Developing the Foundation for Sustainable Management of Underwater Cultural Heritage Starting from Local Involvement: Case Studies in Okinawa

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Abstract

The Ryukyu Archipelago is well known for its beautiful ocean and coral reefs; and thanks to these beautiful oceans, scuba diving and snorkeling and have become one of the most important activities for its tourist industry of the archipelago. Around the islands, 230 underwater cultural heritage sites were found and identified. In this presentation, the authors shall introduce their attempts and case studies regarding the public engagement of local communities with management of underwater cultural heritage, including providing guidelines for sustainable valorization of the site with local marine sports industry. For Yarabuoki underwater site of Ishigaki Island, there are seven iron grapnel anchors and a cluster of Early Modern Ryukyuwan ceramic jars (tsuboya-yaki). To establish a connection/relationship between the site and the local professional divers, who actually go into the sea and see the site most frequently, the authors provided workshops about UCH and a place where

archaeologists and the local professional divers can exchange their opinions. The goal of these activities is to ask professional divers of local communities help to monitor UCH after scientific evaluations led by archaeologists are completed. The Ohajima underwater site is located off the Coast of Kume Island in Okinawa. This site contains a dense distribution of medieval Chinese pottery. Public open-houses were experimentally organized twice for local communities. The Board of education from local communities (for instance, Kumejima Museum) and local diving communities were heavily involved and helped underwater archaeologists and the research team to organize this event. After continuous attempts of public outreach, public awareness and interests for UCH among the local diving communities has increased. More divers have started visiting the sites. However, an increase in public awareness creates another concerns that it exposes the UCH sites into social media such as blogs by visitors, articles on diving magazines, and so on. Henceforth, the next challenge confronting the authors and the local communities regarding these sites are plans to properly monitor those sites and a proposal for a reliable long-term management plans. More importantly, these monitoring and management plans have to involve wide varieties and different type of local communities

Key words: Ryukyu, UCH, public engagement, management

Introduction

In past few decades, in addition to conventional preservation operations for cultural heritage sites, understanding values of cultural heritages, and utilizing those as cultural resources for local communities has become a very important perspective to manage cultural heritage. Archaeological sites are often turned to site museums where visitors actually visit and enjoy the original sites. This new phenomenon is widely seen not only on terrestrial sites, but also on underwater sites. This paper aims to share the authors' attempts and experiences of their attempt to establish the involvement of local communities towards sustainable management plans of underwater cultural heritage, and their case studies around the area of Okinawa Prefecture.

Background and Subjects of Underwater Cultural Heritage in Okinawa

Okinawa consists of the southern half of the Ryukyu Archipelago with 199 islands, and its area expands over 1200km between Kyushu Island and Taiwan. Because of its location, islands of Okinawa have subtropical climates which makes Okinawa differs from other areas of Japan, and it gives warm climate through a year. Islands of Okinawa are surrounded by amazingly beautiful ocean with flourishing coral reefs. Therefore, these beautiful waters are very popular among scuba divers and snorkelers. Sometimes, those divers and snorkelers become to be interested in something different from beautiful fishes and corals; they want to see something different yet attractive. Therefore, authors believe that UCH has great potential to be a resources of truism, or diving industry.

Indeed, underwater cultural heritage often attracts non-archaeologists and non-experts. For instance, the wreck-diving is one of the very popular diving-tour options in many countries, such as Malta and other Mediterranean islands. It is already the major tourist attraction in many countries. In the case of Okinawa, a beautiful coral reef with schools of colorful fishes shall provide special background which adds extra value on diving on UCH. 230 underwater cultural heritage sites are identified around the islands in the Okinawa Prefecture. This presentation is about the authors' attempts to establish strong ties between the local public and underwater cultural heritage managements and to provide guidelines for sustainable managements of the site and involving of local marine sports industry into this management plans.

The Ohajima underwater site is located off the coast of Kume Island in Okinawa. The site contains dense distributions of medieval Chinese pottery. Public Open Site Day was experimentally held twice in the island.

Along with the authors' research team of underwater archeologists and researchers who organized the events, attendance, and support from the Local Board of Education (Kumejima Museum) and local diving communities (Katagiri et al., 2012).

The Yarabuoki underwater site of Ishigaki Island consists of seven iron grapnel anchors and a cluster of Early Modern Ryukyuwan ceramic jars (*tsuboya-yaki*). During field campaigns, authors and its research team provided workshops and a meeting to exchange opinion with local communities in order to establish a new tie and relationship between the UCH of the islands and local professional divers who visit the the sites most frequently (Ono et al., 2015 and Nakanishi et al., 2016). The aim of these activities and meetings are to ask local diving communities to monitor the sites even after the scientific academic evaluations of the site led by authors is completed in near future, and to share general knowledges and perspectives of protecting UCH as our common heritages and value those heritages in non-intrusive manners.

After the continuous attempts, public awareness and interests in UCH have increased dramatically among the local divers and its communities. More divers began to visit the sites. Yet, this new movements and trends has invoked another potential dangers toward this UCH. The potential dangers is an increased number of divers and exposure of UCH into wider range of the general public; the UCH have started to appear in divers' SNS, blogs, diving magazines, and so forth. This trend may trigger unfriendly and intrusive activities on the sites, such as lootings and destructions. Henceforward, now the authors have to urgently focus on its plans of site managements and monitoring plans, and to accomplish this task, involvement wide variety of scholars as well as local communities are essential.

Case Studies in Okinawa Part 1: Ohajima Site in Kume Island, Okinawa: Open Site Day

Location and Characteristics of the Site

The Ohajima underwater site is located off the coast Oha Island where is annexed to Kume Island in Okinawa. The site consists of a dense distribution of Chinese pottery that is dated between the latter half of the 14th century and the beginning of the 15th century. A Public Open Site day was experimentally held twice (in 2011 and 2013). Local Board of Education (Kumejima Museum) and local diving communities supported underwater archaeologists and researchers to organize this event (Katagiri et al., 2012).

The main attraction of the event was a tour to Ohajima underwater site either by snorkeling or a glass-bottomed boat. The event schedule was especially composed for the general public to understand general ideas of UCH; the schedule (described as Step 1 - 5) of the event can be seen below:

Step 1: Lecture ‘History and Culture of Kume Island’

Step 2: Material Observation of Ceramics Excavated from Underwater Site

Step 3: Tour of the On-land Site Where Was Important for Maritime Trades.

Step 4: Snorkeling Practice

Step 5: Snorkeling Tour of the Site

Step 1: Lecture ‘History and Culture of Kume Island’

First, archaeologists gave a 30 minute long preliminary lecture prior to the site visit. This lecture was about general knowledge and information regarding history of Kume Island. The authors believed that providing

historical information and knowledge to the participants is very important because the lecture and its information transform this event into a learning opportunity rather than be a just sightseeing for fun (Katagiri et al., 2012).

Step 2: Material Observation of Ceramics Excavated from the Underwater Site

As the second step, the participants experienced observation-practice on raised artefacts; those artefacts used for this 30 minutes long observation-practice included pottery pieces were collected from Ohajima site and a stone anchor from Uegusuku (Castle) Site (Fig. 1). The purpose of this practice is for participants to understand the appearances of underwater artefacts; and this experience helped the participants to find/recognize artefacts during the following underwater on-site tour. Experiences of observations on artefacts together with the lecture of preliminary knowledge of the site provided a great preparation for the following tour and this event (Katagiri et al., 2012).

Fig. 1: Material observation excavated ceramics from underwater site. (Kumejima Museum, Kume Island)

Step 3: Tour to the On-land Site Where Was Important for Maritime Trades

Furthermore, the participants attended a tour to terrestrial cultural heritage sites: on this tour, participants visited the Tenkogu Site, the Kuramoto-ato Site, the Majako Port Site, quarries, and so on. This one hour long tour was organized and guided by archaeologists. The aim of this tour was to explain site-formation processes of Ohajima underwater site and to provide comprehensive knowledge of archaeological sites and its surrounding environments (Katagiri et al., 2012).

Step 4: Snorkeling Practice

Before visiting the underwater site, a practice session was provided to participants who decided to visit the site with snorkeling. For this tour, two different options were provided for participants; one is visiting the site by snorkeling, and the other option is to visit the site by a glass-bottomed boat. Twenty participants visited the site by snorkeling, and the other participants who did not want to swim chose the glass-bottomed boat. Both tour lasted one hour-long each. This practice-session of snorkeling was taught by local professional divers for safety reasons of participants (Katagiri et al., 2012).

Step 5: Snorkeling Tour of the Site

Finally, as the last activities of the Open Site Day, the participants visited and enjoyed the actual UCH site. Fig.2 displays a scene of the snorkeling tour in Ohajima underwater site (Katagiri et al., 2012).

Fig. 2: A snorkelling tour of the site. (Ohajima Underwater Site, Kume Island)

Discussion

The authors believed that the Open Site Day was successful; this experiment of public outreach that take local participants to the actual UCH sites can be a great case study for other UCH site across the Ryukyu Archipelago. Although this experiment was generally a successful case, the authors also became to acknowledge its difficulties and rooms for improvements in order to use it this experiments using it as a case study of public outreach with other UCH sites across the archipelago. Also, this type of events still requires experienced archaeologists to organize and to provide informative lectures; nonetheless, these archaeologists were most cases not originally from local communities. The authors believe that an ideal perspective of local workshops and public outreach for UCH is ‘sustainability’; local divers and communities became to be able to provide workshops as well as monitoring and management UCH without supports from outside. Thus, next challenge for this public outreach experiments is

to compose a flexible guideline that make those events more sustainable by local diving experts and communities.

Case Studies in Okinawa Part 2: Yarabuoki Underwater Site

Location and Characteristics of the Site

Yarabuoki underwater site is located off the coast of Yarabuzaki in Nagura Bay of Ishigaki Island in Okinawa Prefecture. This site contains seven iron grapnel anchors of various sizes and a cluster of Early Modern Okinawan ceramic jars (*tsuboya-yaki*). This type of ceramic jars were originally produced in Okinawa Islands between the 16th century and the 19th century, which also corresponding to the time periods of the Early Modern Ryukyu Kingdom Period for Okinawa Islands and the Edo Period for the main lands of Japan (Fig. 3). Also those grapnel anchors found in this site are the only examples of grapnel anchors that are found in Japan.

Fig. 3: The assemblage of Okinawa produced pottery in good condition at the Yarabuoki underwater site. (Okinawa Prefectural Archaeology Center)

The site was discovered by a local professional diver, Seiji Fujii, in 2009. And in 2010, the Okinawa Prefectural Archaeological Center conducted inspection survey with assistances of the Nansei Islands Underwater Cultural Heritage Study Group (Katagiri, 2010 and 2013). This newly discovered UCH site also required an accurate recording by experienced diving archaeologists, and then values of the site have to be evaluated and disseminated. Currently authors and their research team is operating an interdisciplinary research project to evaluate historical and archaeological values of the site, as well as its potentials as a cultural resource for local communities (Ono et al., 2016).

Moreover, authors also believe that geographical and topographical data around site area shall greatly contribute to understand site formation process and its reconstruction. Under this scope, Dr. Kan conducted a multibeam echo sounding (MBES) survey around Yarabuoki underwater site in August 2011 (Kan et al., 2015 and Ono et al. 2016). This multi-beam data successfully visualized the bathymetry around the site with lateral grid resolution of one metre. Fig. 4 displays enlarged image of the multibeam bathymetric map of Yarabuoki underwater site with plotted locations of its components. The authors believe that this multibeam map is an essential tool for their public outreach because the map can be a tool to convey accurate academic evaluations of the site to its readers and visitors. The authors have to remark on the importance of scientific and historical values of UCH sites and its dissemination to local communities; without understanding its cultural significance, divers will not be able to appreciate UCH and visiting the sites will be a part of fun dives, not a part of cultural activities. Moreover, without understanding cultural values of UCH properly, its exposures to the general public may trigger negative impacts on the sites.

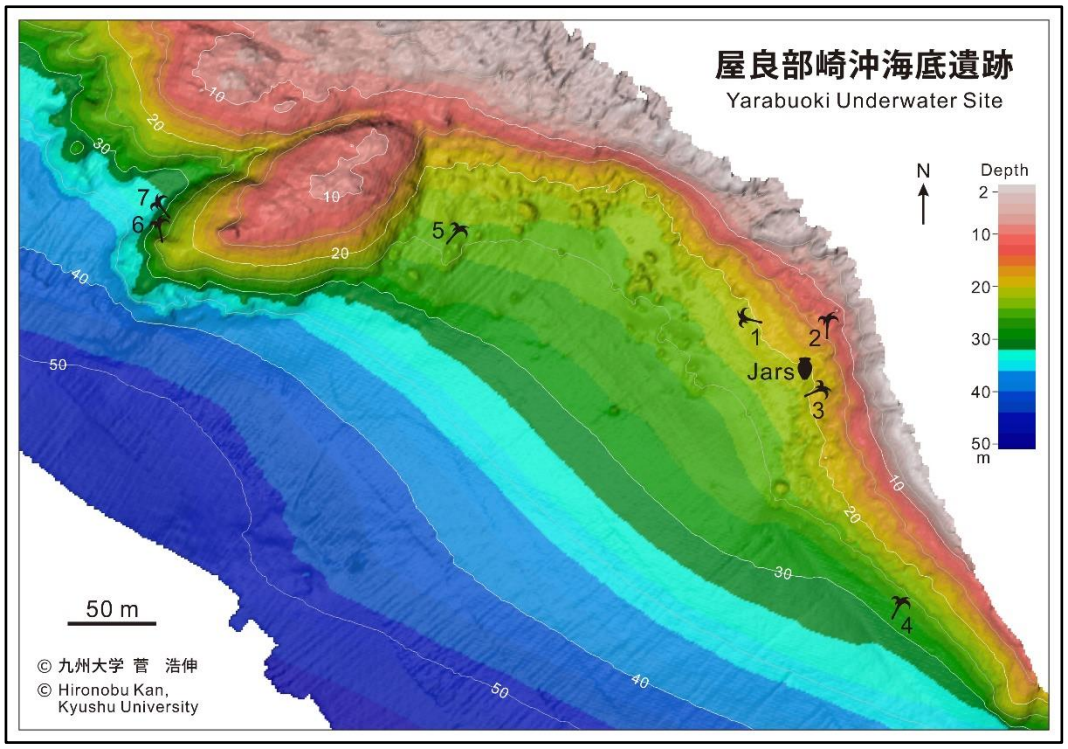

Fig. 4: Multibeam bathymetric map of the Yarabuoki underwater site. (Hironobu Kan)

Workshops with the Local Professional Divers

First, the authors tried to build a network with local professional divers who frequently visit this UCH site. Also Mr. Fujii, who found and reported the site to Okinawa Prefectural Archaeological Center, has been involved in archaeological investigations since the beginning. A goal of this was to establish strong ties with the local diving communities and to ask them to monitor the UCH sites; also the authors tried to share histories and archaeological information of the site based on scholarly researches as well as methods for non-intrusive/non-disturbance recreation diving on UCH sites. With supports from Ishigaki City Board of Education where manages cultural heritages around/in the island, authors organized several workshops and invite local divers; during this workshops, divers also visited the site with authors and diving archaeologists. Then the authors and participants exchange opinions towards UHC of the islands

and discussed values of the sites for local communities and importance of *in situ* preservation (Nakanishi et al., 2016).

These workshops started November 2015, and the authors have tried to share the idea of UCH and its important concepts that is not to touch or remove artefacts and contexts from its original positions. Also as a part of the workshop, the authors and archaeologists invited participants, or local professional divers, to the UCH sites during the archaeological investigations; aims of this activities are to share archaeological methods of underwater recording of UCH, such as measuring and drawing of the sites in scientific manners. Throughout these workshops, the author believes that the local divers become to be aware of significances of archaeological information of the site that may help archaeologists to reconstruct the past (Fig. 5).

Fig. 5: Site visit with the local professional divers. (Yuji Yamamoto)

Discussion

For this experimental research in Ishigaki Island, the authors also focused on involvements of local communities into monitoring and managements plans. Therefore collaborative efforts with local authorities and the general public were essential. Local divers may be able to visit the sites as their daily activities, yet they also do monitoring while they do so, and when they found a new archaeological site, they can quickly yet properly report their discoveries to the local authorities using established network via authors' workshops. An ideal goal of this workshops and experimental research is to establish a sustainable management and monitoring plans of UCH site; once archaeological investigations are completed, the authors want local diving communities and their local dive shops to bring their customers (recreation divers who visit the island) to UCH sites with providing proper information of its history and archeology. When those diving tours on the UCH become popular activity, their frequent visit may function as a monitoring activity, not to mention that these tours may have positive impacts on the local tourist businesses by bringing customers to the island by.

The authors' main question for this experimental research on public outreach and dissemination is 'how to maintain and protect qualities of scientific information and values of archaeological sites during the course of dissemination'.

Discussion: Developing the Foundation for Sustainable Management Plans on Underwater Cultural Heritage with Local Involvement

The authors' main purpose of this research is to establish sustainable management and monitoring plans for UCH. It is important to remark that

the sustainable management and monitoring plan is different from other leisure diving activities on shipwreck sites that are often intrusive and destructive to UCH. Also, to make the stated management and monitoring plans different from other uncontrolled leisure shipwreck diving activities, it is very important for archaeologists to provide good scientific information to local diving communities and dive shops where will bring leisure divers to the UCH sites after archaeological investigations are completed. If the local diving communities recognize and share values of UCH, they will respects its presence, and keep non-intrusive and non-destructive methods to enjoy their underwater common heritages. In order convey values of UCH to the local communities properly, it is important for archaeologists and researchers to provide 'good' information and data. For instance, in case of Yarabuoki underwater site, high-resolution multi-beam maps were provided to local communities. Indeed, there are many good case studies of similar concepts: for instance, similar case studies were done for Baia Underwater Archaeological Park (Nogami et al., 2007), protected-sites-tours in Sicily (Soprintendenza del Mare, 2009 and Tusa, 2009) and so forth (Nakanishi et al., 2017). For this authors' experimental researches around Okinawa areas, authors need to find the most suitable case study and its fittest methodology to accomplish their dissemination and monitoring plans as socio-cultural and natural environmental studies.

Throughout the authors' researched and the workshops in Kume Island and Ishigaki Island, local communities and diving shops displayed strong interest to be a part of the management and monitoring plans. Now, the authors have to move to next step; that is further development of the local networks and capacity buildings. Those two developments are essential for the plan to be established with local communities for long-term site management. For this purpose, authors composed four-step work-

models; this model can be seen as Fig. 6 (Nakanishi and Katagiri 2017, amended by the authors).

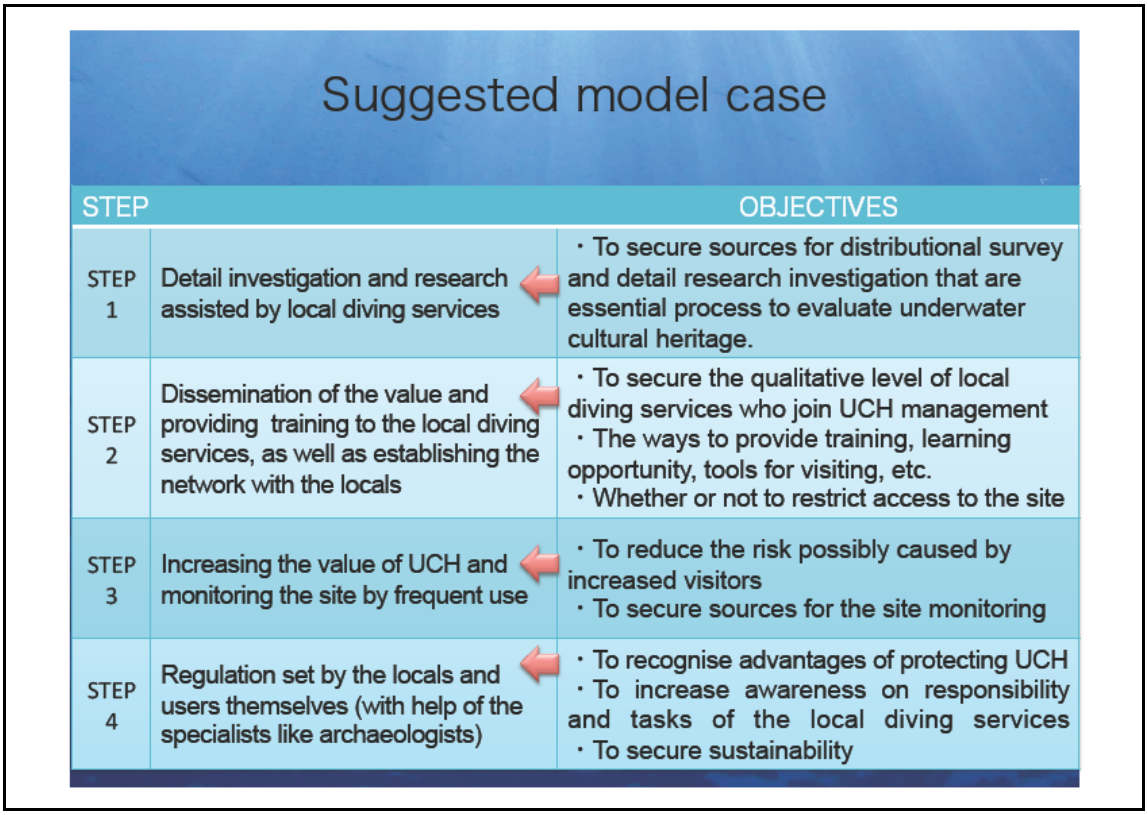

Fig. 6: Suggested model case: 4 steps and subjects to overcome. (Nakanishi and Katagiri, 2017, amended)

For an already identified UCH site, four-step process shall be expected to accomplish a sustainable management plan. First, as Step 1, archaeologists and researchers have to investigate and identify values of the UCH site. It is an essential process because these values display how to manage and protect the sites. Also this value shall be shared with local communities; therefore, values of the sites have to be identified and studied before the following dissemination processes. Also, these archaeological investigation by scholars may take multi-years and can be labor intensive; therefore, collaboration with local diving communities are often very helpful. Moreover, this collaborative efforts between

archaeologists and local diving communities can be a positive first steps of local involvement for the management and monitoring UCH.

The second step is capacity building. The capacity building include introduction of UCH to local communities; therefore, providing proper knowledge and methods to protect and manage the sites is essential. For that reason, workshop-style, such as Yarabuoki underwater site, is an effective method to accomplish this step. Additionally, this step may widely expose UCH into the general public; therefore, one of the important tasks for archaeologists is to evaluate preservation condition/status of sites, and its access have to be restricted if it is necessary. In short, it is important for archaeologists and experts to share and disseminate good knowledge and information with the local communities.

The third step is ‘risk management’ and ‘establishment’. UCH has been opened to the general public via the processes of the previous step; and it may trigger influx of tourists into the UCH. The main task of this stage is to closely monitor the UCH. To do this correctly and frequently, supports of local diving communities with proper networking shall become essential. On the other hand, the authors hope another potential of UCH; the beginning of new touristic trends by utilizing UCH may generate new values of UCH for local communities. The authors is hoping that practice of UCH site management and monitoring shall be established throughout this step.

Final stage, or Step 4, is about ‘sustainability’ by the local communities. It is important for local communities to lead site managements and monitoring operation of UCH. While archaeologists and other experts still be able to support the local communities if necessary, the author strongly

believe that main groups that manage and monitor the UCH have to be local communities. This shifting process may take long time. However the authors also hope that the local communities may become to realize their own values on UHCs throughout their experiences of the management. When the local communities understand values and methods to manage and monitor UCH without helps by archaeologists and experts, ‘sustainability’ of the management will be achieved. To accomplish the Step 4, supports from local authorities, such as Board of Education of a municipal government where is responsible for managing cultural heritages found in the region, is essential. Two main important tasks for them are: to secure and maintain academic values of UCH and keep qualities of its management; to report and register new discoveries of UCH within their jurisdictions.

Before closing this paper, the authors want to give special thanks to Coastal Area Capability Project in Southeast Asia (Research Institute for Humanity and Nature), Tokai Project Study ‘Okinawa Underwater Cultural Heritage and Underwater Museum Project’ (Tokai University), and Mitsubishi Foundation, for their supports by funding this research project.

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