The Nordic experience – access through maritime dive trails and virtual simulation

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Abstract: This presentation introduces two projects using different methods to make underwater cultural heritage sites more accessible in the Nordic and in the Baltic Sea Region. First of the cases describes an international project called Nordic Blue Parks. The second project is called Vrouw Maria Underwater Project.

Nordic Blue Parks Project was an innovating one year pilot project creating a new concept combining – for the first time – natural and cultural heritage and recreation at underwater trail and park sites. It aimed to formulate criteria and guidelines for sustainable trails and to set up new trails and to improve old ones. During the project three new underwater parks were opened and two old ones were improved.

Vrouw Maria Underwater Project aims to make this Dutch shipwreck - sunk in 1771 off coast of Finland - more accessible through a blog site, a virtual simulation and an exhibition. The interactive, real-time, virtual reality simulation gives for a visitor a feeling of being there at the actual site and a possibility to experience the wreck, the underwater landscape and the soundscape. This is especially important for a site located in an area where sport diving is prohibited. The exhibition introduces also ideas and feelings of those few divers who have visited the site bringing alive the idea that a heritage is combination of the site and the people who uses it.

The Nordic Blue Parks Project

The Nordic Blue Parks Project was an innovating one year pilot project in 2009 creating a new concept combining – for the first time – natural and cultural heritage and recreation at underwater trail and park sites. It aimed to formulate criteria and guidelines for sustainable trails, to set up new trails and to improve old ones in Denmark, Norway, Sweden and Finland.

Underwater cultural heritage in the Baltic Sea is exceptionally well preserved due to the excellent preservation conditions, but a problem has been that these underwater secrets have been accessible only to a small group of sport and scientific divers. A similar situation holds true also for the underwater nature. To protect this underwater heritage better it is essential to make the sites more accessible because the visitors of the sites are the best protectors of this heritage when educated with proper attitudes and awareness. We must bear in mind that heritage is a combination of a site and the people who are using that site. Our cultural heritage should be used, but not consumed – not exploited as a product, but linked to the good practices and sustainable development of the whole society.
To protect the underwater cultural heritage better we need to know what there is in the Baltic Sea. It is not possible to protect something if we don’t know what there is. The modern divers visiting the sites are important players of the underwater world and their behavior can destroy or save our underwater heritage. The more they know, the more they care. The idea of my place, local identity and our common sea was important in the Nordic Blue Parks Project.

The Nordic Blue Parks Project started with GIS analysis to find overlapping areas of high natural and cultural values. In all four countries ten possible potential park sites were selected. Next step was to prepare threat/pressure analyses to find areas of particular sensitivity or resilience. From these results it was decided in principle where the new parks could be placed. One problem was the fact that only a few places are surveyed for sufficient amount of information concerning underwater culture and nature.

During the Nordic Blue Parks Project three new underwater parks were opened and two old ones were improved. The two existing underwater trails in Finland were used as examples. These sites were the Stora Håstö underwater nature trail in Korppoo (Archipelago Sea) opened in 2005 and the Kronprins Gustav Adolf underwater shipwreck park in Helsinki opened in 2000. The three new parks were opened in Finland, Denmark and Sweden. In all parks also non – divers can enjoy the site. This can be done for example through a museum exhibition, internet site, publications and films.

The first new park in Finland was the Perämeri Underwater Nature Trail which was opened in 2009 in the Bay of Bothnia in the northwestern corner of the Selkä-Sarvi archipelago. This underwater trail shows the typical sub-aquatic world of the Bay. The trail has been primarily planned for SCUBA divers with an interest in the underwater nature, culture and the marine biological work carried out in the Bay of Bothnia.

In Denmark the Højklint site underwater trail was opened in November 2009. The trail tells about the submerged Stone Age landscapes in the waters around Southern Fyn (Funen). The site offers with seven information stations a safe and easy dive in good visibility at the maximum depth of three meters.

In Sweden so called Dalarö Model was developed. The model is based on the idea of controlled access to protected shipwreck sites. Divers will get a permission to dive on the wrecks when accompanied by a licensed underwater guide. The guide has relevant competence and training to educate the divers on the cultural heritage of the area and the shipwrecks. This will increase professionalism as well as business opportunities among dive charter companies operating in the area. The model is well received by the Swedish diving community.

In Dalarö model also non-divers can enjoy the underwater cultural heritage in real-time experience onboard charter boats equipped with ROV’s. In addition digitally enhanced movies and animated reconstructions of ships can be made for display on widescreen television and on movie screens. The Dalarö model is a method to simultaneously preserve, use and enrich the underwater cultural heritage for both divers and the general non diving public.

In July 2010 the Axmar underwater park was opened at Axmar 17th century industrial heritage iron works. In the park it is possible to enjoy both nature and culture. The many shipwrecks of the park are located mainly in the shallow waters and they can be visited by divers, boat tourists, canoeist and some of the sites can be seen even from the shores. In addition Axmar is a nature preserve and marine protection area which adds the importance of the underwater park.

In Norway plans were made to open an underwater park at the shipwreck site of frigate Lossen sank in 1717. Although the trail will focus on the wreck, it will also include information plates on the animal and plant life at the site and there will be in addition some general knowledge about the national park where the wreck is located. The Lossen site has been extensively excavated and most of the artefacts have already been removed.
The Kronprins Gustav Adolf underwater park was the first maritime historical underwater park in Finland and in the Baltic Sea region when opened in 2000. The park is situated at the wreck site of the Swedish ship of the line Kronprins Gustav Adolf which sank off Helsinki in 1788. The wreck was found in 1995 and underwater investigations were carried out 1997–1999. Diving among the cannons at the depth of 19–21 meters gives a good picture of the size of an 18th century military vessel. There are 13 information signs at the site. No special permission is needed for diving at the park. During the Nordic Blue Parks Project a new bio- sign was planned and placed at the wreck site to explain the invertebrates of the area. In addition the park internet site was developed placing new texts and photos. Also a video footage was produced to give a possibility to make a virtual dive at the site along the underwater cultural path. Now the Kronprins Gustav Adolf Park has been open for over ten summers and our experience has been very good.

The Stora Hästö underwater nature trail in Finland was opened in 2005 offering two routes with information plates, a shallower one for snorkelers and a longer, deeper trail for divers. Along the trails visitors can experience the rocky shores, seaweed communities and sandy seabed with sea grass meadows. In addition divers can observe small fish, mussels, and many small invertebrates, such as snails and isopods. There is also a traditional terrestrial nature path on Stora Hästö Island. In July 2010 a new underwater on line - camera was installed at the Stora Hästö Park. With an image refresh rate of every 10 seconds, the almost live footage shows a clump of bladder wrack in the near distance, as well as some bedrock. The unit is powered by solar panels set on land.

The Nordic Blue Parks Project was organized through the Nordic Council, and the Nordic Council of Ministers and it was led by the Natural Heritage Services of Metsähallitus (Finland).

The Vrouw Maria Underwater Project 2009 – 2012

Vrouw Maria - a Dutch snow ship - had left the port of Amsterdam destined for St. Petersburg in September 1771 when it suffered a shipwreck off the coast of South-Western Finland. Vrouw Maria carried a cargo of typical merchant goods like sugar, cloth, dye stuff and food, but in the cargo there were also some paintings and other luxuries bought by Russian aristocrats and Catherine the Great. The paintings bought for Catherine were lost in the accident.

The story of Vrouw Maria has been known from archival sources since the early 1970s and it was also searched for several times. Finally the wreck was found at a depth of 40 meters in 1999 by Pro Vrouw Maria Association and Rauno Koivusaari.

Vrouw Maria is a well preserved example of an 18th century Snow rigged Dutch merchant ship which sailed between Europe and Russia. Since the discovery of the wreck it has been discussed and debated lively in Finland, Russia and the Netherlands, the countries essentially related to the story.

Vrouw Maria has a great international cultural historical significance. It is a good example of the common European maritime heritage or should we even use term global maritime heritage because of those colonial goods in the cargo like sugar, tobacco and coffee which might have derived from India, China, Africa, North and South-America. Instead of talking only about common European cultural heritage, should we even talk about “cultural heritage of humanity” using a term borrowed from the UNESCO 2001 Convention?

The National Board of Antiquities of Finland has conducted research at the site since 2000. Extensive documentation has been carried out and the environmental conditions have been studied quite thoroughly. In addition some objects have been raised. Between the years 2001 – 2004 Vrouw Maria represented Finland in an international European Union funded project called MoSS (Monitoring, Safeguarding and Visualizing North-European Shipwreck Sites). The Project was set up with the aim of monitoring, safeguarding and visualizing shipwrecks in situ.
In 2007 National Board of Antiquities published so called Vrouw Maria Report were five different options of the future of Vrouw Maria were looked at according to the strengths, weaknesses, possibilities and threats of the alternatives. The options included also the raising of the wreck. Finally it was recommended to keep the wreck in situ and to undertake the Vrouw Maria Underwater Project.

The reasons for the in situ solutions were for example, that there were no immediate environmental risks for the safety of the wreck in the original location and in Finland there was a legal battle going on concerning the ownership of the wreck. In addition in the early 2000 the staff of the Vasa Museum had found iron and sulphur compounds problems with Vasa ship and it was recommended that shipwrecks should not be raised before the problem is understood in more details. It was also clear that the in situ option was more realistic than raising the wreck because the technological demands, risks, and resource requirements were moderate. Vrouw Maria Underwater Project offered also solutions to everyday maritime archaeological questions like in situ protection, maintenance, documentation, and methods of visualisation and underwater exhibition.

Vrouw Maria Underwater Project shall be operated in 2009 – 2012. It aims to make the wreck more accessible through a blog site, a virtual simulation and a museum exhibition. The Project aims to show the best ideas and practices of the in situ preservation idea recommended by UNESCO and ICOMOS. In addition we undertake every summer archaeological fieldwork at the site, make research in the archives, write articles and in April 2012 we shall open an exhibition called “The Story of Vrouw Maria and St. Michael” at the Maritime Museum of Finland in Kotka. In the end of 2012 also an international shipwreck seminar shall be arranged in Kotka. The Project is funded by the Ministry of Culture and Education.

Vrouw Maria is located in the Archipelago National Park in a Natura 2000 Area. This means that all activities at the wreck site must be granted by the Finnish nature agencies. In addition the wreck lies within the so-called “strict preserve” part of the Park where even entering the area is restricted without a permission. Also diving with apparatus is prohibited. Being so, it is not possible to open an underwater park at the site. These different layers of prohibitions means, that the general public just can’t go and visit the site above or below the water surface. In this circumstance it is especially important to make Vrouw Maria accessible in another ways.

The Vrouw Maria interactive, real-time, 3D virtual reality simulation gives for a visitor a feeling of “being there” at the actual site and a possibility to navigate and experience the wreck, the underwater landscape and the soundscape. The landscape is based on the multibeam sonar data collected from the field and the wreck is a 3D – scanning of a traditional model of the Vrouw Maria. The sounds have been collected from different sources. The underwater sounds have multiple roles in the simulation - to tell the story, to create a submerging atmosphere of immersion and to give audible feedback for user’s actions. Non-interactive parts of the simulation (animated scenes) explains the historical events and passing of the time between the years 1771 – 2011 in the form of visual and audible events. In addition there are info points for more detailed information. The simulation is used by hand gestures. The simulation is made in a co-operation with Aalto University. Presenting the underwater scene of Vrouw Maria as an experience shall add an appealing aspect to the story of the wreck.

The Museum exhibition introduces also in the form of recorded interviews the ideas and feelings of those few divers who have visited the site bringing alive the idea that a heritage is combination of the site and the people who uses it. In addition the not- easy to visit site of Vrouw Maria shall be made accessible showing a video clip of the above water landscape. We aim also to produce a touchable 3D- print of the underwater landscape for blind persons.

The future of Vrouw Maria is still an open case, shall it be managed and safeguarded in situ for ever or shall it be eventually raised and put on a display in a museum? We must also ask should Vrouw Maria really be raised and how could it be raised according to the best modern international maritime archaeological standards and where to have the funding? There are also many other questions to be
answered what it comes for the future of Vrouw Maria. It has been estimated that the raising and conservation of the wreck and building up a new museum could cost about 100 milj. Euros.

Documenting and displaying the underwater landscape and sound scape of Vrouw Maria becomes all the more important if the wreck is raised, since the raising operation itself will change the milieu drastically.

Conclusions

It has been said that the Baltic Sea is a treasure trove of underwater cultural heritage. To protect this heritage better – in a modern way – it is vital to give the non diving people and the divers possibilities to visit the sites in many ways, to give them an experience of being there.

The Nordic Blue Park Project’s underwater cultural heritage and nature parks and trails are good examples of the practical use of the in situ preservation principle recommended by the ICOMOS 1996 Charter and by the UNESCO 2001 Convention and the idea of underwater parks. Experience gathered around the world have shown that underwater parks - when managed successfully - are an excellent way to enhance as well the in situ preservation as to improve the accessibility of sites for the general public whatever they dive or not.

Always it is not possible to open an underwater park, but there are also some other solutions available to give a stunning experience of a site. For example, virtual simulation technology can give an opportunity to visit an underwater site and to have a feeling “of being there” without actually diving at the place. It is understandable that a simulation can never replace a real experience, but it can help us to explore, to see and to hear the otherwise unseen underwater landscape and unheard sounds cape.