A. Reid and R.G. Gilmore III (eds), *Encyclopedia of Caribbean Archaeology*. Gainesville: University Press of Florida, 75.
- Haviser, J.B., 2015. Early Valletta Treaty application at Slagbaai-Gotomeer, Bonaire, in C.L. Hofman and J.B. Haviser (eds), *Managing Our Past into the Future: archaeological heritage management in the Dutch Caribbean*. Leiden: Sidestone Press, 195–216.
- Haviser, J.B., 1991. The First Bonaireans. *Reports of the Archaeological-Anthropological Institute of the Netherlands Antilles 10*, Curaçao.
- Haviser, J.B. and R.G. Gilmore III, 2011. Netherlands Antilles, in P.E. Siegel and E. Righter (eds), *Protecting Heritage in the Caribbean*. Tuscaloosa: The University of Alabama Press, 134–42.
- Hofman, C.L. and J.B. Haviser, 2015. Introduction: The current status of archaeological heritage management (AHM) in the Dutch Caribbean, in C. L. Hofman and J. B. Haviser (eds), *Managing Our Past into the Future: archaeological heritage management in the Dutch Caribbean*. Leiden: Sidestone Press, 27–35.
- Hofman, C.L. and M.L.P. Hoogland, 2003. Plum Piece: Evidence for Archaic Seasonal Occupation on Saba, Northern Lesser Antilles around 3300 BP. *Journal of Caribbean Archaeology 4*, 12–27.
- Hofman, C.L. and M.L.P. Hoogland, 2014. Saba, in B.A. Reid and R.G. Gilmore III (eds), *Encyclopedia of Caribbean Archaeology*. Gainesville: University Press of Florida, 295–6.
- Hoogenboezem-Lanslots, K.M.A., Y.M. Schenau, R.J. van Leeuwen, M.F.M. Briene and J.A. de Freitas, 2010. *Sint Eustatius Strategic development plan*.
- International Council on Monuments and Sites, 1996. *Charter on the Protection and Management of Underwater Cultural Heritage*, Sophia, October 1996. http://www.icomos.org/charters/underwater_e.pdf, accessed on April 21, 2016.
- De Jong, C., 1870. *Reize naar de Caribische Eilanden, in de jaren 1780 en 1781*. Haarlem: François Bohn.
- De Jongh-Lempke, I. and M. Lascaris, *Erfgoed, waterbodems en het bestemmingsplan*.

- M. C. Houkes (ed). Amersfoort: Rijksdienst voor het Cultureel Erfgoed.
- Knippenberg, S., 1999. Norman Estate, in C.L. Hofman and M.L.P. Hoogland (eds), *Archaeological investigations on St. Martin (Lesser Antilles): The sites of Norman Estate, Anse des Pères and Hope Estate with a contribution to the "La Hueca problem."* Leiden: Faculty of Archaeology, Leiden University (Archaeological Studies Leiden University 4), 23–60.
- Leshikar-Denton, M.E., 2002. Problems and Progress in the Caribbean, in C.V. Ruppé and J.F. Barstad (eds), *International Handbook of Underwater Archaeology*. New York: Springer Science+Business Media, 279-98.
- Leshikar-Denton, M.E. and P. Luna Erreguerena, 2008. Chapter 1: The Foundations of Underwater and Maritime Archaeology in Latin America and the Caribbean, in M.E. Leshikar-Denton and P. Luna Erreguerena (eds), *Underwater and Maritime Archaeology in Latin America and the Caribbean*. Walnut Creek: Left Coast Press, Inc., 25–53.
- Leshikar-Denton, M.E. and D.A. Scott-Ireton, 2014. Underwater Archaeology, in B.A. Reid and R.G. Gilmore III (eds), *Encyclopedia of Caribbean Archaeology*. Gainesville: University Press of Florida, 341–48.
- Louis, C., T. van Niekerk, D. Peña-Bastalla, G.K. Phagu and J. van Rijn, 2014. *Management Plan of the "Oude Pier," St. Eustatius*.
- Lundvall, S., 2008. *Saba Bank: Special Marine Area Management Plan 2008*.
- MacRae, D.R. and N. Esteban, 2007. *St Eustatius National Marine Park Management Plan 2007*.
- Manders, M., S. van den Brenk and M. Kosian, 2014. *De gelaagde geschiedenis van de Westelijke Waddenzee: Historisch Geo-Morfologische Kaartenset van de Waddenzee*. Amersfoort: Rijksdienst voor het Cultureel Erfgoed.
- Manders, M. and V. de Bruyn, 2011. Shipworm: an old story of trouble, in C.G. Björdal and D. Gregory (eds), *WreckProtect: Decay and protection of archaeological wooden shipwrecks*. Oxford: Archaeopress Ltd, 82–7.
- Manders, M., R. Oosting and W. Brouwers, 2008. Appendix 3: Partners in the MACHU-project. *MACHU Final Report: Managing Cultural Heritage Underwater 3*, 144–5.
- Manders, M.R., 2012a. Unit 3: Management of Underwater Cultural Heritage, in M.R. Manders and C.J. Underwood (eds), *Training Manual for the UNESCO Foundation Course on the Protection of Underwater Cultural Heritage in Asia and the Pacific*. UNESCO Bangkok, 1–20.
- Manders, M.R., 2012b. Unit 4: Underwater Archaeological Resources, in M.R. Manders

- and C.J. Underwood (eds), *Training Manual for the UNESCO Foundation Course on the Protection of Underwater Cultural Heritage in Asia and the Pacific*. Bangkok: UNESCO Bangkok, 1–19.
- Manders, M.R., 2012c. UNIT 9: In Situ Preservation, in M.R. Manders and C.J. Underwood (eds), *Training Manual for the UNESCO Foundation Course on the Protection of Underwater Cultural Heritage in Asia and the Pacific*. Bangkok: UNESCO Bangkok, 1–33.
- Manders, M.R. and C.J. Underwood eds., 2012. *Training manual for the UNESCO Foundation Course on the Protection and Management of Underwater Cultural Heritage in Asia and the Pacific*. UNESCO Bangkok.
- Marx, R.F., 1987. *Shipwrecks in the Americas: With 73 illustrations*. New York: Dover Publications, Inc.
- De Meyer, K., 1998. Bonaire, Netherlands Antilles. *Coastal region and small island papers* 3, 141–9.
- De Meyer, K. and D. MacRae, 2006a. Part 1. Bonaire National Marine Park: Background information. *Bonaire National Marine Park Management Plan 2006*, 12–51.
- De Meyer, K. and D. MacRae, 2006b. PART 2. The Management environment. *Bonaire National Marine Park Management Plan 2006*, 52–89.
- Ministerie van Infrastructuur en Milieu, 2012. *Structuurvisie Infrastructuur en Ruimte: Nederland concurrerend, bereikbaar, leefbaar en veilig*. Den Haag: Ministerie van IenM.
- Ministerie van Infrastructuur en Milieu, 2007. *Wet ruimtelijke ordening*. Den Haag: Ministerie van IenM. <http://wetten.overheid.nl/BWBR0020449/2016-04-14>, accessed on 14 June 2016.
- Ministerie van Infrastructuur en Milieu, 2012. *Wet volkshuisvesting, ruimtelijke ordening en milieubeheer BES*. Den Haag: Ministerie van IenM. <http://wetten.overheid.nl/BWBR0031218/2012-07-01/0/informatie>, accessed on 14 June 2016.
- Ministerie van Onderwijs, Cultuur en Wetenschap, 1988. *Monumentenwet 1988*. Den Haag: Ministerie van OCW. <http://wetten.overheid.nl/BWBR0004471/2016-04-14>, accessed on 14 June 2016.
- Ministerie van Onderwijs, Cultuur en Wetenschap, 2010. *Monumentenwet BES*. Den Haag: Ministerie van OCW. <http://wetten.overheid.nl/BWBR0028429/2010-10-10>, accessed on April 21, 2016.

- Ministerie van Onderwijs, Cultuur en Wetenschap, 2007. *Wet op de archeologische monumentenzorg*. Den Haag: Ministerie van OCW. <http://wetten.overheid.nl/BWBR0021162/2008-01-01/0>, accessed on 14 Juni 2016.
- Nagelkerken, W. and R. Hayes, 2008. Chapter 19: The Historical Anchorage of Kralendijk, Bonaire, Netherlands Antilles, in M.E. Leshikar-Denton and P. Luna Erreguerena (eds), *Underwater and Maritime Archaeology in Latin America and the Caribbean*. Walnut Creek: Left Coast Press, Inc., 293–302.
- Nationaal Restauratiefonds, 2012. Bonaire, Sint Eustatius en Saba: Financiële ondersteuning voor monumenten.
- National Archaeological Anthropological Memory Management, 2012. *Plan van Aanpak implementatie van het verdrag van Malta op Bonaire*.
- Nationale UNESCO Commissie, 2011. *Advies van de Nationale UNESCO Commissie over de bescherming van cultureel erfgoed onder water*.
- Nederlandse Antillen, 1989. *LANDSVERORDENING van de 13de september 1989, houdende nieuwe regelingen met betrekking tot de grondslagen voor het behoud van monumenten*. http://decentrale.regelgeving.overheid.nl/cvdr/xhtmloutput/Historie/Nederlands%20Antillen/1847/1847_1.html, accessed on 14 June 2016.
- Nederlandse Antillen, 2007. *LANDSVERORDENING van de 2de maart 2007 houdende regels inzake het beheer van de maritieme gebieden in de Nederlandse Antillen*. http://decentrale.regelgeving.overheid.nl/cvdr/XHTMLoutput/Historie/Nederlands%20Antillen/1964/1964_1.html, accessed on 14 June 2016.
- Newsom, L.A. and E.S. Wing, 2004. *On Land and Sea: Native American Uses of Biological Resources in the West Indies*. Tuscaloosa and London: The University of Alabama Press.
- Nieuwsbrief Integraal Beheer Noordzee, 2011. Nieuwe taken in Caribisch Nederland. 14.
- Openbaar lichaam Bonaire, 2011. *EILANDSVERORDENING van 4 december 2009, no. 2 ter uitvoering van de Monumentenwet BES (Stb. 2010, 580) en de Wet maritiem beheer BES (Stb. 2010, 626) (Monumentenverordening Bonaire)*. Bonaire. http://decentrale.regelgeving.overheid.nl/cvdr/xhtmloutput/Historie/Bonaire/43306/43306_2.html, accessed on April 22, 2016.
- Openbaar lichaam Saba, 2010. *Monumenteneilandsverordening Saba 2010*. Saba. http://decentrale.regelgeving.overheid.nl/cvdr/xhtmloutput/Historie/Saba/41865/41865_1.html, accessed on April 22, 2016.

- Openbaar lichaam Sint Eustatius, 2010. *Eilandsverordening ter uitvoering van de Monumentenlandsverordening 1989 en tot wijziging van de Bouw- en Woningverordening 1984 (Monumenteilandsverordening Sint Eustatius)*. Sint Eustatius.
- http://decentrale.regelgeving.overheid.nl/cvdr/xhtmloutput/Historie/SintEustatius/46831/46831_2.html, accessed on April 22, 2016.
- Otte, A., 2008. Management of UCH: National practice in the Netherlands. *MACHU Final Report: Managing Cultural Heritage Underwater* 3, 116–20.
- RBOI Rotterdam, 2011. *Bestemmingsplan Sint Eustatius*.
- Rijksdienst Caribisch Nederland, *Eilandgids Caribisch Nederland, Guia di Isla Hulanda Karibense, Island guide Caribbean Netherlands: Bonaire, Sint Eustatius, Saba*.
- Roobol, M.J. and A.L. Smith, 2004. *Volcanology of Saba and St. Eustatius, Northern Lesser Antilles*. Amsterdam: Royal Netherlands Academy of Arts and Sciences.
- Saba Conservation Foundation, 2011. *Saba Conservation Foundation: Semiannual Report 2011*.
- Schaw, J., 1921. *Journal of a Lady of Quality; Being the Narrative of a Journey from Scotland to the West Indies, North Carolina, and Portugal, in the Years 1774 to 1776*. E.W. Andrews and C.M. Andrews (eds). New Haven: Yale University Press.
- <http://docsouth.unc.edu/nc/schaw/schaw.html#n105>, accessed on April 18, 2016.
- Schultz, E.G., S.F. McCool and D. Kooistra, 1999. Management Plan Saba Marine Park.
- Slijkerman, D., B. van Maren, D. Debrot, J. Stapel, E. Meesters, N. Davaasuren and J. van Dalfsen, 2011. *Quick scan environmental impact assessment of the St. Eustatia harbour extension*.
- Stelten, R., 2014. *An Archaeological Assessment of NuStar Terminals, N.V.'s marine structures, St. Eustatius, Caribbean Netherlands*.
- Stelten, R., 2010. *Relics of a Forgotten Colony: The Cannon and Anchors of St. Eustatius*. Leiden University.
- STENAPA, 2012. *St Eustatius National Parks Foundation Annual Report 2012*.
- St. Eustatius Government, 2012. *Statia, where investment opportunities await you. St. Eustatius Investment Guide*.
- Thornton, P. and T. Hoencamp, 2011. *Physical and cultural heritage marine environment Statia*.
- United Nations Educational Scientific and Cultural Organization, 2001. *Convention on the Protection of the Underwater Cultural Heritage, Paris, 2 November 2001*. <http://portal.unesco.org/en/ev.php>

- URL_ID=13520&URL_DO=DO_TOPIC&URL_SECTION=201.html, accessed on April 21, 2016.
- United Nations Educational Scientific and Cultural Organization, n.d. *The UNESCO Convention on the Protection of the Underwater Cultural Heritage*. Brochure UNESCO.
- Van der Velde, J., K.M.A. Hoogenboezem-Lanslots and Y.M. Schenau, 2011. *Ruimtelijk Ontwikkelingsplan Sint Eustatius*.
- Versteeg, A.H., 1994. *Between St. Eustatius and the Guianas: Contributions to Caribbean Archaeology*. The St. Eustatius Historical Foundation.
- De Waal, M.S., J. Lesparre, M.L.P. Hoogland and R. Espersen, 2015. *Archaeological Predictive Map: Saba, Caribbean Netherlands, February 2015*. ARGEOgraph.
- De Waal, M.S., J. Lesparre, R. Stelten and M.L.P. Hoogland, 2013. *Archaeological Predictive Map: Sint Eustatius, Caribbean Netherlands, March 2013*. ARGEOgraph.
- Van Werven, G., C.J. Jepma and W. Bakker, 2009. *Masterplan strategische ontwikkeling Bonaire 2010-2025*.
- Willems, W.J.H., 2009. Archaeological Resource Management and Academic Archaeology in Europe: Some Observations. *Quale futuro per l'archeologia*, 89–99.
- Wilson, S.M., 2007. *The Archaeology of the Caribbean*. Cambridge: Cambridge University Press.
- Witteveen, I., 2014. The National Archaeological Anthropological Memory Management Foundation (NAAM) in B.A. Reid and R.G. Gilmore III (eds), *Encyclopedia of Caribbean Archaeology*. Gainesville: University Press of Florida, 249–50.

LIST OF ABBREVIATIONS

AAINA	Archaeological and Anthropological Institute of the Netherlands Antilles
BES	Bonaire, (St.) Eustatius and Saba
BNMP	Bonaire National Marine Park
BONAI	Bonaire Archaeological Institute
CAVW	The Advisory Committee on Issues of Public International Law
DGPS	Differential Global Positioning System
DROB	The Dienst Ruimtelijke Ontwikkeling en Beheer
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
GIS	Geographic Information System
ICOMOS	International Council on Monuments and Sites
KNA	Kwaliteitsnorm Nederlandse Archeologie
MACHU	Managing Cultural Heritage Underwater
NAAM	National Archaeological Anthropological Memory Management
NCN	Nationaal Contactnummer
NLHS	Hydrographic Service of the Royal Netherlands Navy
NOaA	Nationale Onderzoeksagenda Archeologie
OCW	The Ministry of Education, Culture and Science
PADI	Professional Association of Diving Instructors
PvE	Programma van Eisen
RCE	Rijksdienst voor het Cultureel Erfgoed (Cultural Heritage Agency)
ROB	Ruimtelijk Ontwikkelingsplan Bonaire
RWS	Rijkswaterstaat (the Directorate General of Public Works and Water Management)
SABARC	Saba Archaeological Center
SECAR	St. Eustatius Center for Archaeological Research
SCF	Saba Conservation Foundation
SDP	Strategic Development Plan

SHEF	St. Eustatius Historical Foundation
SIMARC	St. Maarten Archaeological Research Center
STENAPA	St. Eustatius National Parks STIMANAFoundation for Marine Archaeology of the Netherlands Antilles
STINAPA Bonaire	Stichting Nationale Parken Bonaire
UCH	Underwater cultural heritage
UCHM	Underwater cultural heritage management
UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WAMZ	Wet op de Archeologische Monumentenzorg

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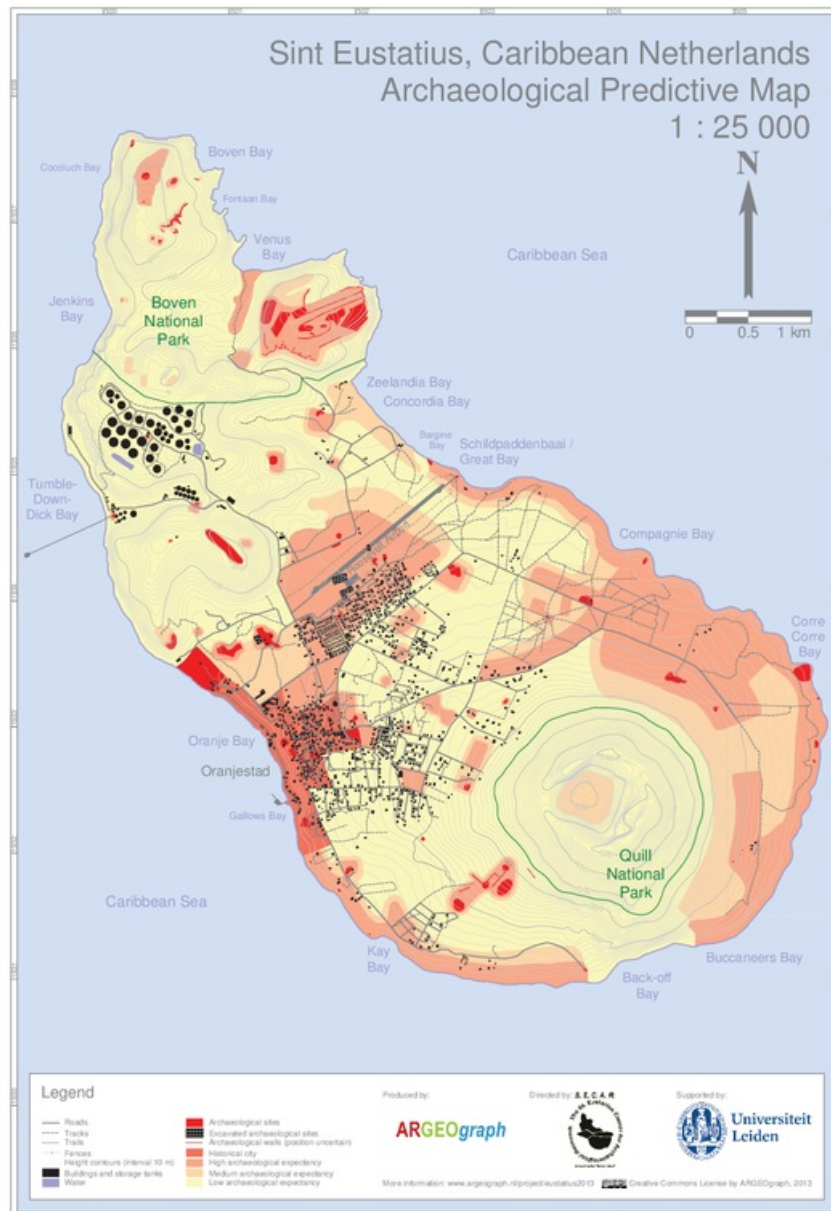
APPENDIX 1: CONTACT PERSONS

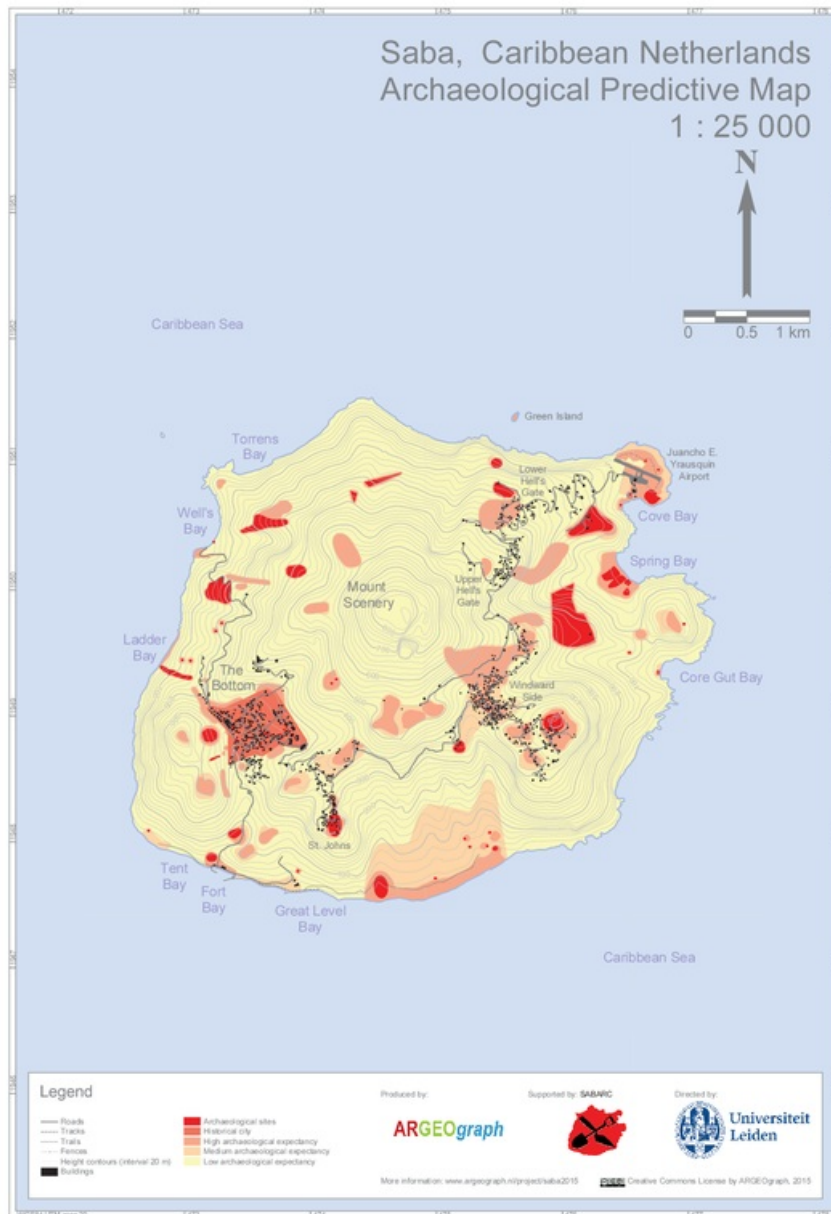
Appendix 1: List of contact persons and current positions.

NAME	CURRENT POSITION
Bos, Janneke	Nautical Manager, <i>Rijkswaterstaat</i> Sea and Delta
De Bruijn, Gerda	Currently: Adviser Implementation <i>Omgevingswet</i> , <i>Rijkswaterstaat</i> (Until November 2015: Senior Policy Adviser, <i>Rijksdienst voor het Cultureel Erfgoed</i>)
Erdtsieck, Eddy	Adviser Caribbean Netherlands and Liaison Enforcement, <i>Rijkswaterstaat</i> , Netherlands Coastguard
Espersen, Ryan	Director, Saba Archaeological Center (SABARC)
Houkes, Marie-Catherine	Policy Adviser Maritime Programme, <i>Rijksdienst voor het Cultureel Erfgoed</i>
Klomp, Andrea	Senior Policy Adviser Maritime Heritage, <i>Rijksdienst voor het Cultureel Erfgoed</i>
Kraan, Claudia	Senior Archaeologist and Deputy Director, National Archaeological Anthropological Memory Management
Manders, Martijn	Maritime Archaeologist, Head Maritime Programme, <i>Rijksdienst voor het Cultureel Erfgoed</i> (Thesis supervisor)
Van Regteren Altena, Flora	Senior Policy Adviser, Ministry of Culture of the Netherlands, Arts and Heritage Department
Stelten, Ruud	Archaeologist, St. Eustatius Center for Archaeological Research (SECAR)
De Waal, Maaike	Lecturer (Caribbean) Archaeology, Faculty of Archaeology, Leiden University; ARGEOgraph (Thesis supervisor)

APPENDIX 2: ARCHAEOLOGICAL PREDICTIVE AND VALUE MAPS

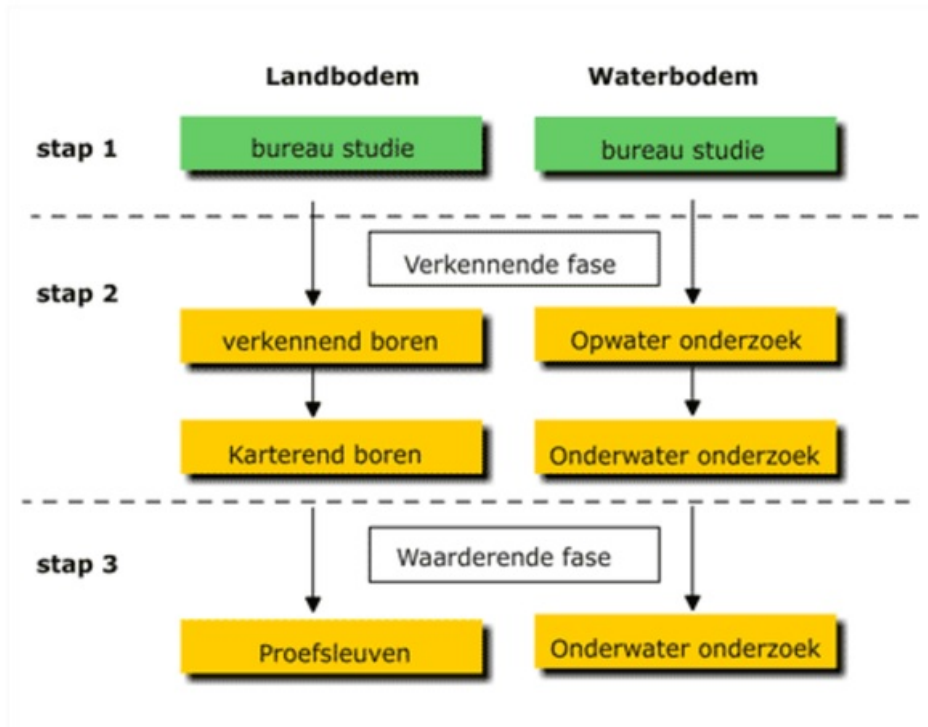
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APPENDIX 3: THE AMZ-CYCLE

Appendix 3: Phases of the AMZ-cycle. At the left, steps for the land soil and at the right, steps for the water soil are shown (archeologiein nederland.nl).



Translation to English:

	Land soil	Water soil
Step 1	Bureau investigation	Bureau investigation
	<u>Exploratory phase</u>	
Step 2	Exploratory drills	Research on water
	Survey drills	Research under water
	<u>Significance assessment</u>	
Step 3	Test pits	Research under water

APPENDIX 4: MARINE PARKS

Appendix 4: Maps of the Marine Parks of Bonaire, Saba and St. Eustatius (dcnnature.org/islands).

