



## Mooring project

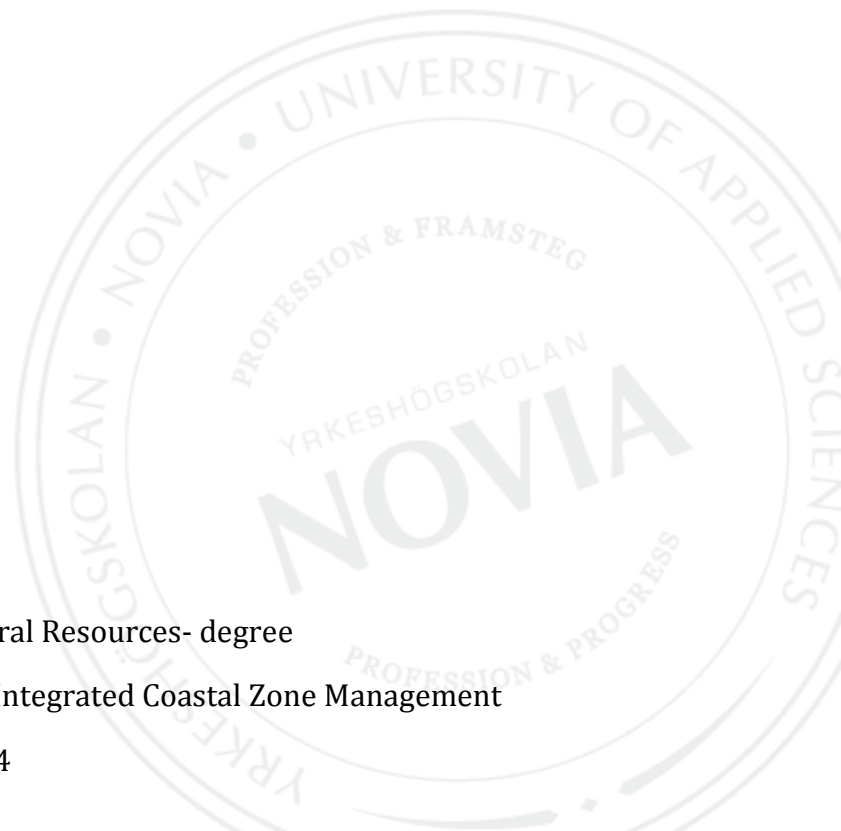
Protecting The Underwater Cultural Heritage -  
Pilot project in Hanko and Kemiönsaari, Finland

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Thesis for Bachelor of Natural Resources- degree

The Degree Programme of Integrated Coastal Zone Management

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## Bachelor`s Thesis Abstract

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**Specialization:** Integrated Coastal Zone Management

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**Title:** Mooring project – Protecting the Underwater Cultural Heritage, pilot project in Hanko and Kemiönsaari archipelago

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### Summary

The Underwater Cultural Heritage (e.g. wrecks, harbour constructions, artefacts) is not always visible and easily accessible like its peers on the land are. The nature of these sites, difficult access and hidden locations has made them to be sometimes even less valued. Due to increasing amount of recreational diving and coastal projects many of these sites are in danger to get destroyed partly or completely. Reasons for this situation are e.g. *unsustainable diving practices*, improper and destructive *anchoring methods* and carelessness when doing an underwater work like dredging or deposition of the sediments. To meet the need for preserving and still using these cultural heritage sites, three wrecks were selected to be part of the five year mooring and monitoring project. The aim of the project is to see if the stable mooring buoys installations, monitoring and informing the visitors (divers) would improve the situation on the sites and preserve them better for the future. The project was financed by the Allowance for Maintenance of Relics which was admitted for the first time in the year 2013 by the Finnish National Board of Antiquities to private partner, Hanna Halonen (Hanko Diving). All three sites within this project are wooden wrecks from the 16<sup>th</sup> to 18<sup>th</sup> century in different deconstruction states and they are protected by the Antiquities Act. Sites have both, a historical and a recreational value. In this first phase of the project monitoring was started on the sites and the mooring buoys were installed. The results from the monitoring are expected in the year 2018.

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## Opinnäytetyö Tiivistelmä

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### Tiivistelmä

Vedenalainen kulttuuriperintö (esim. hylät, satamarakenteet, irtolöydöt) eivät ole aina helposti saavutettavissa tai nähtävillä suuremmalle yleisölle, kuten vastaavat kulttuuriperintökohteet pinnan päällä ovat. Tämä vedenalaisten kulttuuriperintökohteiden luonne on tehnyt niistä usein myös vähemmän arvostettuja tai joskus unohdettujakin. Virkistyssukelluksen kasvava suosio, kävijämäärät hylillä ja erilaiset toiminnot rannikoilla ovat jopa johtaneet näiden kulttuuriperintökohteiden osittaiseen tai kokonaiseen tuhoutumiseen. Syitä tähän ovat esimerkiksi *ei-kestävä sukellustapa*, suoraan *kohteisiin ankkuroituminen* sekä mm. läjitykset ja ruoppaukset. Vastataksemme kahteen tarpeeseen; kohteiden säilyttämiseen ja kohteiden virkistyskäyttöön, kolme vedenalaista kulttuuriperintökohdetta valittiin mukaan viisivuotiseen pilottiprojektiin joka toteutetaan Museoviraston myöntämällä muinaismuistojen hoitoavustuksella. Hoitoavustus myönnettiin yksityistaholle, Hanna Halonen (Hanko Diving). Vuonna 2013 kohteille tehtiin pysyvät ankkuroitumisalustat, sekä suunniteltiin seuranta jolla voidaan tarkkailla tapahtuvia muutoksia. Aikomus on myös kartoittaa pysyvien kiinnittäytymispoijujen ja tiedotuksen vaikutusta mm. kestävään sukellustapaan, ankkuroitumiseen kohteille sekä kävijöiden aiheuttamien vahinkojen määrään. Kolme projektissa mukana olevaa kohdetta ovat yli satavuotiaita puuhylkyjä jotka on suojeltu Muinaismuistolain nojalla. Seurannan tulokset tullaan raportoimaan vuoteen 2018 mennessä.

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**Kieli:** Englanti **Avainsanat:** Vedenalainen kulttuuriperintö, Hoitoavustus, Kiinnittymispoiju, Kulttuuriperintö, Museovirasto, Pilottiprojekti, Kesämätön sukellustapa

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Hanna Halonen

Thesis for Bachelor of Natural Resources- degree

Integrated Coastal Zone Management

2014

# 1 Introduction

## 1.1 The treasures from the past – Why protect the Underwater Cultural Heritage

*“Suffering from nitrogen narcosis and a healthy dose of apprehension, Gatto and Gentle dropped deeper into the gloomy abyss. Gentle realized they had gone too far into the wreck, and the nervous pair retreated through a cloud of stirred-up silt and dislodged rust. But while he was swimming through the foyer area, something caught Gentle’s attention.*

*“Up ahead I saw glimmer of white,” Gentle described. “My light zeroed in on it, then waved back and forth rapidly to attract Steve’s attention. It was the edge of a plate. We approached it with reverence. I touched it tentatively at first, then wiggled it out of debris. It came free easily, but so did swirl of thick mud. I beheld the gold-leaf trim and the crown logo; the word Italia stood out.”*

(McMurray, 2001, p.143-144)

People have always had an interest towards the maritime history, stories and especially for the artefacts buried underwater. Different visitors like divers and treasure hunters have tried their luck in entering the world beneath the waves, some with more luck than the others. This interest has led to exact information about a past life, history and a culture. Through the maritime archaeology we know about the history of the seafaring and habits of people. We have been able to answer questions like; How and where did people do trade? How did they transport goods or change ideas? Which routes did the information travel? Or who delivered it hundreds of years ago? We have been able to understand the history, but also to reveal historical facts (Bass F. G., 1974, p. 9-10).

Due to harsh conditions and difficult access most of the Underwater Cultural Heritage and monuments are still lying untouched beneath the surface unlike their peers on land. Those monuments are saved especially well in The Baltic Sea because of the dark, stable and anoxic conditions (chapter 3.3). We have old wooden wrecks that

seem almost untouched as they had sunk just months, not hundreds of years ago (Swedish Maritime Museum, 2003, p. 24-32).

This situation is about to change with developing technique, increasing information and affordable prices that e.g. swell the number of recreational diving excursions and different projects taking place on sea and coastal areas. Unfortunately these sites have always been visited by people with more selfish reasons and e.g. the wrecks attract those who are not interested in knowing the history but rather selling it. We have had increasing amount of cases where the artefacts have been stolen, wrecks damaged by improper anchoring or diving techniques and e.g. due to lack of knowledge. Companies which perform underwater work, like dredging and the deposition of the sediments are also responsible. Since the value of these underwater sites cannot be measured in numbers it should be underlined even better how important the use of the proper methods is. The Underwater Cultural Heritage should always be properly included in the Environmental Impact Assessments, documented and e.g. sustainable diving techniques should be more emphasized (HS, 8.11.2011: <http://www.hs.fi/kotimaa/a1305548914531>, retrieved 8.4.2014).

As a recent example, the case of *The Champagne Wreck* in Åland, (the autonomous part of Finland) was creating a lot of discussion on the field. Åland's regional board decided to arrange an auction and sell the old champagne salvaged from a wreck. In that case not just the proper archaeological work and research around the wreck was completely forgotten, but also the historical value and the cultural heritage value of the sold artifact, the champagne, was ignored, even though the cultural heritage belongs to all of us (Swedish Maritime Museum, 2008, p.40). The cultural heritage should be preserved for the future generations and it is not for sale. 26 March, 2014 an official answer to the complaint about the case came from the Office of the Chancellor of Justice in Finland and Åland received an adverse remark. They had put a price tag on a relic and tried to gain private benefit from the cultural heritage (Remark to Åland: <http://www.oikeuskansleri.fi/sv/meddelanden/451/aland-far-kritik-i-champagnevraksarendet/>, retrieved 2.4.2014).

Whether the reasons were proper or improper it is a fact that people are moving their actions more and more towards the coastline and it seems clear that this movement affects the cultural heritage and the cultural environment on the coastal zone and underwater. In general, there is nothing wrong in that movement on the contrary.



People want to enjoy the recreational, cultural and monetary values of the coastline. In the best case people visiting historical wreck sites and using the coastline for any purpose can act as ambassadors. They can tell the stories and even help in the preservation work by following the sustainable methods and informing the authorities about their possible findings and observations.

In response to the increasing interest towards the underwater cultural heritage e.g. the museums and the universities have made efforts in planning how to show these underwater sites and the underwater cultural landscape to the public by the help of modern techniques such as 3D visualizations. (Case of Vrouw Maria: <http://sysrep.aalto.fi/vrouwmaria/>, retrieved 2.4.2014, Case of Operation Lune: [www.operationlune.com](http://www.operationlune.com), retrieved 2.4.2014). Also UNESCO has worked for the underwater cultural heritage by speaking about preserving these cultural heritage sites *in situ* (on place) for the public enjoyment (UNESCO, Convention on the Protection of the Underwater Cultural Heritage, <http://www.unesco.org/new/en/culture/themes/underwater-cultural-heritage/2001-convention/>, retrieved 2.4.2014).

When talking about the underwater cultural heritage and its values we can expect a certain amount of awareness and proper measures from different official and private operators on the coastline. On the other hand we cannot demand or even expect that each diver entering into the water has the same amount of knowledge about the sustainable diving methods or the archaeological research processes as professionals do. There is always some level of risk that damages happen when people visit these underwater sites. These damages can be mitigated by increasing the awareness of the divers and visitors and by informing different actors on the area e.g. private diving tour operators, diving clubs and fishermen. We can also make it safer for them by setting the mooring buoys, guidelines and information signs on the most valuable and on the most visited sites. This will increase the level of understanding, underline the different values of the sites, and make them better known e.g. among municipalities or owners of the water areas and especially protect the sites at the same time.

Purpose of this Thesis and whole project has been to act between different sides; authorities, municipalities and private divers, and with respect to all establish some working procedures and the methods to protect and still be able to benefit from the underwater cultural heritage. Trough this work I hope to bring up important facts to consider when planning local businesses close to these cultural heritage sites as well

as responsibilities of different operators on the field. I want to underline the value of these sites from a recreational point of view and show the benefits that private divers can bring to the field of the maritime archeology when trying to protect the underwater cultural heritage e.g. in situations where authorities lack the monetary resources.



Picture 1. Construction of the mooring buoys is starting. Bottom weights for the guidelines loaded into the box © Hanna Halonen

## 2 Background

### 2.1 Background and purpose of the project

The idea for the project came through a hobby and a part-time profession – diving. I have been involved in running a diving business in Hanko, Finland for several years. During this time it has been clear that the underwater cultural heritage sites are being destroyed and that the underwater landscape is changing. The landscape is changing firstly due to natural reasons like time, sedimentation and the currents, and secondly due to unsustainable use of the sites, i.e. damages caused by divers and sometimes also by fishermen. Those changes can be relatively dramatic, especially on the fragile wreck sites. Examples of changes caused by unsustainable use of the sites are parts of the wrecks that have collapsed and items that have been moved as well as marks of kicks when diving and marks from anchoring. Most of these marks from diving relate to the unsustainable diving techniques and those could be avoided just by increasing the education and informing the divers more about the fragile state of the monuments. Unfortunately we can now identify also a third type of the changes on the sites. Those include damages which are done by purpose, e.g. artefacts have been moved from their original places or even lifted up. This is a shame because those items which lose their original context cannot be properly researched. UNESCO's

Convention on the Protection of the Underwater Cultural Heritage (chapter 3.8) underlines that the best place to save these sites is often *in situ* (on place). Lifting the artefacts without the proper resources for the research and proper procedures before and afterwards does not serve the same purpose as the whole retime archaeological research project including all those aspects does. (McGrail S., 2001: *Boats of the World*, 5).

This situation was the origin for the project and where it started to take shape. It is important to act on a field by informing divers about the proper diving methods and show that recreational diving can be done in a sustainable way. It is common in Finland that the divers set their own mooring buoys on the diving sites and mark especially the wrecks e.g. by canisters and rope. This action, when done in a proper manner, increases the safety of the diving in general. It should not harm the wrecks at all. In reality those self-made buoys cause problems every now and then due to e.g. bad placement on the site, improper attaching methods (e.g. buoys attached directly to the wooden parts of the wreck) or sometimes even danger to the sea traffic if they come loose.

Hanko Diving has received also feedback from local fishermen that the self made marking buoys can easily be mistaken for fishnet marks. This attracts fishermen to anchor their boats nearby the wrecks for fishing and in the worst case anchors get stuck into the wrecks and damage the sites when pulled off. Anchoring accidentally in to the wrecks is also common among the divers, not just for fishermen. When sites do not have the stable permanent mooring buoys divers attach their vessels on the sites by anchoring. In general the marking of the sites when diving is positive and increases the safety of the diving, but it can also easily destroy the wrecks when done on unsustainable manner. One should use rather a marker buoy called *a shot line* to mark the sites carefully and then anchor the vessels further away from the site.

The case on the wreck of Osborn & Elisabeth, also included in this project, is an example of bad mooring and heavy damages to the wreck. There the guideline was set from the descent line to the wreck at 17m depth, attached to the bow of the wreck and left there for years. Since nobody was responsible for that setting it finally was stuck on the ice during the winter and the ice then later dragged the buoy, guideline and parts of the bow with it. Those parts are now located several meters away from the wreck itself. This movement also caused the bow of the wreck to open and tilt to the starboard side. The risk of the whole wreck collapsing was huge. These

unnecessary incidents are typical examples of cases that Hanko Diving wants to avoid in the future. Managing dozens or even hundreds of wreck sites is not possible with the resources that a small company has. Therefore this project is now to set to study if the co-operation between the authorities and the private operator works and could solve part of the problems on the most commonly dived sites.



Picture 8. Diver touching the wreck of Osborn & Elisabeth accidentally © Kari Hyttinen



Picture 10. Worst case scenario on the wreck site; Anchor attached directly to the wreck © Mathias Sjöström / Ålands landskapsregering, Museibyrå archives: M1 Ha 445.1 6109.08

## 2.2 Stakeholders in the project

### 2.2.1 The Finnish National Board of Antiquities

The National Board of Antiquities (NBA) works under the Ministry of Education and Culture. It operates together with other authorities and the museum field. The National Board of Antiquities has been established in order to protect and monitor our cultural heritage (including archaeological, architectural and cultural history values) and maintain the culture-historical national collection. The National Board of Antiquities lists all the findings of relics and keeps a database (NBA Database:

<http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/portti/default.aspx>, retrieved 2.4.2014) of all the cultural monuments and cultural heritage sites. This database includes sites both on land and underwater sites. The database is open and can be visited on the internet. It includes coordinates and descriptions of the sites and information about the archaeological work and research done.

Previously the NBA has established the Wreck Park of Kronprins Gustav Adolf, which is located in front of Helsinki (chapter 2.4). It has also published posters and instructions about why and how to protect underwater cultural heritage which are intended e.g. for the divers. These can be found at the official webpage of the Finnish National Board of Antiquities. The final reporting to the NBA will take place after the five year project period (NBA webpage: <http://www.nba.fi/en/index>, retrieved 2.4.2014).

The National Board of Antiquities (NBA) is one stakeholder in this project. The NBA admitted an allowance for the maintenance of relics and supervises the project. Archaeologist from the NBA has been involved in reviewing the materials e.g. from the monitoring and in the planning part of the monitoring. These wreck sites will also be presented on the webpage, [www.muinaispolut.fi](http://www.muinaispolut.fi), which is managed by the NBA.

### **2.2.2 Hanko Diving**

Hanko Diving is a diving company located in the southernmost city of Finland, Hanko. Hanko Diving's (Hanko Diving webpage: [www.hankodiving.fi](http://www.hankodiving.fi), retrieved 3.4.2014) main activity is arranging diving trips for all levels of divers around the archipelago of Hanko, Kemiönsaari and in the Tammisaari area. Hanko Diving takes customers to visit the wrecks, bio-diving sites and beaches weekly during the summer season (April-October). Hanko Diving has operated since 2008, but before that the project group was familiar with the diving in the archipelago of Hanko- Kemiönsaari area.

Hanko Diving has been the main responsible operator for this project, organizing e.g. the volunteers. Hanko Diving is also responsible for the maintenance of the buoys during this five-year project and keeping the mooring sites in shape.

## **2.3 Sustainable tourism**

Yearly the archipelago area in Hanko and Kemiönsaari receives thousands of tourists and other visitors that use the services on land and at sea. They sail, surf, swim and do

sightseeing e.g. on the nature protection areas and visit places like the museums. People enjoy the archipelago in many ways and diving is one attraction among others. Those people are very likely also interested in the underwater cultural heritage and similar attractions. Since diving is not for everybody, we should have methods to present the underwater cultural heritage *in situ* on shore as well. It should naturally also be done in the local and maritime museums, but more versatile methods, like signs on the islands about the underwater cultural heritage of the areas should be planned more widely. The thesis is aimed at illustrating also this perspective. For example the area of the Hauensuoli Island, where one of the wrecks within this project is lying, has a unique history. The island of Hauensuoli has been a natural harbor for the sailors who used to await suitable winds before starting their journeys. The area is filled with artefacts, rock carvings and other traces of the past life. This island has even proposed to be UNESCO World Heritage site in the future. Information signs on the beaches and e.g. some pictures from the wrecks which are lying just a few meters from the shoreline would definitely attract visitors to the island, even if they were not be interested in diving themselves (Island of Hauensuoli, UNESCO: <http://whc.unesco.org/en/tentativelists/215/>, retrieved 2.4.2014 and Riimala E: *Navis Fennica, Suomen Merenkulun Historia*, 30-33).

Divers are also a growing group and part of the yearly tourism which brings income to these coastal areas. By buying services like accommodation, food and boat transports from the local entrepreneurs they have become regular part of the tourist flow e.g. in Hanko. Any kind of action to support that tourism on the areas that suffer from the burden of the seasonal business can be seen as a benefit. The underwater cultural heritage could be seen as a source of income and therefore it should be made more visible for the visitors on these coastal areas, even though the cultural heritage sites and monuments cannot have (and should not have) any price tags. Properly planned tourism which is conducted in a sustainable way also includes taking care of the monuments and cultural heritage sites. The more visitors there are the greater is the risk of damages, and the more damages there are on the sites, the less interesting they will become. When properly maintained on the other hand, the sites will bring the income and attraction for years to come (Hanko Diving).

## 2.4 Maritime historical underwater park – Kronprins Gustav Adolf (60°03.010 N, 24°55.445 E)

In Finland only one prior underwater wreck park exists. This park was established by the Finnish National Board of Antiquities and it is located in front of Helsinki. The park is built around the remains of the ship called *Kronprins Gustav Adolf*. The Wreck Park was established in the summer 2000 by NBA and since that it has been popular among the recreational divers. These underwater parks are *in situ* museums on their best and a good way of displaying maritime archaeological finds. In the park divers can follow the guidelines to see different parts of the wreck and several information signs help them to understand the details. The wrecks in Hanko and Kemiönsaari are not close to each other and visiting each of them requires separate dives. Still they form a park, like Gustav Adolf does in Helsinki, and follow the same idea about the *in situ* museums. (Kronprins Gustav Adolf Wreck Park:

[http://www.nba.fi/en/cultural\\_environment/archaeological\\_heritage/underwater\\_cultural\\_heritage/underwater\\_park](http://www.nba.fi/en/cultural_environment/archaeological_heritage/underwater_cultural_heritage/underwater_park), retrieved 2.4.2014)

## 3 Theoretical background

### 3.1 Seafaring history

*“Puuveneen veistää aina tietty henkilö, johon syntyy henkilökohtainen suhde. Puuvenettä et voi ostaa valintatalosta, etkä voi ostaa venettä vailla historiaa. Tilaat sen tai tutustut siihen kuin uuteen ystävään, yrität perehtyä sen vaiheisiin, etsit sen persoonallisuutta. Siksi puhuttelet sitä nimeltä.”*

(Rovamo P., Lintunen M, 1999, p. 39-46)

Free translation of the quote:

*“A Wooden boat is always made by a certain person to whom a personal relationship is formed. You cannot buy a wooden boat from the local store and you cannot buy a boat without its history. You order it or, you get to know it like a new friend, you try to learn its life, and you search for its personality. That is why you speak to the boat by its name.”*

The history of seafaring started when the first people learned to move on water. Whether it was by accident or some daredevil who first dared to cross the water, nobody knows. The only thing we can be relatively sure of is that the water bodies

that used to separate the continents and the people eventually became the most important transport routes in the world. The first people crossing the water used simple logs and probably their hands or legs as paddles. During the Stone Age (4500 BC – 1300 BC) people used log boats which were made out of a single piece of wood, carved hollow and left unfinished outside. Those boats were pushed forward with paddles. Similar boats were used all around the world, just their material, shape and structure varied depending on where they were made and used (Bass G.F, 1974, p. 12-17, 160-165).

Later in the Bronze Age the log boats started to get more structure on the outside and finally developed into small flat bottomed rowing boats. They also started to develop towards the shape as we know them now; a ship-like structure with a keel and firm side planks and a higher stem. This was when water bodies became transport routes, which instead of separating started to unite people. It was easier and also cheaper to move goods by water than by land. Ships also had more capacity for the cargo than any other transport method at the times. Approximately around 600 AC the first sails appeared and people learned how to use the wind. With sails it was possible to cross even larger water bodies and travel longer distances than before (Riimala E.1993, p. 12-16 and Bass G.F, 197, p. 165-168).

The pioneers in sailing were e.g. the Vikings whose journeys reached all the way from Europe to America long before Columbus even was born (Bass G.F, 1974, p.181-204 and Johnson D.S., Nurminen J., 2007, p. 122-141). Boats grow slowly in size and in capacity. The boat building methods developed when people traveled and shared ideas. Each ship built has always represented unique building traditions and techniques depending on where it was made and by whom. The people and the goods could move faster and longer, which meant that the cultures started to meet, change ideas with each other and finally mix together. This can be seen e.g. in shipbuilding and riggings that were later almost identical in Europe (Johnson D.S., Nurminen J., 2007, p. 41-46).

Not just the sailing ship was representing its origins, but the whole crew on board carried a personal life, belongings and other marks and items from their origins with them when sailing. Since the ship also had its cargo on board and always a destination for its voyage, this meant that the ships carried a kind of miniature collection of its time inside the hull. When those ships went down, they did not take just planks and



some lives with them, but instead picture of the time was sealed inside the wreck (Hagberg B., Dahm J., Douglas C., 2008, p. 9-10).

In the Baltic Sea the time of the sailing ships was relatively busy. Countries battled over the lordship of the seas and equipped their armada's with most the modern technique of the time. The Baltic Sea has been under many different commands and countless battles have been fought along its shores (Riimala E., 1993, p. 34-42).

The Baltic Sea is shallow and its shores are rocky. Therefore it was difficult to sail on the Baltic Sea. Sailing was often done under the cover of the archipelago and different landmarks were used as navigational aids. Maps were still rough estimations. This made sailing dangerous and people were forced to sail mostly in the daytime (Hagberg B., Dahm J., Douglas C., 2008, p. 14-18). The risk of landing on the rocks was huge as well as the risk of getting robbed by the pirates. Piracy was practiced at the sea and by the people living in the coastal areas. They robbed and took over ships that sailed too close to the shore. Some of the so called pirates even had permission to practice piracy. Especially here on the area that we now know as the Finnish archipelago and on the area where the wrecks of the project are laying, it was common to get robbed at the time (Hagberg B., Dahm J., Douglas C., 2008, p. 19, Ruusuvoori J: *Itämeren Merirosvot* ). Due to many reasons like these we now have thousands of remains such as shipwrecks from those battles. In the certain areas like on the island of Hauensuoli in Hanko this heritage is clearly visible even today (Riimala E., 1993, p. 30-33).

The lakes, rivers and the sea have been important in different times and united the people. That history has not passed without leaving its marks. Some of those trails have been found and studied, but a big part is still missing and waiting for the finder. The Baltic Sea is very unique also due to its biological properties, dark and cold brackish water and low salinity. Therefore we can still find wrecks here that somewhere else would be mostly destroyed or eaten by worms by now (Swedish Maritime Museum, 2003, p. 24-32).

### **3.2 The Underwater Cultural Heritage**

The terms *Cultural heritage* and *Cultural monument* include a wide range of objects. It can be used when we talk about written or told heritage, monuments, artefacts, art or buildings to name a few. In this thesis I talk about *The Underwater Cultural Heritage*,

which narrows down the scale to all those objects that are buried underwater for different reasons. It might be a shipwreck, a single artefact or even remains of an ancient accommodation place. The shipwrecks, which this thesis is mostly about, belong to the Underwater Cultural Heritage and they are part of the Cultural Environment and are protected by *The Antiquities Act* (Antiquities Act: June 17, 1963 (295/63) in Finland.

More precisely this thesis concentrates on three specific wrecks located in the Hanko and Kemiönsaari archipelago, through a mooring and monitoring project which was started in the summer 2013. In the project mooring buoys were set up to protect three cultural heritage sites that are in danger of being destroyed e.g. by increasing visitor amounts, improper anchoring techniques and by people that lack of knowledge about sustainable diving practices.

In the Baltic Sea and also on the Finnish waters we have thousands of shipwrecks from different times and just a small part of them has been found so far. The database of the National Board of Antiquities (<http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/portti/default.aspx>, retrieved 29.4.2014) and e.g. the webpage [hylyt.net](http://www.hylyt.net/) (<http://www.hylyt.net/>, retrieved 29.4.2014) provide information about the amount of the wrecks and other underwater cultural heritage sites. The Estonian National Heritage Board has recently also been developed a database in a project called *Shipwher*, where they link the already existing databases of project partners in order to obtain an overall picture of the shipwrecks in the Baltic Sea (<http://www.muinas.ee/shipwher-1>, retrieved 29.4.2014).

The Underwater Cultural Heritage should not be forgotten when making plans on the coastal areas and e.g. when conducting the Environmental Impact Assessment (EIA) on the land use in coastal areas which might harm the cultural environment. The reason why the Underwater Cultural Heritage is often more easily “forgotten” in that context is simply because one cannot see or visit those sites with the same easiness as similar sites on land. It is not entirely clear to people that just as you would not touch and harm the monuments in museums or e.g. old churches or graveyards, you should not touch or harm the wreck while diving either (Therivel r, Morris P, 1995, p. 122-143).

The museums of the Maritime History arrange exhibitions about the underwater cultural heritage in which this essential information is brought up to as large an

extent as possible through traditional methods. Some underwater sites like wrecks have even presented as they are e.g. via 3D technique and 360 degree photos. That has definitely brought a new side of these objects available for the larger audience. Some sites can also be visited via simulation. In Finland we have a few examples of how to illustrate such sites e.g. a recent exhibition *Mereen menetetyt* (24.4.2012-13.1.2013) in the Finnish Maritime Museum, *Vellamo* (Merikeskus Vellamo: <http://www.merikeskusvellamo.fi/en/>, retrieved 2.4.2014), presented a simulation about the wreck of the *Vrouw Maria* (Re-Discovering Vrouw Maria. <http://sysrep.aalto.fi/vrouwmaria/>, retrieved 3.4.2014). Other interesting projects where new techniques have been developed is the project called *Dive Park Vättern* (Dive Park Vättern: <http://www.dykparkvatthern.se/eng/#home>, retrieved 3.4.2014), on the lake Vättern, in southern Sweden. In that project the wreck of *Eric Nordewall* was filmed and photographed. Based on the material 360 degree visualization was created in a smart phone application that allows the user to turn the image and look at the wreck as they would be diving themselves. Such methods are called also diving for non-divers. (Roio M., 2013, p. 245-258, 271-283).

One traditional way of telling about the Underwater Cultural Heritage is through divers. Divers can be called even ambassadors of the seas because they see the environment that many can never visit. They can also tell about their findings and experiences to the public. All projects described above included diving and underwater techniques which are developing fast. New cameras, computers and internet allow the underwater landscape to be more visible for the larger audience than before. It has even become relatively common to use underwater landscape e.g. as a part of the advertisement and we have got used to seeing pictures of the coral reefs and colorful fish whereas using the technique to visualize the underwater cultural heritage, like in the projects above, has barely started.

Diving as a business is increasing and becoming easier, cheaper and safer. This means that also the Underwater Cultural Heritage will hopefully be more represented in the future. To some extent this could result in a situation where those sites, which contain unique information and have been untouched for hundreds of years, become tourist sites in a small scale and they would face problems like erosion, damages and even vandalism in the worst case. Therefore some actions in managing the sites are necessary, like informing the visitors and sharing the knowledge about the proper

methods of sustainable tourism on The Cultural Heritage sites. This mooring project and thesis is one way of trying to achieve those goals.



Picture 5: The mooring buoy of the Osborn & Elisabeth installed, June 2013 © Hanna Halonen

### **3.3 Present state on the protection of the Underwater Cultural Heritage in Finland**

In the current economic situation, also the National Board of Antiquities has very little resources for archaeological research, especially in the Maritime Archaeology. At the National Board of Antiquities there are two permanent maritime archaeologist positions and yet just one of them is filled at the moment. Yearly check dives and monitoring covers only a small part of the wrecks that should be monitored regularly, and all of them cannot be visited by the authorities due to the lack of resources – both monetary and personnel. There are many sites and areas that lack the basic archaeological research information. Also inventories are not conducted – lake areas and rivers are very poorly known and inventories at the territorial waters are very sporadic. Some sites should be surveyed regularly, but at the moment this is not possible (Ahlvik R., Researcher, the National Board of Antiquities). At the same time there is growing number of private and commercial actors that operate in the coastal areas by offering diving tours and doing private diving trips on these underwater cultural heritage sites. These actions may result to changes on the sites as described before, and therefore in this pilot project one aim is to see if the private projects like this could benefit authorities in their work and bring information that otherwise would not be gained. At the moment future of this type of work is unknown due to e.g. financial matters, but this pilot project will be conducted to the end and the results will be evaluated later.

### 3.4 Properties of the Baltic Sea - Why it conserves the wooden wrecks

The Baltic Sea is a land-locked brackish water basin and the more towards the north you go the more the conditions are changing towards fresh water. We have for example many species that are classified as freshwater species living in the Baltic Sea. It is also commonly known that the Baltic Sea is one of the most polluted seas in the world. Increasing industrialization around the coastal areas of the Baltic Sea, pollution from industry, agriculture, forestry and tourism cause leakages. E.g. sewage and fertilizers end up in the Baltic Sea to some extent. These increasing amounts of nutritive salts and a low circulation in a shallow and almost land-locked basin result in the eutrophication of the Baltic Sea. The countries around the Baltic Sea have tried to achieve some positive results by implementing e.g. EU legislation and different treaties and procedures, but still the sea is under a high stress. The water flow of the salty water through the Danish Belts and the Sound is slow. We seldom get salt impulses that bring water rich in oxygen into the Baltic Sea. This leads to a low salinity and is one of the most crucial reasons why the Baltic Sea is an advantageous place to find and to see old wooden wrecks that are still almost intact (Swedish Maritime Museum, 2003: *Treasures of the Baltic Sea – A hidden wealth of culture*, 24-33).

*Ship's worm* or actually mollusk (*Teredo Navalis*) eats the wood in the other seas relatively fast and does not survive in the brackish water of the Baltic Sea. This worm might sometimes enter via salt impulses to the Baltic Sea, but it cannot breed and therefore cannot survive in low salinity conditions for long (Hagberg B., Dahm J., Douglas C., 2008, p. 6-7). Another reason for the wood-conserving property of the Baltic Sea is the emissions that cause eutrophication. In Finland we have even one fourth of the sea beds anoxic based on studies. This means that there is a low level of or even no oxygen for the sea life to survive (Ryhänen, E. L., 2003, p. 165). Habitats are simply too poisonous to maintain life. Sediments where the wrecks often are partly buried contain bacteria that use the remaining oxygen and produce a poisonous gas, Hydrogen Sulphate, when breaking down organic material. These are the reasons for there being only little disturbance for the wrecks that are lying on the seabed. These conditions, though sad for the nature, are excellent for conservation of the wrecks *in situ* in a way no other sea can do. The cold and dark water of the Baltic Sea also protects the sites from the daylight which would be harmful for the wrecks. The

situation in the Baltic Sea is relatively stable for the wrecks, but this does not mean that changes would not happen. The wrecks are still very fragile as the time and the bacteria are affecting them. All the wooden wrecks are decomposing, but the process is slow. For marine archaeologist and historians the Baltic Sea is definitely the most unique place there is in the world to study wooden wrecks (Swedish Maritime Museum, 2003, p. 24-32).

### **3.5 Integrated Coastal Zone Management**

The Integrated Coastal Zone Management tries to answer to the pressure from different actors on the coastal zone areas. The environment, sustainable use of nature, tourism, agriculture and different businesses are often colliding because they have different interests regarding e.g. the land use of the coastal and underwater areas. Under the field of the Coastal Zone Management it is crucial to understand that the coastline is not restricted to the shoreline. Depending of the scope it continues underwater and in the archipelago. Sometimes we should even think further than that as the water movement makes everything done at sea is closely related to what happens on the coastline, e.g. oil spills and other emissions from cargo ships. (ICZM: <http://ec.europa.eu/environment/iczm/home.htm>, retrieved 3.4.2014).

This thesis is focused to the narrow area of the underwater cultural heritage and the cultural environment within the scope of the Integrated Coastal Zone Management. Cultural Environment is often threatened also on the coastline. People cultivate, build, modify and accommodate the coastline faster than ever and in this process cultural landscapes often lose their characteristics or sometimes even more than that. This type of a heritage is something that cannot be replaced afterwards if once lost. The cultural environment always has a meaning for the people. Knowing the past and the present in this cultural context gives a background for decision-making and planning of the development in the coastal areas. Understanding this is also important when implementing sustainable development strategies on the coastal regions. Without understanding the background of the people and adjusting the frames of the development to fit that context results are often thin and short-term. A change towards a sustainable development comes from the people and people always have their roots, cultural and social context. Without understanding that any change is hard to achieve (UNESCO, Intangible cultural heritage: A force for sustainable development:

<http://www.unesco.org/new/en/media-services/in-focus-articles/intangible-cultural-heritage-for-sustainable-development/>, retrieved, 3.4.2014).

### 3.6 Sustainable Development

Sustainable development is a local or a global change and type of development that fulfills the needs of the society without questioning the needs of the future generations. In the EU legislation describes the Sustainable Development as followed; *“Sustainable Development stands for meeting the needs of present generations without jeopardizing the ability of future generations to meet their own needs”* (Review of the European Union Strategy for Sustainable Development: COM/2009/0400, final version).

Under the scope of the sustainable development fall many categories including e.g. economical, environmental, cultural and social development. Especially the environmental values and preserving the nature is one of the main values, since loss of the ecosystems that support the life leads to the social and economical changes and to unsustainable development, like poverty. The sustainable development has important role e.g. in EU Strategy, frameworks and decision making (EU 2013/Eurostat: European Union: *Sustainable development in the European Union*).

In the June 2012 Rio+20 the United Nations Conference on sustainable development took place in Brazil. The conference marked the 20<sup>th</sup> anniversary of the 1992 the United Nations Conference on Environment and Development (UNCED), in Rio de Janeiro, and the 10<sup>th</sup> anniversary of the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg. Themes in 2012 were a green economy in the context of sustainable development poverty eradication and institutional framework for sustainable development. “Rio +20” concentrated to holistic approach to tackle modern world challenges. This Thesis can be categorized under the Sustainable Development and more precisely under the sustainable development of cultural environment within the scope of the Integrated Coastal Zone Management.

(Rio+20:<http://www.uncsd2012.org/>, retrieved 3.4.2014)



Picture 9. Diver is accidentally making contact with the wreck © Kari Hyttinen

### 3.7 The Antiquities Act

Legislation protecting the ship finds in Finland is based on the Antiquities Act. The Antiquities Act states that in Finland all the ship finds which are, or could be expected to be over 100 years old are protected by the law. Over 100 year old ship finds belong to the state and without permit they should not be harmed, covered, changed, damaged, disturbed or destroyed by any method. The Act states following; *“Fixed antiquities are protected as reminders of Finland's past settlements and history. Without permission granted under this act it is prohibited to dig, cover, modify, damage, remove or physically interfere with antiquities”*.

Antiquities Act: June 17, 1963 (295/63):

([http://www.finlex.fi/fi/laki/alkup/1963/19630295?search%5Btype%5D=pika&search%5Bpika%5D=%5D=Muinaismuistolaki \(295/63\), retrieved 2.4.2014\).](http://www.finlex.fi/fi/laki/alkup/1963/19630295?search%5Btype%5D=pika&search%5Bpika%5D=%5D=Muinaismuistolaki%5D(295/63), retrieved 2.4.2014).)

The aim of the act is to save remains of our common cultural history, underwater cultural heritage for the future generations and guarantee that it can be visited, seen and researched also in the future. Without this law we would lose huge amount of knowledge and historical evidence what the shipwrecks carry.

Unfortunately we have lately witnessed cases that cultural heritage has been put under the price tag, like the champagne wreck in Åland Despite of that it should be understood that setting monetary value to something that cannot be replaced in the future is wrong on both ways; ethically and morally.



All the wreck findings should be reported to the Finnish National Board of Antiquities. Reporting to the authorities is important that proper decisions about possible research and documenting of the new finds can be made. NBA manages the open database for the cultural heritage sites, monuments and other finds. Access to this Database was opened for the public only few years ago, although some information about the locations of the wrecks has been available in the internet before and through a personal request from the NBA directly. Since this database is open and available in the internet, it also means that anybody can visit there anonymously. This openness has caused many positive things including people informing more often about the changes they see at the wrecks and reporting for example about the illegal activities, which might include lifting artefacts or attempts to sell them in the internet. Unfortunately the downside is carelessness and “treasure hunters” that visit and damage the wrecks. We have witnessed the problem of items getting stolen or moved from their original context and wrecks getting destroyed due to those actions. Finding of the wreck can photograph, take video and make notes about the sites, but work that harms the site and causes changes which are irreplaceable later is forbidden. Not all the sites are worth of saving, but proper documenting and decisions should be made by professionals not by own judgment.

Dating and identifying the finds are difficult and time demanding task even for the professionals and in great likelihood impossible for a regular visitor. Small details can tell a lot about reasons why e.g. the boat did sink. All changes caused by human invasion or other non-natural movement on the site makes this work harder and in the worst case, impossible. On an underwater site processes like decomposing, wood eating bacteria and chemical changes are ongoing continuously. Any change and movement makes this processes faster (The Antiquities Act: [http://www.nba.fi/en/cultural\\_environment/archaeological\\_heritage/official\\_protection](http://www.nba.fi/en/cultural_environment/archaeological_heritage/official_protection), retrieved 9.4.2014).

### **3.8 UNESCO - Convention on the Protection of the Underwater Cultural Heritage**

The Underwater Cultural Heritage is relatively unknown among the larger audience still. Therefore for example UNESCO (United Nations Educational, Scientific and Cultural Organization) created a treaty which was adopted in the General Conference

of UNESCO in 2<sup>nd</sup> of November 2001. This treaty is called The Convention on the Protection of the Underwater Cultural Heritage and it has similar aim on international level than e.g. Antiquities Act in Finland on national level has. The Convention on the Protection of the Underwater Cultural Heritage aims to protection of the traces from past life and defines its purpose as followed;

*“The UNESCO 2001 Convention defines in its Article 1:*

*For the purposes of this Convention:*

*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, artifacts 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.*

*(b) Pipelines and cables placed on the seabed shall not be considered as underwater cultural heritage.*

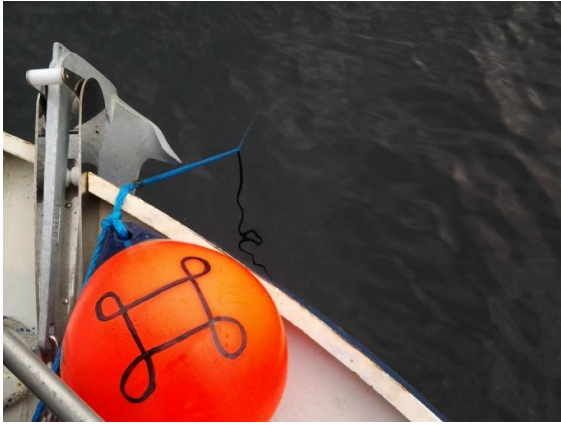
*(c) Installations other than pipelines and cables, placed on the seabed and still in use, shall not be considered as underwater cultural heritage.”*

The Convention states the importance of these underwater monuments, their cultural and historical value and importance of protection, but it also underlines that those sites are common asset and encourages States to public access, sharing knowledge, and in general enjoyment of the public. At the moment 46 states (States parties:

<http://www.unesco.org/eri/la/convention.asp?KO=13520&language=E&order=alpha>, retrieved 28.4.2014) have been verifying the UNESCO Convention of the Protection on the

Underwater Cultural Heritage in the world and Finland is not among those states, at least not yet. (UNESCO, Convention of Protection of Underwater Cultural Heritage:

(<http://www.unesco.org/new/en/culture/themes/underwater-cultural-heritage/2001-convention/official-text/>, retrieved 2.4.2012.)



Picture 6. Bright colored surface buoys attract the interest of the people; what might be under the surface? © Hanna Halonen

## 4 The aim and the research question

This Thesis is based on the five year pilot project in Hanko and Kemiönsaari archipelago, Finland (2013-2017). Project was done in co-operation with the Finnish National Board of Antiquities and the private side, Hanna Halonen/Hanko Diving. The aim of the pilot project and for the Thesis is to find out ways to preserve the underwater cultural heritage.

To reach that aim the pilot project is focuses to the yearly monitoring of the three underwater cultural heritage sites; preservation and sustainable use of the underwater cultural environment and the cultural heritage monuments, wrecks, on those sites. The research question is if these mooring buoys help in the preservation work and improve the current situation where the underwater cultural heritage is getting destroyed by unsustainable diving and anchoring methods.

The practical aim for the project is to protect the three wooden wreck sites in Hanko and Kemiönsaari archipelago from further damages by setting mooring buoys on each site that visitors can safely attach their vessels while diving without causing disturbance for the wrecks. The mooring buoys should have all of the safety aspects in shape for the divers like stability and size. They should also be approved by official site (i.e. Finnish National Board of Antiquities: <http://www.nba.fi/en/index>, retrieved, 2.4.201., Ely-centre - Centre for Economic Development, Transport and the Environment: <http://www.ely-keskus.fi/en/web/ely-en/>, retrieved 2.4.2014., Finnish Transport Agency: <http://portal.liikennevirasto.fi/sivu/www/e/>, retrieved 2.4.2014), properly marked for the sea traffic, easy to attach and undo e.g. during the winter and for the service. These

mooring buoys should not be attached directly into the wrecks and they should offer a safe passageway for the divers down to the wreck without causing damage.

The project aims to increase the amount of awareness about the underwater cultural heritage and the sustainable diving methods on the cultural heritage sites e.g. by creating channels into the social media like Facebook. The project should be visible and open to the audience. Meaning is to show that it is possible to accomplish both goals; preserving the underwater cultural heritage sites and have the safe recreational use, enjoyment, of the public.

The Thesis is constructed around the first part of the pilot project which started from the application of the allowance for the maintenance of relics (autumn 2012) and continued until all of the mooring buoys were installed, first feedback from the visitors was received and the first round of the monitoring was done (spring 2014).



Picture2. Loading of the bottom weights, June 2013 © Hanna Halonen

## 5 Approach and implementation

This project and the Thesis is based on the background study of the subject (the underwater cultural heritage), which includes the knowledge about the area of Hanko and Kemiönsaari archipelago in the context of the underwater cultural heritage and the review on the similar projects done before on the Baltic Sea area, like the wreck park of Kronprins Gustav Adolf. It is important to understand the importance of these underwater cultural heritage sites also for the diving community, since there is no place on the earth where this side of the cultural heritage would be preserved on the similar way than in The Baltic Sea. These sites are unique in the world.

The theoretical framework is consisting of the seafaring history and the current situation in protection of the underwater cultural heritage in Finland. Relevant law (the Antiquities Act) and the UNESCO Convention on the Protection of the Underwater Cultural Heritage are also presented as a part of the theoretical framework. Those are building the frames for the purpose of the project. It is also relevant for the reader to understand the basic properties of the Baltic Sea and how it preserves these wooden wrecks. The theoretical framework includes chapters; Integrated Coastal Zone Management and Sustainable Development. Meaning of those chapters is to make the connection, in-between the project and the study field of Integrated Coastal Zone Management, clear for the reader. Together the background knowledge and the theoretical framework are building the approach for the five year pilot project and for the Thesis.

In this Thesis I am reporting the first part of the five year pilot project (2013-2014) where the implementation of this background knowledge was started by planning the monitoring and mooring work, by conducting the first year monitoring and establishing the sites.

In the Thesis roughly five phases of the project can be identified; 1) The planning of the budget and applying the allowance for the maintenance of the relics, 2) Applying the permits required from the different authorities and from the water area owners in order to receive the allowance, 3) The planning of the mooring and monitoring work and conducting the mooring and first round of monitoring in the summer 2013, 4) Identifying the start point for monitoring based on the first year material 5) Receiving the feedback from the stakeholders and from the first visitors after the first year, and based on that identify the pros and cons of this type of preserving work.

I have also added links into many chapters of the Thesis which lead to the recent projects and other examples from the field, where the underwater cultural heritage has been well presented in my opinion, or where it has been under a public discussion lately.

## **6 The project and its results**

### **6.1 The Application of Allowance for Maintenance of Relics**

In the autumn 2012 it became possible to apply the Allowance for the Maintenance of Relics also for the Underwater Cultural Heritage. This allowance admitted for the project should be used to protect and take care of the underwater cultural heritage monuments, which e.g. all those over 100 year old wrecks within this project are. The application was first written for several wreck sites. Among those, three sites were finally selected by the NBA. The sites were selected based on e.g. their current condition, visitor amounts and the historical value. Original plan was to set four buoys on the three sites, but that had to be narrowed down to three buoys due to practical issues, like location close by waterways. After the mooring the project plan is to start yearly monitoring, where possible changes, diver amounts and the condition of the wrecks will be evaluated. The project was started in the spring 2013. First part, planning, had been done already for the application and second part, setting the timetables for the summer started when application was approved in the spring 2013. Two companies were hired for the construction work and before that inspection dives on the sites were made with the NBA archaeologist and Hanko Diving together. Pilot project was launched in 2013 and it will continue until the autumn 2017 in the form of managing the buoys and monitoring the sites. Budget for the project, working hours and accounting has been attached to this document [Appendix 1-3].

(Allowance for maintenance of relics /NBA:

[http://www.nba.fi/fi/kulttuuriymparisto/arkeologinen\\_perinto/muinaisjaannosten\\_hoito/hoidon\\_toteutus/hoitoluvan\\_hakeminen](http://www.nba.fi/fi/kulttuuriymparisto/arkeologinen_perinto/muinaisjaannosten_hoito/hoidon_toteutus/hoitoluvan_hakeminen), retrieved 9.4.2014).

### **6.2 The Permits**

Several permits were required in order to get the Allowance for the Maintenance of Relics. These permits included the permit from water area owners, the permit from the Finnish Transport Agency / Maintenance of Waterways -department and statement from the Centre of Economic Development, Transport and the Environment (Ely -centre). Contact was made also to the municipalities of the areas. Both municipalities, Hanko and Kemiönsaari were supportive towards the project, but both underlined the importance of the permits from the water area owners in the phone

discussions. The water area owner for the Island of Hauensuoli is Metsähallitus (Finnish state enterprise that administers the state-owned land and water areas). Metsähallitus gave the permit first. Searching of the water area owners for the other sites, the Osborn & Elisabeth and the Garpen 1 turned out to be more difficult. It is relatively costly to ask this information from the National Land and Survey of Finland and I had no money reserved for that purpose. Therefore I had to search the water area owners by using internet, making contacts to municipalities and by asking from people working e.g. for the Hanko city. At the end this contact person turned out to be association called Bolax Gillet ([www.bolaxgillet.fi](http://www.bolaxgillet.fi)). The chairman of the association gave the Bolax Gillet's approval via email. The permit from the Finnish Transport Agency (waterways department) was not hard to get, but they gave their approval with certain requirements about locations and we had to inform them about size and color of the surface buoys. The Finnish Transport Agency also informed the sea traffic via official ways about the location of the buoys. I am required to inform them also after the project about what happens to the mooring buoy installations. Ely-centre gave also a statement and permit which is attached to the [Appendix 11].

### **6.3 Mooring Project in short – Rough timetable for the Project**

- The Application for the Allowance for the Maintenance of Relics and planning of the project – Autumn 2012
- the Allowance for the Maintenance of Relics received - Spring 2013
- Hiring the companies for the project – Spring 2013
- Preparation of the mooring buoys and the installation – Spring/Summer 2013
- Planning of the monitoring –Spring/Summer 2013
- First documenting period – Summer 2013
- Yearly monitoring and indentifying the changes on the sites - 2013-2107
- Results – 2017- 2018

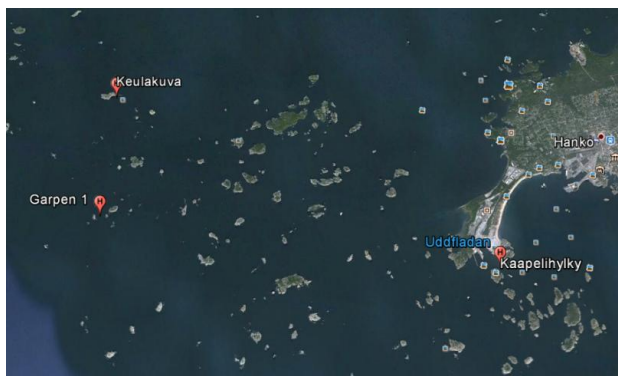
### **6.4 Sites**

Sites within this project present the three different stages in the deconstructing cycle of the wreck. First there is the wreck of Osborn & Elisabeth presenting the first stage; wreck lies still in upright position, but starts to lean on the starboard side and open into two halves. Second stage is the Wreck of Garpen 1. It presents the stage where

wreck has been collapsing and opening to both sides, remanding a peapod. Many details are still on place and despite of the damages due to e.g. anchoring on site most parts can be found. Last there is The Cable Wreck. The Cable Wreck has been starting to bury into the sediment, it has lost many parts of the structure but still it can be easily recognized as a ship. Form, frames and many details like the anchor winch still exist. (Wreck descriptions:

<http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/portti/default.aspx>, retrieved 9.4.2014 and 1<sup>st</sup> monitoring dive June 2013, mooring project)

These three wreck sites are also among the most visited dive sites on the area of Hanko and Kemiönsaari. All of them have important recreational value to many visitors. Due to their relatively shallow location and accessibility they attract divers from all levels. This means that visitors vary between advanced level and beginners with still possible problems in neutral buoyancy and balancing while diving. Experience does not always guarantee the knowledge about the specific diving techniques on fragile sites, but naturally it is a benefit. Informing visitors about the sustainable diving methods should be done more e.g. during the diver education. Sustainable diving includes proper neutral buoyancy and swimming techniques where e.g. the fins of the divers do not cause harm to the wreck. Lack of knowledge and poor diving skills are the reasons why people touch and damage these sites often accidentally. The wrecks in the project are all from 16-18<sup>th</sup> century wooden wrecks that all still contain information that is interesting when researching e.g. history of the boat building.



Picture 11. The locations of the sites, nearby Hanko peninsula. Map source: Google maps



#### **6.4.1 The Wreck of Osborn & Elisabeth “Keulakuvahylky” (59°51.701N~22°46.147E)**

This 28 m long and 7m wide wooden wreck is assumed to be English brig Osborn & Elisabeth that was as built in Ramsgate, England in 1857 and sunk in September 1873. Ship was sailing from London to Kronstadt under the command of Captain Wright with crew of eight. Finnish name given to the wreck “Keulakuva” means figurehead. The figurehead was still on place in the bow of the ship until the year 2001. In 2001 it had fallen down, most likely because of too many people touching it during their dives. At the moment this figure is located in to Finnish Maritime Museum in Kotka. Despite of the damages that can be seen all over the site, the wreck is relatively well preserved and many details like rudder and anchor winch are on place. The ship is standing in upright position and its form is easy to understand when visiting on the site. Therefore it has become one of the most popular dive site on the area. It is lying in the depth of 14 to 18m which makes it accessible to all levels of divers. Most of the deck planking has moved during the time and collapsed either on the sides of the ship or inside of the ship’s hull. The wreck has tilted to its starboard side and the divers should avoid any contact with the ship while diving. Diving inside the wreck is dangerous and forbidden due to risks damaging the wreck and causing a collapse of the whole wreck. Especially the breathing bubbles inside the wreck and accidental fin kicks are harmful.

The wreck of Osborn & Elisabeth is most well preserved of these three wrecks within the project. It is also one of the most visited dive sites on the area and attracts diving tourists every summer. Rough estimation of the single dives done yearly on this site is varying in between 400 to 700 /year (Hanko Diving dive logs). Keulakuva presents the first stage in the deconstruction process of the wreck; it starts to deconstruct due to the time and erosion, but still stands in upright position.

(Link to the register of the Finnish National Board of Antiquities:

<http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/portti/default.aspx>

NBA registers number: Keulakuvahylky # 1513)



Picture 12. Aft of the Osborn & Elisabeth © Kari Hyttinen



Picture 13. Anchor winch of Osborn & Elisabeth. Pictures are captured from monitoring video, June 2013 © Kari Hyttinen

#### **6.4.2 The Wreck of Garpen 1 (*59°50.197 N ~ 22°45.038 E*)**

The wreck of Garpen 1 has been known already in the 60's. From the early dives to the site some drawings and documentation exists. This approximately 30-35 meter long wooden wreck lies on the clay bed and based on the findings it has been dated to the end of the 18<sup>th</sup> century. The ship had two masts and the copper draping and it is named after the location next to the Island of Garpen. Ship has been collapsing and opening like a peapod. Many details like frames, knees and anchor winch are easily still spotted on the site. On this site anchoring in to the wreck has been common and therefore some details that exist and earlier documentation (e.g. compared to the picture drawn by H. Alopeus, Appendix 7) cannot be found anymore. It seems that some planks have been moving and especially in the aft many changes has happened when comparing the situation to the pictures drawn by Alopeus e.g. the aft has been almost vanishing. Garpen 1 presents the second stage in the deconstruction process of the wreck; collapsed, but many details still exist. On the port side of the wreck is lying an anchor that might belong to the wreck as well (Picture 18.).

(Link to the register, Finnish National Board of Antiquities:

<http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/portti/default.aspx>

NBA registers number: Garpen 1 # 1511)



Picture 1. Starboard side of the Garpen 1. Monitoring video 2013 © Kari Hyttinen



Picture 18. Possible anchor of the Garpen 1. Monitoring video 2013 © Kari Hyttinen

#### **6.4.3 The Cable Wreck “Kaapelihylky” and the area of the Island Hauensuoli (59°48.408 N ~ 22°54.546 E)**

The Cable Wreck is about 18m long and 5m wide wooden sailing ship. It is mostly collapsed due to active research and investigations done earlier on the site and also suffered from unsustainable diving methods. Interesting findings like ceramic tiles have been found on the site and it has been important for the maritime archeological research. This wreck was found originally when setting underwater cable and was named after that. The cable lies still on the wreck and has been a guideline for the divers visiting the site for years. The ship has sunk most likely in the year 1647 or 1648 based on the previous research. The ship type is apparently from Holland.

The Cable Wreck has been studied a lot with different methods since it was found. Findings have been various from the small items like lead pipes to larger barrels,

cargo and e.g. the stove of the ship have been found. Lot of details have vanished during the years, e.g. barrel that is described in the earlier documentation cannot be seen anywhere. Shape of the ship, side and bottom planking are still on the place. Many wooden parts like anchor winch and planks can be also found around the wreck. The Anchor winch lies in front of the bow, almost buried in to the sediment. Most well preserved part is the port side and some deck beams in the bow of the ship. In the project new guidelines were set for divers to follow safely around the remains without destroying the parts and getting lost. On this site guidelines are especially important due to the waterways nearby. Guidelines increase the safety of the diving and mark the area of the wreck.

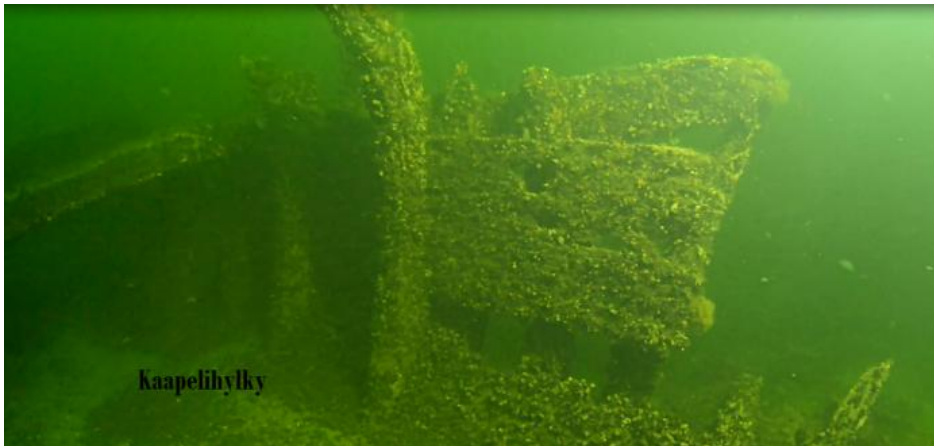
The Island of Hauensuoli is important part of the seafaring history of the area and the Cable wreck presents that well. In the protection of the Island ships used to wait the proper sailing weather. The island forms a natural harbor and on the beach it is still possible to see rock carvings from the different times, family names and signets of the people who waited and visited there. In front of the island lie also other wrecks and parts of the wrecked ships as well. In the summer 2013 we set guidelines down to some of them to provide better insight to the history of the area. The fact that the area of the island Hauensuoli has been applied to be UNESCO World Heritage Site recently tells also something about the uniqueness of the area.

The Cable wreck presents the last stage in the deconstructing process of the wreck; it is completely collapsed and most parts are buried into the sediment. Still the relatively shallow depth, various details and especially location in context to the history of the area make it unique site for the visitor (Riimala E: *Navis Fennica, Suomen Merenkulun Historia*, 30-33).

(Link to the register, Finnish National Board of Antiquities:

<http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/portti/default.aspx>

NBA registers number: Kaapelihylky # 1392)



Picture 15. Structure of the Cable Wreck © Kari Hyttinen

## 6.5 The Construction of the mooring buoys

The construction of the mooring buoys is simple [Appendix 5]. The plan we used for planning the systems was loaned from the project done in Sweden, Divepark Vättern. In that project they used similar mooring buoy systems and made plans and instructions that we later followed in our mooring project. Each buoy is constructed from two parts and a bottom weight that holds vessels up to 20 00 kg. We attached smaller buoy on the surface which is makes the system simple to maintain and take loose for winter storage. In five meters depth there is stable, larger buoy helping the divers to hold their safety stops (stop done in 5 meters depth for 3 minutes while ascending). It also makes the construction stable even in windy conditions. Maximum allowable wind speed for attaching the vessel on each site is 7m/sec. for safety reasons.

We had to adjust the original plans to suit them to our depths and purpose. On the wreck of the Osborn & Elisabeth the construction follows the plan completely, but on the wreck of Grapen 1 and on the Cable Wreck the guideline floating in the mid-water was not needed due to their structure close to bottom. Instead we sat the guidelines floating approximately one meter from the bottom. All the buoys can handle several divers at the same time and ropes are thick enough to hold larger vessels and to offer stable support for ascents and descents.



Picture16. Diver surfacing on the Cable Wreck. Mooring buoy on the left. © Kari Hyttinen



Picture 17. Bottom weight and guidelines of the Cable Wreck. © Kari Hyttinen

## 6.6 Installation of the mooring buoys

For the installation of the buoys two companies were hired. Marea Oy Ltd was hired for the underwater work and constructing and installing the buoys on the place. The vessel with the skipper was rented from Subzone Oy. Both companies have long experience in the underwater work and diving. This was crucial since placing the buoy wrong could cause damages to the sites which often do not limit to the wreck itself, but instead are widely spread on the large area around the wrecks. In the project volunteers were involved as well. Volunteers were mainly divers helping in the mapping, documenting and marking of the places for mooring buoys.

The mooring buoys were sat on place by drop-off technique from a prom (dropping the weight directly on the previously marked place). All of the places were first marked with the smaller buoys and after that, the actual bottom weights were dropped next to those small ones. After the drop off, all the ropes, connections and other details were attached on the place. The guidelines that divers are supposed to follow underwater (from bottom weight to the wreck) were also set by volunteer

divers. Installing and adjusting the guidelines was shared on several days and it took longer in the reality than setting up the bottom weights.

Several check up dives followed during the summer since it was important to monitor how the bottom weights are setting into the sediment. Dragging of the bottom weight could cause huge damages for the wrecks.

Reserved time for the constructing of the mooring buoys was six days. Most details were on place during that time. Some adjustments and setting the guidelines was done afterwards. All three mooring buoys were finally on the place in the beginning of the July. The mooring buoys stayed well on place during the first summer, only small changes to the guidelines and changing e.g. the material of the information signs on the surface buoys has to be done before the season 2014. Plan for developing the sites in the future is to have underwater information signs about the wrecks for divers in the bottom as well.



Picture 3. On the way towards the first wreck site with the prom and the buoys. © Hanna Halonen



Picture 4. Successful drop of made on the Osborn & Elisabeth. © Hanna Halonen



Picture 7. These information signs are attached to the each surface buoy. Signs will be changed to better material during the summer 2014 © Hanna Halonen

## 6.7 Five year monitoring plan

After the actual mooring, monitoring was started. Monitoring was planned based on the documentation we gained during the first summer, 2013. This material is mainly consisting of the video (K. Hyttinen, 2013) and photographs (H. Halonen, 2013). The Finnish National Board of Antiquities offered also some archive material in form of text and pictures [Appendix 5,6] to support the monitoring work. During the first year all three sites were documented by filming and photographed. This material was reviewed together with Marine Archaeologist and researcher from NBA which also was the project supervisor and contact person from the NBA.

Monitoring is crucial part of the project since we hope to gain information weather these installations help the divers to dive more sustainable way and make any affect e.g. on the speed and amount of the changes happen on the sites. When people see that the sites are monitored, managed and regularly visited it is more likely that it affects the attitudes, increase awareness and changes behavior of the visitors. On the surface bright colored mooring buoys hopefully attract interest of other people moving on water and increase understanding about the Underwater Cultural Heritage among non-divers as well.

Things that will be monitored on sites include possible marks from improper anchoring and unsustainable diving methods like marks from fins kicks. All new



scratches, broken parts, moved items, changes in sedimentation or planks free from mussels etc. Those signs are indicating that sites are still being damaged. Whereas little or no changes to conditions we have documented in the summer of 2013 indicates improved situation on the sites and increasing awareness.

Yearly monitoring is mostly done by filming and the idea is to roughly film the same routine [Appendix 5-7] in each year. Yearly gained material can be then later compared. Minimum amount of planned monitoring dives/ year is two on each the site. Additional information will be collected from visitors and via email address established specially for the purpose (hylkykohde@gmail.com). Guidelines for monitoring are also stated in monitoring plan [Appendix 9]. Material will be reviewed together with archeologist and after the project handed to the NBA.

## **6.8 Monitoring points**

For each wreck some monitoring points [Appendix 9] and filming routine [Appendix 5-7] were decided and those points will be the same throughout the project. By comparing monitoring points and video on different years, we can identify the changes on the sites. Each site has also been drawn roughly on the paper and those pictures will be as well references in orientation, and when identifying changes. Purpose of this monitoring is not to create full research, but rather offer deeper insight what is happening on the sites that are regularly visited during the summer season.

## **6.9 First year monitoring results**

All the sites were filmed during the first year and based on previous knowledge of Hanko Diving and information from NBA database few changes on the sites were spotted when the current situation was compared with that knowledge.

### **Osborn & Elisabeth**

Some marks from the unsustainable diving and possible anchoring through the deck, many areas are free from the mussels which indicate touching of the wreck. Worst damage had been in the bow where the parts had moved several meters. Reason for this has most likely been the dragging of the old marking buoy during the winter. The

marking buoy had been attached directly into the wreck which then was forgotten on the site over the winter.

### **Garpen 1**

The aft of the Garpen 1 has been changing most when compared to the old pictures from NBA archives. Parts of it have been completely vanishing. One possible reason is the anchoring on the site and also natural changes (time and currents) have been causing the sedimentation. Similar, bare and mussel free spots than in Osborn & Elisabeth indicate that people have been touching of the wreck.

### **The Cable Wreck**

The wreck is buried into the sediment and badly collapsed. Reasons are most likely previous research and inventories on the site and unsustainable diving. On the site stream is sometimes high e.g. due its location in a narrow channel which is used by large cargo boats. This causes sedimentation and the wreck will be slowly buried deeper. Some details, like rudder, existing on the previous drawings (NBA archives) cannot be found, but reason might also be sedimentation.

## **6.10 Establishing the connections to discuss with the visitors and the public**

One step for the practical part of the project is to establish e.g. social media channels to inform the audience about the timetables when the buoys are on place and taken to winter storage and other current issues relating to these sites. This channel will be later established and taken care in co-operation with the NBA. Possible choices are e.g. blog or Facebook account. During the first summer in 2013 email address, [hylkykohde@gmail.com](mailto:hylkykohde@gmail.com), has been already established to receive feedback from the users and for discussion with the different partners. So far nobody has taken contact via that, but when all the channels are on place discussion will be easier for the public and most likely this email will also be in use more. The National Board of Antiquities has been opening a webpage recently in the spring 2014 ([www.muinaispolut.fi](http://www.muinaispolut.fi)) where several on land and few underwater paths are presented for recreational use. All the sites established in this project are presented also on that webpage.

## **6.11 Public presentation**

The mooring project was presented in The Wreck Seminar 2014 on 8<sup>th</sup> of February 2014 to audience of approx. 500 people. The Wreck Seminar is organized yearly and hosted by Subzone Oy / Immi Wallin. In the year 2014 seminar was organized for the fourth time. The topic of the Seminar was the wrecks as a part of the underwater cultural heritage and preservation of them. In the seminar different diving groups and e.g. marine archaeologists were presenting their work and projects, current legislation and new things related to the subject. Main speaker of the seminar was from UNESCO presenting the convention on the protection of the underwater cultural heritage. This project and Thesis was asked to be with since it is closely related to the subject of the seminar. For personal experience seminar was excellent learning opportunity and a place to attract interest of the main audience for this project. Seminar hosted also excellent board for public discussion and in the discussion part later in this Thesis I relate to conversations we had in this context. Program of the seminar is attached to the thesis [Appendix 10].

## **7 Discussion**

The aim of the Thesis was to find out ways to preserve the underwater cultural heritage. In order to reach that aim the pilot project was started. The practical aim in this first phase was to get the permits, install the mooring buoys, plan and start the monitoring work which will continue until the year 2017. Part of the aim was also to start collecting feedback and first reflections about the use of the buoys and later establish channels for information and discussion in e.g. to the social media.

This pilot project has been working as planned during the first year. In the practical part of the project everything was accomplished within the timetable (chapter 6.3), planned hours and the budget [Appendix 1-3]. Some delays there were occurring, and those were also expected, due to e.g. harsh weather on the sea when this type of work cannot be conducted. Despite of that, the mooring buoys were all installed on the first week of July, 2013. After that, just the guidelines and the signs were adjusted on the sites. All the mooring buoy installations have stayed well on their places and buried partly into the sediment as expected. They will easily last on place during the five year period and even longer.

First documenting has been done during the summer 2013 and based on that the monitoring plan has been established. It seems that it is possible to follow the condition and unnatural changes on the sites, based on the monitoring plan and that following the sustainable diving procedures is easier for the visitors when there are ready mooring buoy installations on the sites. Proper monitoring results cannot be reported before the year 2017, after the final year of the monitoring has been done and possible feedback analyzed. Although in the April 2014 we noticed that people had been already trying to anchor on the Osborn & Elisabeth when we were installing the buoys back on the place after the winter. On the site the guideline had been almost completely ripped off most probably because of the anchoring. Luckily no harm for the wreck was done at this time. This indicates that the buoys are important part of the preservation of the sites.

This type of pilot was also new approach on the field of Integrated Coastal Zone Management, sustainable use and protection of the underwater cultural heritage. First feedback about whether these installations help in the preserving indicates that by being visible on the sites (surface buoys) and active in the places where people seek the information (social media, internet) is crucial in order to attract the interest of the audience and increase the awareness of the people towards the sustainable use of the underwater cultural heritage sites.

Feedback gained so far has been also positive. I have received some comments about the material of the information signs on the buoys, which will be changed during the summer 2014 to better lasting material. The feedback has been mostly coming directly to the project e.g. in the public event, Wreck Seminar 2014. In the seminar audience had some questions about conducting of the project, the budget of the project and future of the project. Those included speculation if there should be established reference sites, without the mooring installations in order to be able to evaluate outcome of the project better at the end. This would be definitely interesting thing to do, but at the moment resources are not covering monitoring done on the additional sites. The nature of this project is mainly to protect those sites that are mostly visited in Hanko and Kemiönsaari archipelago. Comparing these sites with any other wreck site on the area would still not offer proper results. Most of the other sites on the area are less visited yearly. One of the most affecting factor on the site is always the amount of divers per site/ year and to find similar amounts we should go

probably e.g. to the wreck park of Gustav Adolf in Helsinki to be able to compare the changes. Unfortunately there are no resources for that.

Co-operation has been working well in-between the stakeholders. Discussions, material reviews and planning e.g. ways to present these sites in social media and in the internet has been done. At the moment there is little pressure in establishing the channels into the social media since most likely possible visitors search already the information for the summer 2014. Email address, [hylkykohde@gmail.com](mailto:hylkykohde@gmail.com) has not got any post so far, but we hope to receive some feedback during the project time in order to be able to evaluate success of this project later. These connections in-between public and project will also improve when all the channels for that are on place.

Question and discussion that rose up during the first year was that why, in the first place, diving operations should be then allowed at all on the underwater cultural heritage sites if it causes damages to the wrecks? The truth is that those wrecks are not going to be there forever and sooner or later they will be finally destroyed and gone with currents, eaten by bacteria and sunken into the sediment for natural reasons, even there would not be any visitors on the site. Abandoning those sites or restricting diving completely would leave them often for nothing. Resources to study each of them proper do not exist since we have too many sites. It would not be relative even to do so, on each of them either.

At the moment four of the wrecks on Finnish waters are completely protected and diving on those is prohibited (Rules for recreational diving, NBA: [http://www.nba.fi/en/cultural\\_environment/archaeological\\_heritage/guidelines\\_for\\_prodecures](http://www.nba.fi/en/cultural_environment/archaeological_heritage/guidelines_for_prodecures), retrieved 9.4.2014). All those protected sites have greater value for the research and therefore protecting them is crucial. That protection allows constant monitoring on them and information which could be not received if there would be visitors. All wrecks do not contain the same valuable information, but they still can have e.g. the recreational value as in the case of this mooring project. It would be shame if those sites could not be visited by divers since those visitors can in the best case, as said, act as an ambassadors that tell the history forward, document the sites and maintain them as best as they can under the regulations. Diving operations are also increasing market and these *in situ* museums can be counted to be part of the yearly tourism

business as well, with a real monetary value. For that purpose sustainable use of the Underwater Cultural Heritage sites is also a priority.

## **8 Critical Review of the Thesis**

At the first phase (2013-2014) this pilot project has been successful towards its goals in sustainable use of the underwater cultural heritage sites and results so far indicate that the mooring buoys help in the preservation work. Nevertheless this type of work is also time demanding and requires e.g. monetary and personnel resources from both, the authorities and the private side, which are often not available. Therefore it is questionable if this type of work could be used on a larger scale on the same way it is done within this project. Most likely some adjustments should be done in order to conduct this type of maintenance work of relics more.

Nature of the pilot project is often that all the stakeholders are learning during the process and this was clear in this project as well. How to apply permits, connect with the authorities, supervise the work and what are the actual requirements for the work were discussed during this first phase of the project. Those discussions hopefully result in proper guidelines and clear requirements if similar projects will be conducted in the future. As an example the application form which we originally used for applying the allowance for maintenance of relics was formulated only for the sites on land like buildings and was therefore problematic to fill in.

Problem in this type of projects is also the long term commitment for the work. After the actual mooring buoy installations all the work, including; monitoring, documenting, taking care of the buoys and reporting, is based on volunteer work. In volunteer work there is always risk in lack of interest, time and in resources that might occur later. Life situations change and commitments can change as well. Those might easily affect to the final output and to the project results later on. Therefore it is crucial to consider the project duration that should be long enough to see actual results of monitoring, but same time flexible, and allow possible changes that might occur e.g. in project group composition.

Personally I see that in its best this pilot will help when improving and establishing new guidelines for the maintenance of the relics and the sustainable use of the sites in the future and offer some methods and models for planning similar work conducted

together between the authorities and the private side. From this project hopefully some ideas will rise and these results should be used probably when evaluating that how the private side, diving clubs, companies and individual divers might help in the preserving and monitoring work in the future. Could diving clubs e.g. adopt the wrecks or be involved somehow on the monitoring work and then report to the NBA? In the Wreck Seminar 2014 it was possible to see the interest that diving community shares towards this common cultural heritage and that many are willing to be involved in this type of work. It is recognized within that context group that without active preserving work these sites will vanish in the future.

### **Final words**

In the 5<sup>th</sup> Baltic Sea Region Cultural Heritage Forum, for the changing coastal and maritime culture in Tallinn on the autumn 2013 (<http://www.tallinnforum.eu/>, retrieved 27.4.2014) the main speaker, James Delgado (<http://www.jamesdelgado.com/>, retrieved 27.4.2014), spoke about his research project on the wreck of Titanic. He said that the Titanic it is not probably the most interesting wreck from a maritime archeological point of view, since we know most of it already, but that we need the celebrities sometimes to make our point when trying to convince the larger audience about the importance of the underwater cultural heritage and therefore all the projects towards that goal are important.

On a way in this project the idea follows the same thought. This project is not concentrating on the exact archeological research or new findings on the unknown wrecks, but instead it is trying to preserve few of them and make the underwater cultural heritage better known for the larger audience as well. Hopefully there will be more similar projects in the future, since saving the underwater cultural heritage for the future generations is important, as said.

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NBA registers number: Garpen 1 # 1511

NBA registers number: The Cable Wreck (Kaapelihylky) # 1392

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## **People**

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## 10 Appendix

1. Accounting
2. Working hours
3. Budget
4. Mooring Plan © Dykpark Vättern
5. Monitoring plan: Garpen 1
6. Monitoring plan: The Cable Wreck
7. Monitoring plan: Osborn & Elisabeth
8. Photograph- and video list
9. Monitoring plan – General
10. Program, Wreck Seminar 2014
11. Statement from the ELY – Centre

## 1. Accounting

Kirjanpito / Accounting

Tili Nordea/ Account Nordea: FI31 1208 3500 0835 08  
 Tilinhaltija / Account holder: Hanna Anitra Halonen  
 Hoitoavustus / Allowance for maintenance of relics: 11 000 €

Tiliote / Account statement:	Kuitti nro. / ID	PVM / Date	Summa / Amount	Mihin / Where	Mitä varten / For
	1.	16.7.2013	4.29 €	varuboden	Syntyin köysien päätelyyn
	2.	16.7.2013	24.90 €	Smörmagasinet	Lounas 3 x 8,3
	3.	18.7.2013	15.60 €	Sparhall	Tarvikkeita ohjaukseyisiin ja painonvaluun
	4.	22.7.2013	4.50 €	Nordea	Palvelumaksu
	5.	23.7.2013	24.90 €	Smörmagasinet	Lounas 3 x 8,3
	6.	24.7.2013	45.09 €	S Market	Talkooväen eväät työpäiville
	7.	7.8.2013	1 500 €	Marea	Pojjukohtaiset materiaalit
	8.	22.8.2013	5 €	Nordea	Palvelumaksu
	9.	3.9.2013	3 000.00 €	Subzone Oy	Yoldia, alusvuokra 6 päivää
	10.	23.9.2013	5 €	Nordea	Palvelumaksu
	11.	23.10.2013	5 €	Nordea	Palvelumaksu
	12.	11.12.2013	2 800 €	Marea Oy Ltd	Pojjuttusyo
	13.	23.12.2014	5 €	Nordea	Palvelumaksu
	14.	22.1.2014	5 €	Nordea	Palvelumaksu
	15.	18.2.2014	225 €	Subzone Oy	Infokyytit, laskutettu
	16.	18.2.2014	1 400 €	Subzone Oy	Kippari
	17.	18.2.2014	200 €	Marea Oy Ltd	Ohjaukseydet kaapelille
	18.	18.2.2014	500 €	Subzone Oy	Tarkastukset 2014
	19.	Payed	1 000 €	Subzone Oy	Tarkastukset 2013
	20.	Payed	5 €	Nordea	Palvelumaksu
Maksetut kulut ja kuitit yht: / Sum:			10 774.28 €		
Loppusumma varataan korjauskuluihin			225.72 €		
Money left after all costs, will be reserved for maintenance					

## 2. Working hours

### Timetable for the mooring project and hours of the volunteers:

Application and budget	Autumn
Response from the NBA	Early spring 2013
Planning and material	Spring 2013
Work, mooring	June-July 2013
Documenting	July-August 2013
Monitoring	2013-2017
Results	2018

### Volunteer work:

During the project about 200 hour volunteer works wa counted. Part of that is marked to book keeping and it consists of diving, material preparation, filming, photographing and transports. Also part of the accounting and book keeping work is calculated to volunteer work. We were also able to loan truck for transporting the bottom weights to the harbor free of charge.  
Without the volunteer work project would not have been possible to manage.

(Projektin aikana tehtiin yhteensä n. 200 tuntia talkootyötä. Talkootyö, josta kirjanpitoon merkitty osa koostui mm. sukeltamisesta, painojen valmistuksesta, materiaalien valmistelusta, viedoinnista, valokuvauksesta ja kuljetuksista. Saimme myös veloituksetta käyttöömmme nosturilla varustetun kuorma-auton, jolla poijujen painoja saatiin kuljetettua rantaan. Tunteihin on laskettu osa paperityöstä ja kirjanpidosta.)  
Ilman talkootyötä projektia ei olisi voitu toteuttaa.

Person	1	2	3	4	5	6
Diving						
Planning						
Accounting						
Application						
Reporting						
Filming						
Transports						
Buoy pick ups						
Sukellus						
Buoy pick ups						
Filming						
Transports						
Hours (approx.)	90	10	20	15	30	15

## 3. Budget

**Budget****Costs for each buoy / Poijukohtaiset kulut**

Material	Amount	€
Clips	2	37.00 €
Ropes / meter	19	38.00 €
Chains	5	75.00 €
Bottom weights	2	100.00 €
Information signs	1	25.00 €
Buoys, small	1	100.00 €
Buoys, large	2	125.00 €
<b>Sum</b>		<b>500.00 €</b>

**Personnel**

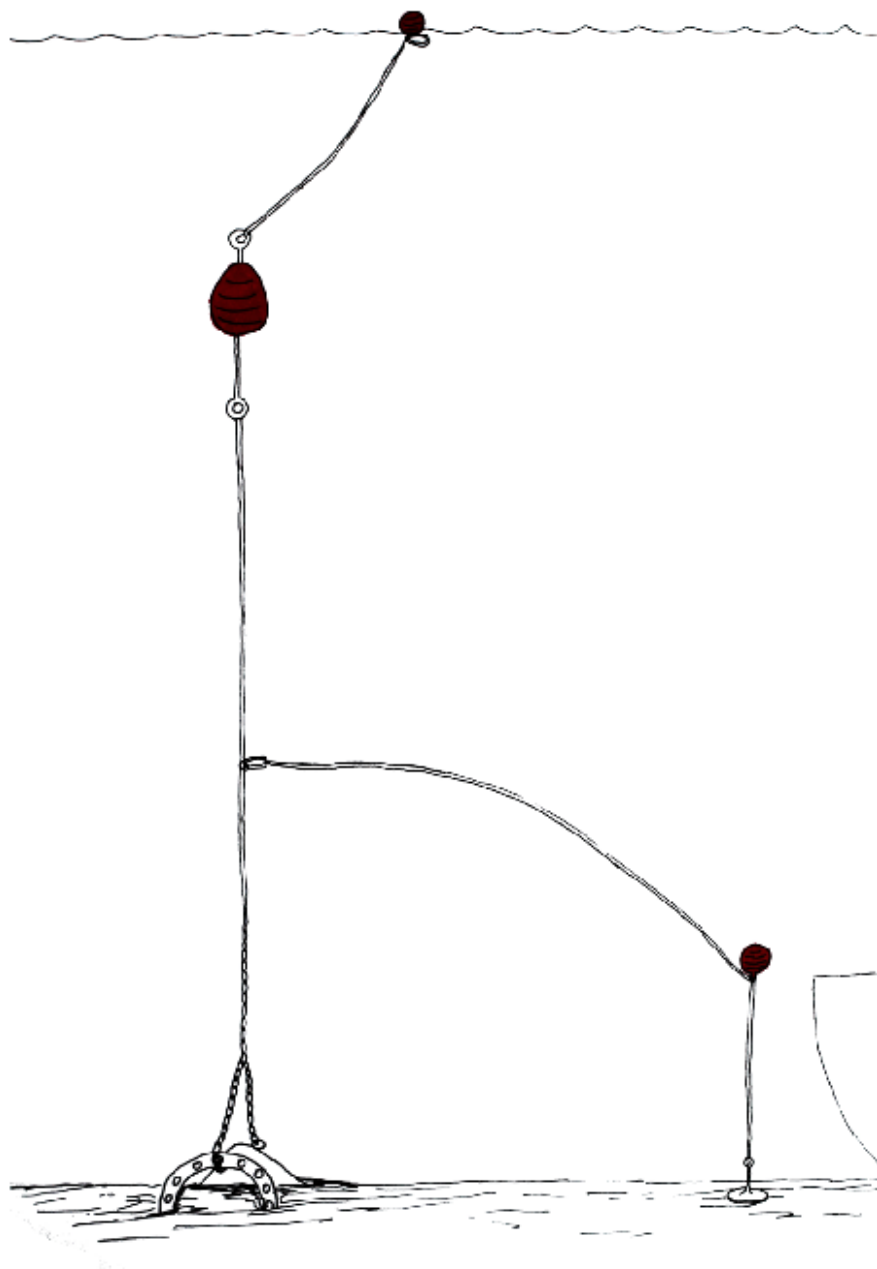
Three (3) persons will be needed for the project to manage the installation of the mooring buoys and vessel. 2 days have been booked for each buoy.

Salary costs for each buoy: 1400,00 € / 2 days (8h) / 3 persons

Rent if the vessel: 1000,00 € /day

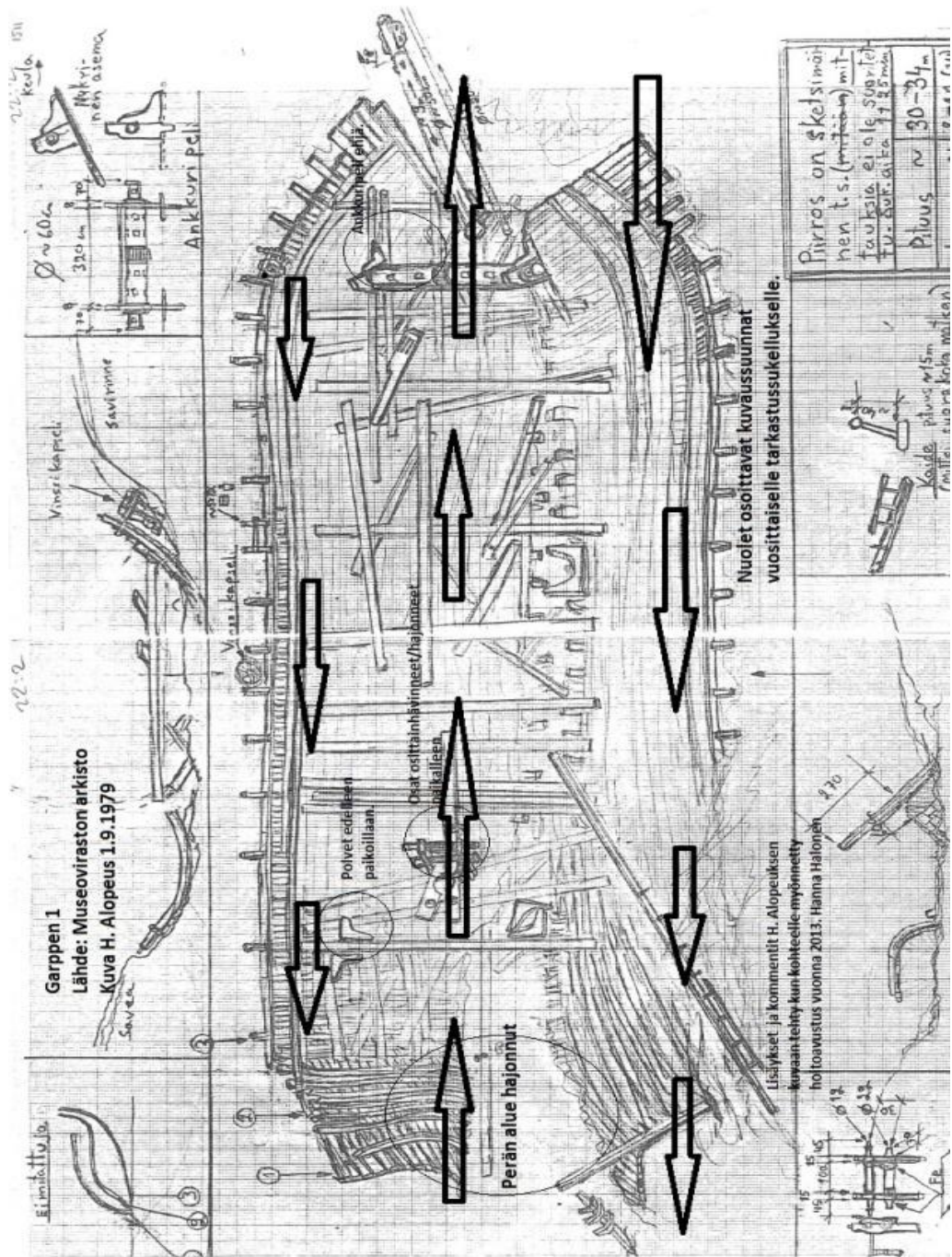
Kohde	Material	Salary	Vessel	Working days (8h)	Buoys
			1 000.00		
Cable wreck	500.00 €	1 400.00 €	€	2	1
			1 000.00		
Osborn & Elisabeth	500.00 €	1 400.00 €	€	2	1
			1 000.00		
Garppen 1	500.00 €	1 400.00 €	€	2	1
			3 000.00		
<b>Sum</b>	<b>1 500.00 €</b>	<b>4 200.00 €</b>	<b>€</b>	<b>6</b>	<b>3</b>

## 4. Mooring plan © Dykpark Vättern



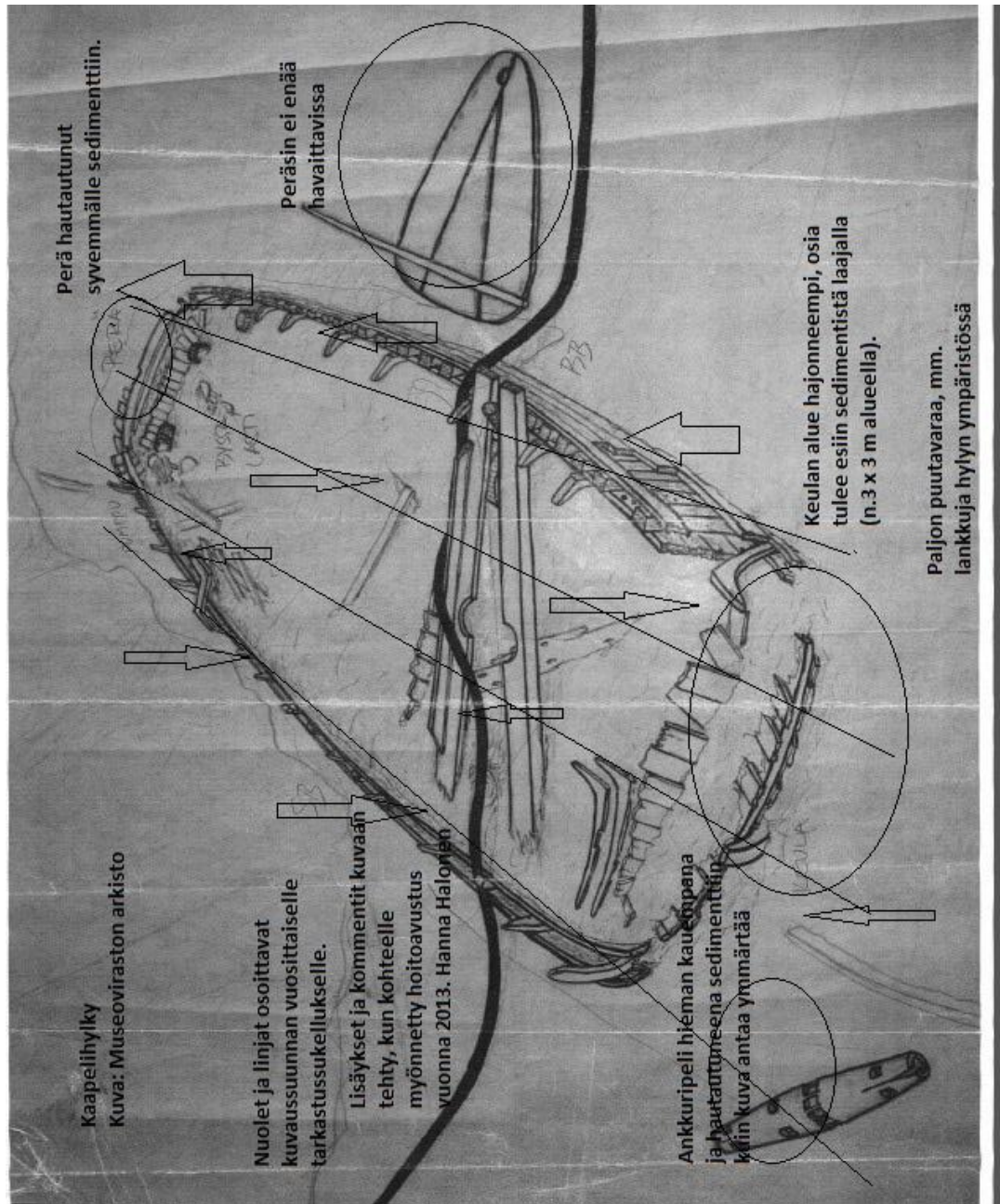
Ankringsanvisning Dykpark Vättern

5. Monitoring plan Garpen 1

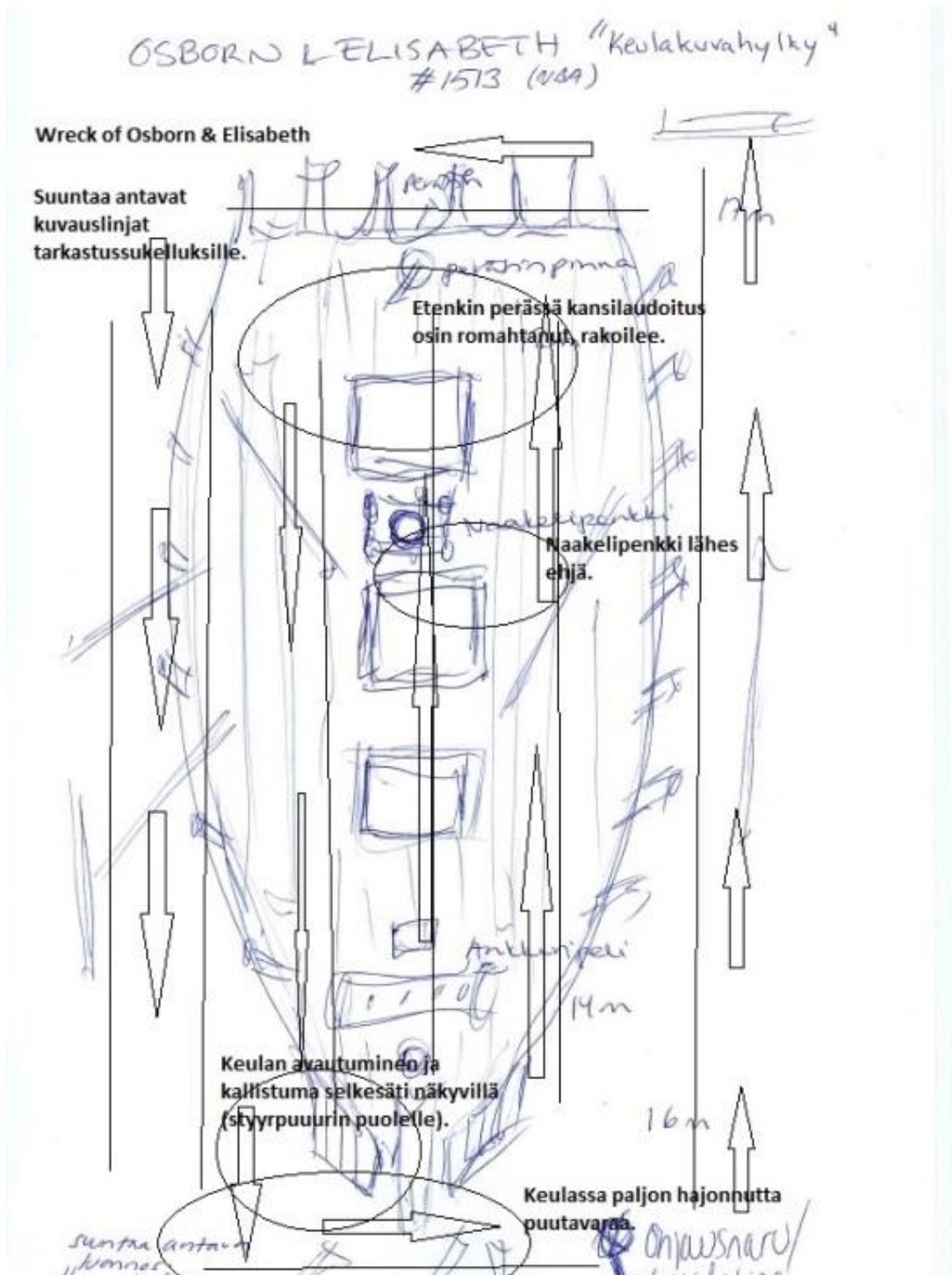




## 6. Monitoring plan The Cable Wreck



## 7. Monitoring plan: The Wreck of Osborn &amp; Elisabeth



## 8. Photograph - and video list

Valokuvalista / Hoitavuuskohteet  
Videokuvalista / -n

MUSEOVIRASTO, ARKEOLOGISET KENTTÄPALVELUT  
(Videokuvauspäiväkirja)

Projektin nimi: HOITAVUUSKOhteet				
Filmi nro.	Pvm	Nauhalyyyppi	Sivunro.	Kuvaaja
	06-07/2013			Hyttinen Jan (videot) Halonen Hanna (kuvat)
Huomautettavaa filmistä				
Aika	Kuvauskohde		Suunta (Mistä)	
1.	06/13	Oniauraruujen paimo	Halonen H.	
2.	06/13	Pohjapainojen lastaus	Halonen H.	
3.	06/13	Matkalla kohteille	Halonen H.	
4.	06/13	Kennuviikse, kaulakuora	Halonen H.	
5.	06/13	Kaulakuoran piirrokset	Halonen H.	
6.	06/13	Kuivattomien kaivojen	Halonen H.	
7.	06/13	Maastokuvat (virtuaali)	Halonen H.	
8.	07/13	Kuivattomien kokeetus, det	Hytönen K.	
9.	07/13	Kuivattomien, tarkat	Hytönen K.	
10.		Arkkun / Alapd arkkun	Hytönen K.	
11.		Arkkun / Google mapit	Hytönen K.	
12.	07/13	Kuivattomien pelti	Hytönen K.	
13.	07/13	Kuivattomien arkkunpiiri	Hytönen K.	
14.	07/13	Garden, Sturpuuri	Hytönen K.	
15.	07/13	Kuivattomien, kuivattomien	Hytönen K.	
16.	06/13	Suhteista pöytäkirja, kuivattomien	Hytönen K.	
17.	06/13	Pohjapainojen, kuivattomien	Hytönen K.	
18.	06/13	Gardenin arkkun	Halonen H.	
Videomateriaali / det			Hytönen K.	
Bari Hyttinen				
1.	07/13	1. Garden	Hytönen K.	
2.	07/13	2. Kaulakuora	Hytönen K.	
3.	07/13	3. Kuivattomien kokeetus	Hytönen K.	
4.	07/13	4. Gardenin arkkun	Halonen H.	
5.	07/13	5. Gardenin kaulakuora	Halonen H.	

## 9. Monitoring plan – General

**Monitoring plan for maintenance of relics 2013-2017**

Guidelines for yearly monitoring can be adjusted if appropriate

<b>Site</b>	<b>Osborn &amp; Elisabeth "Keulakuvahylky". NBA: #1513</b>
<b>Description</b>	<b>Wooden ship from 18th centry. Upright position</b>
<b>Documenting</b>	<b>Yearly filming routine, based on the lines in picture, Appendix</b>
<b>Monitoring points</b>	<b>Deck planking, rudder, anchor winch, five rails and bow</b>
<b>Planned dives/ year</b>	<b>2</b>
<b>Site</b>	<b>Garpen 1. NBA #1511</b>
<b>Description</b>	<b>Wooden sailing ship, 18th century, collapsed</b>
<b>Documenting</b>	<b>Yearly filming routine, based on the lines in picture, Appendix</b>
<b>Monitoring points</b>	<b>Anchor winch, bow structure</b>
<b>Planned dives/ year</b>	<b>2</b>
<b>Site</b>	<b>The Cable Wreck "Kaapelihylky". NBA #1392</b>
<b>Description</b>	<b>Wooden sailing ship, 16th century, collapsed, buried partly to sediment</b>
<b>Documenting</b>	<b>Yearly filming routine, based on the lines in picture, Appendix</b>
<b>Monitoring points</b>	<b>Ship as whole, anchor winch</b>
<b>Planned dives/year</b>	<b>2</b>

## 10. Program, Wreck Seminar 2014



## Hylkysukellus 2014 Wreck Diving

### Ohjelma

- 11:00 **Seminaarin avaus**  
*Immi Wallin, SubZone*
- 11:10 **Katsaus vedenalaisen kulttuuriperinnön suojeluun**  
*Maija Matikka, Intendentti, Museovirasto*
- 11:30 **Syviä museohylkyjä kolmelta vuosisadalta**  
*Jouni Polkko, Badewanne*
- 12:00 **Hylkyjen poijutusprojekti ja kestävä sukellustapa**  
*Hanna Halonen, Hanko Diving*
- 12:30 **Öljynpoisto hylkyistä**  
*Kari Rinne, ympäristöprojektin johtaja, Alfons Håkans*
- 13:00 **Priki Fenix**  
*Juha Lauro, H2O*
- 13:30 **Tauko**
- 15:00 **Kuka ryösti hyllyn?**  
*Ari Heinilä*
- 15:20 **Dokumentoinnin ja arkeologisten tutkimusten käynnistäminen hylkykohteella ja kuinka ei tulisi toimia**  
*Riikka Alvik, tutkija, Museovirasto*
- 15:50 **UNESCOn puheenvuoro hylkyjen suojelusta**  
*Arturo Rey Da Silva, vedenalaisen kulttuuriperinnön asiantuntija, UNESCO*
- 16:30 **Tauko**
- 17:00 **Neuvostoliiton sukellusvene Sch-311**  
*Antti Apunen ja Janne Suhonen, Divers of the Dark*
- 17:20 **Ahvenanmaan Samppanjahyllyn tarina - menikö kaikki niin kuin Strömsössa?**  
*Ville Peltokorpi*
- 18:00 **Seminaarin päätös**
- 20:00 **Wrecked Party irkkubaari Molly Malone's, Kaisaniemenkatu 1c, Helsinki**

## 11. Statement from the ELY- centre



Elinkeino-, liikenne- ja  
ympäristökeskus

Lausunto

UUDELY/278/07.00/2013

30.5.2013

Hanna Halonen  
Hanko Diving  
Sillikuja 4  
10900 Hanko

Lausuntopyyntönnne 20.5.2013

### Lausunto koskien hylkyjen merkkeamistä poijuilla, Hanko

Toimittamierne tietojen mukaan Hangon edustalla on tarkoitus merkitä kolme muinaismuistoa (hylkyjä) poijuilla. Kohteet ovat nimeltään Keula-kuva, Gerpen 1 ja Kaapelihylky. Poijujen tarkoitus on taata venelle turvallinen kiinnittyminen, sekä suojella hylkyä väärinlaiselta kiinnittymiseltä, ankkuroinnilla ja omaoimiselta poijutukselta. Pojuja asennetaan yhteensä 3-4 kappaletta.

Poiju itseessään varaa n. nelön alueen pinnalla kelluessaan. Poijut ovat väikkäitä (oransseja) ja niihin tullaan kiinnittämään kyltit, joissa on ohjeistus kiinnittymiseen, yhteystieto poijuttajaan sekä kyseisen kohteen nimi.

Tarkoitus on, että poijut ovat paikallaan sukelluskauden (toukokuu - syyskuu) seuraavat viisi vuotta. Muun ajan poijujen kiinnitykset jäävät veden alle pohjan läheisyyteen siten, että painot nousevat vain muutama metrin pohjasta.

Työlle on myönnetty apuraha museovirastolta.

Uudenmaan Ely-keskuksen Ympäristö ja luonnonvarat -vastuualue (Y-vastuualue) esittää asiasta vesitain valvovana viranomaisena lausuntonaan seuraavaa:

Kohteista yksi (Kaapelihylky) sijaitsee sekä Natura-alueella (Tulliniemen linnustonsuojelualue FI 0100006) että Tulliniemen luonnonsuojelualueella (YSA 010035). Kohde sijaitsee myös vesiväylän läheisyydessä.

Y-vastuualue katsoo, että hanke voidaan toteuttaa suunnitelman mukaan. Näin toteutettuna hankkeesta ei ennalta arvioiden aiheudu vesilain 3 luvun 2 §:ssä tarkoitettuja muutoksia tai seurauksia, ja työ voidaan toteuttaa ilman Etelä-Suomen aluehallintoviraston lupaa, mikäli työssä noudatetaan seuraavia periaatteita:

- 1) Poijut tulee merkitä riittävän näkyvästi, ettei niistä aiheudu vaaratilanteita vesillä liikkujille.
- 2) Poijut ja ohjausnarut tulee sijoittaa vesiväylien ulkopuolelle. Poijujen ja ohjausnarujen sijaintien suhteen tulee olla yhteydessä Liikenneviraston Meriväylät-yksikköön.

Pojujen ja ohjausnarujen sijoittaminen vesiväylälle vaatii vesilain 3 luvun 3 §:n perusteella vesilain mukaisen luvan Etelä-Suomen aluehallintovirastolta.

- 3) Poijujen sijoittamiselle saadaan vesialueiden omistajien suostumukset.
- 4) Hankkeen teettäjä on vastuussa hankkeesta mahdollisesti aiheutuvista vahingoista, haitoista ja muista edunmenetyksistä.

Yksikön päällikkö



Timo Kinnunen

Ylitarkastaja



Perttu Ottelin

Asiaa Uudenmaan Ely-keskuksen ympäristö ja luonnonvarat -vastuualueella hoitaa Perttu Ottelin, puh. 0295 021 442.

TIEDOKSI

Hangon kaupungin ympäristönsuojeluviranomainen  
Liikennevirasto, Meriväylät -yksikkö