

## Distributional Survey of Underwater Cultural Heritage and its Experimental Presentation in the Ryukyu Archipelago

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### Abstract

*The Ryukyu Archipelago is located at the northwestern Pacific, between the islands of Formosa and Kyushu of southern Japan. It consists of 199 islands of all dimensions and the total range of its accurate distribution lengthen is approximately 1,200 km. Since the first human beings settled down on the archipelago during the Pleistocene, they have been living close by the sea there. The local populations have recognized maritime resources as a main and important nutritious food since the prehistoric era, while the Ryukyu kingdom used to be prosperous unprecedentedly in terms of seaborne oversea trade among Japan, China, and Southeast Asia. In the Ryukyu archipelago, the distributional survey of underwater cultural heritage has lately been conducted by the Nansei Islands Underwater Cultural Heritage Study Group, the Okinawa Prefectural Archaeological Center, the Asian Research Institute of Underwater Archaeology, and Kagoshima University, in order to assess its numbers, typologies, actual conditions, and so on. According to the research, 235 sites of underwater or maritime cultural heritage have already been confirmed: 9 shipwrecks, 33 submerged ports, 15 places where boat cargos are scattered on the seabed, 72 places where old boat cargos and other remains are found along the coasts, 30 stone anchors and cargos on land, 28 quarries, 45 stone tidal weirs, and 3 salt works. In 2011, as a result of the survey, an underwater cultural heritage presentation or guidance tour was carried out in Kume Island. Presumably, this experimental trial will lead the public to having the sense to acknowledge and protect underwater cultural heritage in the future.*

**Key words:** Ryukyu Archipelago, Ryukyu Kingdom, Transit trade, Distributional Survey, Open day

### Introduction

The Ryukyu Archipelago consists of 199 islands of various sizes ranging about 1,200 km between Kyushu Island, the southernmost island of the Japanese Archipelago, and

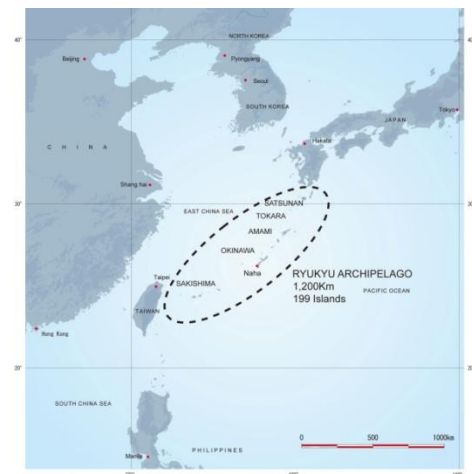
Taiwan in the northwestern coastal Pacific. The first humans reached there in the late Pleistocene and have long been living a life highly connected to the sea since then. Marine resources had been their major food source in prehistory, and the islands have prospered because of overseas exchanges using ships and the sea from the Gusuku Period to the Sanzan Period (from the latter half of 11th century to 1429 AD). The tidal zone was actively utilized for production activities until 1879, when the Ryukyu Kingdom became an independent state. Recent research accumulation revealed the numbers and types of underwater cultural heritage in this region by the Nansei Islands Underwater Cultural Heritage Study Group, the Okinawa Prefectural Archaeological Center, the Okinawa Prefectural Museum and Art Museum, the Asian Research Institute of Underwater Archaeology, Kagoshima University, Tokai University and Research Institute for Humanity and Nature, and so on. It is notable that such researches include a whole series of different kinds of methods, such as collection of oral histories, interviews, archival researches, walking survey of the coastal area and the seabed, and the like.

Based on the results of such researches, we have an underwater site open day in Kumejima Island in Okinawa for its experimental presentation on 11th September 2011 and 28th September 2013. On those days, we invited the willing public to visit and see underwater sites under the supervision and guidance by the experts. The Ohajima Underwater

Site was selected for the subject of this experimental presentation as it was the most suitable site on many reasons. We have collected the data regarding the interest of the visitors, trying to justify the validity of the method we have adopted. The research aims to lead to the protection and utilization of underwater cultural heritage.

### **Types and numbers of the sites holding Underwater Cultural Heritage**

As shown in the Table 1, the area of sea around the Ryukyu Archipelago holds a wide variety of underwater cultural heritage. 9 shipwreck sites, 15 seabed artifact scattering sites (loads only, no hull found), 33 submerged ports, 72 coastal artifact scattering sites,



*Fig. 1 Location of Ryukyu Archipelago. (C. Katagiri)*

76 production sites (28 quarries, 45 stone tidal weirs, and 3 salt pans), and 30 sites with findings on land, such as stone and iron anchors are so far found and categorized.

	type		number	contents
I Sites due to the marine accidents	a	Shipwreck sites	9	Shipwreck
	b	Seabed artefact scattering sites	13	Only cargo, Almost ceramics
II Site formed by the frequent use of the sea and coastal areas	c	Ports	33	artefacts of various periods
	d	Coastal artefact scattering sites	71	artefacts of various periods
III Sites due to production activities	e	Quarries	28	Sites to cut out stone
	f	Stone tidal weirs	45	Stationary fishing gear
	g	Saltworks	3	Sites to produce the salt
IV Others	h	Related underwater cultural heritage	30	Almost Anchor of the ship
合計			232	

*Table 1. Aggregation of Underwater Cultural Heritage of the Ryukyu Island. (C. Katagiri)*

### **Sites due to the Marine Accidents**

Shipwreck sites (a): Often only the wreckage and pieces of ships found. They are disturbed by natural phenomena like a typhoon or human disturbance like recovery after having been stranded or sunk. Seabed artifact scattering sites (b): Generally formed by loads thrown away from the ships, but sometimes caused by the wreck. Hard to distinguish either unless wrecked hull pieces are found.

### **Sites formed by the Frequent Use of the Sea and Coastal Areas**

Ports(c): Proving that the area had been used as a port, with anchors and artifacts of various periods are found. Occasionally formed by the ship anchored there which accidentally sunk? Coastal artifact scattering sites (d): Formed as a result of utilization of the coastal area those who were living in the settlements there, such as cooking and discarding which are distinguished from the ports.

### **Sites due to Production Activities**

Found in the tidal zone. Quarries (e) are well-recognized and well-preserved while salt pans(g) and stone tidal weirs(f) formed with the small pebbles piled are not preserved in a good state. Such structures are meant to be constantly used and repaired, and will be naturally destroyed once stopped being used. Many sites of this kind had been existed

in the past, but the numbers dramatically decreased and hardly seen now. It is exigency to record those sites.

## Others

Artifacts that used to be on the seabed are often recovered on land and conserved as cultural properties (h). Stone and iron anchors often apply to this case providing the clue to the identification of the ships sailing in the area at that time.

## Major characteristics of Underwater Cultural Heritage in the Region

Table 2 shows an overview of typical underwater cultural heritage in the Ryukyu Archipelago and Fig. 2, Representative underwater cultural heritage of the Ryukyu archipelago.

## Underwater Cultural Heritage Related to Overseas Trades during the Gusuku Period (between the 12th and 13th Centuries AD)

The Amamioshima-kurazaki underwater site (Fig. 2, Table 2, Site No. 2, Ukenso Board of Education, 1999) and the Kumejima-nakanohama underwater site (Fig. 2, Table 2, Site No.13, Miyagi et al., 2004; Tezuka et al., 2005; Katagiri, 2007) are known to be holding underwater cultural heritage formed by the shipwreck or the load discarded from the ship, dated back to the latter half of the 12th century to the 13th century. In both cases, Chinese ceramics are densely found on the seabed, which provide a great deal of information related to the trading in the early Gusuku Period.

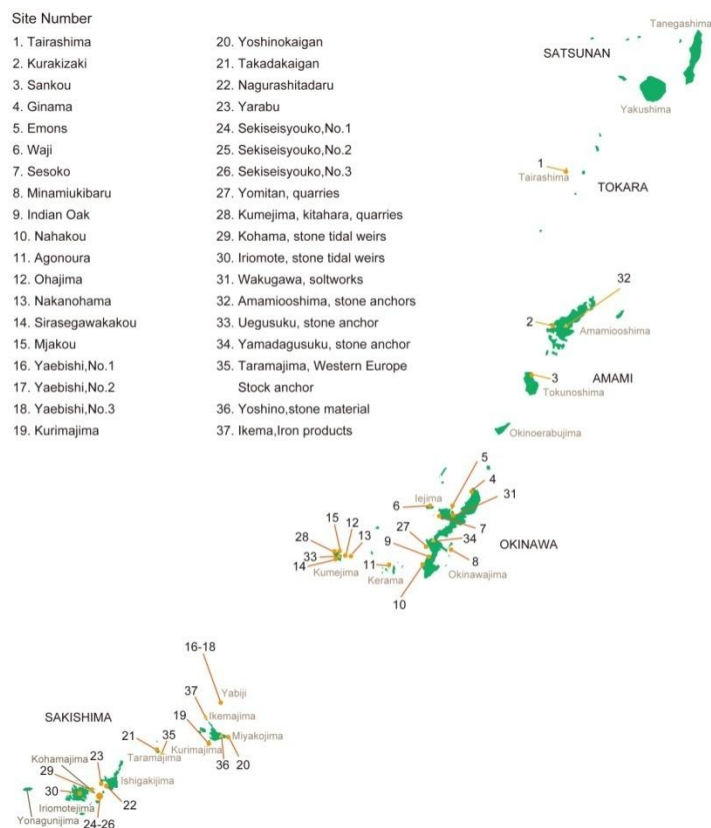


Fig. 2 Representative Underwater Cultural Heritage of the Ryukyu Archipelago. (C. Katagiri)

### **Underwater Cultural Heritage Related to Overseas Trade from the Sanzan Period (the 14th Century AD) to the Ryukyu Kingdom Period (from 1429 AD to 1879)**

From the latter half of the 14th century to the beginning of the 15th century, a crucial turning point in the history of the region occurred regarding the transition of political power when the sovereign was centered during the establishment of the Ryukyu Kingdom. Ohajima Underwater site in Kumejima Island is one of the major sites during this period (Fig. 2, Table 2, Site No.12, Miyagi et al., 2004; Tezuka et al., 2008; Katagiri, 2007). Large amount of celadon of the early Ming Dynasty China is found. Moreover, 2 Chinese stone anchors have been identified in Kumejima Island. Kumejima Island and the surrounding sea area must have played a significant role in oversea trades during the early Gusuku Period and Sanzan Period, proved by the density of underwater sites and stone anchors dated back then. The Ryukyu Kingdom was in its heyday from the 15th century to the mid 16th century. The king resided in Shuri-jo Castle served as the sovereign ruler and the centralized nation was formed then. Nagura-shitadaru site (Underwater site) dated back to the mid to late 15th century is located in Ishigakijima Island and large amount of Chinese celadon discovered from the site (Fig. 2, Table 2, Site No. 22, Sakishima Culture Research Institute, 2009). Miyakojima Island holds Kurimajima Underwater site dated back to the first half of the 16th century. Chinese ceramics found from sites has been changing then, from the predominantly celadon before to the gorgeous flowery blue and white porcelain (Fig. 2, Table2, Site No.19, Katagiri, 2009). After the invasion of the Satsuma clan in 1609, Tokara-retto Islands became a territory of Satsuma. An underwater sites indicating the maritime accident at that time is identified in Tairajima Island of Tokara-retto Islands. Clusters of Chinese porcelains of the Qing Dynasty dated to the 18th century found in the area, which would have been formed by the ship sunken or the ship loads discarded (Fig. 2, Table 2, Site No. 1, Kagoshima University, The Faculty of Law, Economic and Humanities et al., 2010).

### **Sunken Shipwrecks Revealing Ikoku-sen (the Western Ships) during the Last Years of the Ryukyu Kingdom**

In the last years of Ryukyu Kingdom, many West European ships called Ikoku-sen has constantly been around the sea area of the Ryukyu Archipelago. It is obvious that Asian

intrusion and interference by the great powers of the West Europe came to influence so far as the Ryukyu Kingdom. Many shipwrecks found in the area can provide us the great deal of information on Western ships at that time. An English ship, Providence, sunken in Yaebishi in Miyakojima Island in 1776 was discovered (Fig. 2, Table 2, Site No.16, Katagiri, 2009). On top of the Providence, another English ship, Indian Oak, owned by East India Company sunken in 1776 was found in Chatan-cho in Chatan Oki (Fig. 2, Table2, Site No.9, Nakamura, 1994). In 1853, the same year with when Mathew Calbraith Perry arrived at Uraga Port, an English ship sank off Yoshino Kaigan in Miyakojima (Fig. 2, Table 2, Site No.20, Katagiri, 2009) and a Dutch Ship, Van Bosse off Takada Kaigan in Taramason Village in 1857 (Fig. 2, Table 2, Site No.21, Katagiri, 2009). In 1872, when the Ryukyu Kingdom was inclining on verge of collapse, an English ship, Benares sank off Ginama in Kunigamison Village (Fig. 2, Table2, Site No.4, Katagiri, 2013), as well as a foreign ship of unknown nationality sank off Minamiukibarujiima in Uruma City (Fig. 2, Table 2, Site No.8, Katagiri, 2010). Wrecks and loads left by those foreign ships still remain on the seabed of those areas.

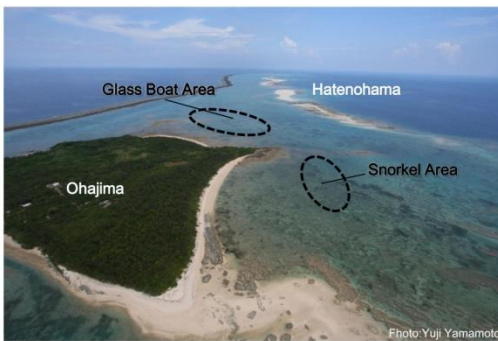
### **Underwater Cultural Heritage Related to the Domestic Commodity Circulation within the Ryukyu Kingdom.**

In 1879, the Meiji Government abolished the Ryukyu Kingdom. The Kingdom became extinct on the map and came to be called “Okinawa Prefecture”. The ships called “Maran-sen” were playing significant role of carrying the supplies to many remote islands in Okinawa at that time. Agonoura Underwater site located in Zamamijima Island (Fig. 2, Table 2, Site No.11, Miyagi et al., 2004), Yaebisi Underwater site Cluster in Miyakoshoto Islands (Fig. 2, Table2, Site No.2-3, Katagiri, 2009), Yarabu Underwater Site in Ishigakijima Island (Fig. 2, Table2, Site No.23, Katagiri, 2010, Ono et al., 2013), Sekiseishoko Underwater site Cluster in Yaeyamashoto Islands (Fig. 2, Table 2, Site No.24-26, Katagiri, 2009, Ono et al.,2013) are so far identified underwater sites dated to this period. A wide variety of Tsuboya-yaki pottery produced in Naha City in Okinawajima Island are found in those sites, accompanied with some Chinese Qing Dynasty Porcelain in some cases. Those sites and artifact scatterings were formed due to the accident of the ships which were transporting pottery produced at Tsuboya in Naha City of Okinawajima Island to the smaller islands around Okinawajima Island,

such as Miyako and Yaeyama Shoto Islands, either by the hull being submerged or the loads abandoned on their way. In case of Sekiseishoko Underwater site Cluster, Point No. 3 (Fig. 2, Table 2, Site No. 26), the submerged hull is identified. Moreover, four-armed anchors that had never been seen on land in Okinawa are discovered at Yarabu Underwater site (Fig. 2, Table 2, Site No. 23) in Ishigakijima Island, which provides us significant information to reveal the appearance and characteristics of the ships at that time (Katagiri, 2010; Ono et al., 2013).

### Submerged Port Sites

Underwater sites showing evidence of having been the ports with frequent use are



*Fig. 3 Landscape of Ohajima Underwater Site (A Large Amount of China Ceramics of the Late 14th on the Seabed) and Sea Area that Held a Tour. (C. Katagiri)*

Shirasegawakako (Fig. 2, Table 2, Site No.14, Toma and Sakuda, 1999) and Majako (Fig. 2, Table 2, Site No.15, Katagiri, 2007; 2010) in Kumejima Island, Agonoura in Zamamijima Island (Fig. 2, Table 2, Site No. 11, Katagiri, 2007), Sesokojima Underwater site in Motobucho of Okinawajima Island (Fig. 2, Table 2, Site No. 7, Katagiri, 2005). Majako Port had been a famous port known to be used for tributary trades. There is a warehouse overseer

near the site and stone anchors are found from the nearby settlement. A wide variety of artifacts dated back to from the medical to pre-modern and modern period are scattered on the coast and seabed in this area, which support that the area had long been used as a port (Fig. 2, Table 2, Site No.15). Combined investigations of such a site and previously mentioned Nakanohama underwater site and Ohajima underwater site that show the traces of maritime accidents will provide us with large amount of information to evaluate the site. Agonoura of Zamamijima Island is also known as a port related to the tributary trade. Many kinds of artifacts, such as the 15th century celadon, as well as the pre-modern and modern pottery produced in Okinawa, have been discovered on the seabed of the area (Fig. 2, Table 2, Site No.11).

Sesokojima Sea area had also long been used as port on the trade route, which resulted in many artifacts findings especially on the east coast of Sesokojima Island. A



stone anchor was found at Anchi-hama Beach, probing the existence of the ships anchored there (Fig. 2, Table 2, Site No.7, Katagiri et al., 2005). This stone anchor is relatively small, but mocking Chinese stone anchor having produced during the time of the Ryukyu Kingdom. The small stone anchors of this kind have recently been found at several places all over Okinawajima Island, which would be significant information source to reveal the structure of Maran-sen ships. Several stone anchors of this kind holding similar form were also found from the seabed off Sanko Port of Tokunoshima Island (Fig. 2, Table 2, Site No.3, Kagoshima University, The Faculty of Law, Economic and Humanities et al., 2010). The area was tactically significant sea area for the port, and geographical as well as historical significance of the area are to be revealed.

### Production Site



*Fig. 4 Tour scene of the Snorkel in Ohajima Underwater Site. (C. Katagiri)*

Production sites are generally recognized in the tidal zones. Quarries, stone tidal weirs and salt pans are the representative sites of this kind. A huge quarry in Kumejima Island of Kumejimacho (Fig. 2, Table 2, Site No.28, Katagiri, 2006), stone tidal weir cluster in Kohamajima Island of Taketomicho (Fig. 2, Table 2, Site No.29, Katagiri, 2009), a salt pan in Nakijinson Village of Okinawajima Island

and the like are so far identified (Fig.2, Table 2, Site No.31). Quarries are often well preserved due to its structural characteristic, while stone tidal weirs and salt pans made with small pebbles pile up are generally in disastrous preservation state. These types of sites have to be constantly used and repaired. The site, once stopped being used, would start to be reverted back to the original natural state and collapse due to the natural force of waves and tide. There had been many salt pans and stone tidal weirs in the past, which are hardly seen now. Recording of those sites is our urgent mission.



No.	Underwater Site	Location	Classification	Contents	Age
1	Tairashima	Tokara, Tairashima	I b	Boat cargos, China Ceramics	18th
2	Kurakizaki	Amami, Amami Oshima	I b	Boat cargos, China Ceramics	12-13th
3	Sankou	Amami, Tokunoshima	II c	Port. Stone anchor	Middle Ages
4	Ginama	Okinawa, Okinawajima	I a	Wreck. UK, Benares	1873
5	Emons	Okinawa, Okinawajima	I a	Wreck. USA, Emons	1945
6	Wajikaigan	Okinawa, Iejima	I b	Boat cargos, China Ceramics	15th
7	Sesokojima	Okinawa, Sesokojima	II c	Port. Okinawa stone anchor, China Ceramics, Okinawa Pottery	Middle Ages -Modern
8	Minamiukibaruji	Okinawa, Minamiukibaruji	I a	Wreck	1876
9	Indian Oak	Okinawa, Okinawajima	I a	Wreck. UK, Indian Oak	1840
10	Nahakou	Okinawa, Okinawajima	II c	Port. China Ceramics	Middle Ages-modern
11	Agonoura	Okinawa, Kerama, Zamamijima	II c	Port. China Ceramics, Okinawa Pottery	Middle Ages-modern
12	Oha	Okinawa, Kumejima, Ohajima	I b	Boat cargos, China Ceramics	Late14th
13	Nakanohama	Okinawa, Kumejima, Hatenohama	I b	Boat cargos, China Ceramics	12-13th
14	Sirasegawakakou	Okinawa, Kumejima	II c	Port. China Ceramics, Okinawa Pottery	Middle Ages-modern
15	Majakou	Okinawa, Kumejima	II c	Port. China Ceramics, Okinawa Pottery	Middle Ages-modern
16	Yabiji, No.1	Sakishima, Miyako, Yabiji	I a	Wreck. UK, Providence	1776
17	Yabiji, No.2	Sakishima, Miyako, Yabiji	I b	Boat cargos, Okinawa pottery	Early modern period
18	Yabiji, No.3	Sakishima, Miyako, Yabiji	I b	Boat cargos, Okinawa pottery	Early modern period
19	Kurimajima	Sakishima, Miyakojima, Kurimajima	I b	Boat cargos, China Ceramics	Early16th
20	Yoshinokaigan	Sakishima, Miyakojima	I a	Wreck. UK	1853
21	Takadakaigan	Sakishima, Taramajima	I a	Wreck. Netherlands, Van Bosse	1857
22	Nagurashitadaru	Sakishima, Ishigakijima	I b	Boat cargos, China Ceramics	15th
23	Yarabu	Sakishima, Ishigakijima	I b	Boat cargos, Okinawa pottery. Four claw iron anchor	Early modern period
24	Sekiseisyouko, No1	Sakishima, Sekiseisyouko	I b	Boat cargos, Okinawa pottery, China Ceramics	Early modern period
25	Sekiseisyouko, No2	Sakishima, Sekiseisyouko	I b	Boat cargos, Okinawa pottery	Early modern period
26	Sekiseisyouko, No3	Sakishima, Sekiseisyouko	I a	Wreck. Okinawa pottery	Early modern period-modern
27	Yomitanson, quarries	Okinawa, Okinawajima	III e	Production sites. Quarries	Early modern period-modern
28	Kumejima, kitahara, quarries	Okinawa, Kumejima	III e	Production sites. Quarries	Early modern period-modern
29	Kohamajima, stone tidal weirs	Sakishima, Kohamajima	III f	Production sites. Stone tidal weirs	Early modern period-modern
30	Iriomotejima, stone tidal weirs	Sakishima, Iriomotejima	III f	Production sites. Stone tidal weirs	Early modern period-modern
31	Wakugawa, soltworks	Okinawa, Okinawajima	III g	Production sites. Soltworks	Early modern period-modern
32	Amami Oshima, stone anchors	Amami, Amami Oshima	IVh	8China stone anchors	Middle Ages
33	Uegusuku, stone anchor	Okinawa, Kumejima	IVh	China stone anchor	Middle Ages
34	Yamadagusuku, stone anchor	Okinawa, Okinawajima	IVh	China stone anchor	Middle Ages
35	Taramajima, stock anchor	Sakishima, Taramajima	IVh	Western Europe Stock anchor	Early modern period
36	Yoshino, stone material	Sakishima, Miyakojima	IVh	Stone material	Early modern period
37	Ikema, Iron products	Sakishima, Miyako, Ikemajima	IVh	Iron products	Early modern period

*Table 2. Overview of Typical Underwater Cultural Heritage in the Ryukyu Archipelago. (C. Katagiri)*

## **Underwater Cultural Heritage Raised on Land**

There are some artifacts and parts of ship structure, which had been found on the seabed, raised on land, and then preserved and reverted to the cultural properties. Their information and use would be enhanced and its value increased by being connected with underwater cultural heritage in the area that still remains to be underwater. A stone anchor reused for the well of a Yamada Gusuku (Castle) in Onnason Village (Fig. 2, Table 2, Site No.34, Katagiri, 2007), iron anchors in Taramajima Island (Fig. 2, Table 2, Site No.35, Katagiri, 2009), stone materials found in Yoshino Settlement in Miyakojima Island (Fig. 2, Table 2, Site No.36, Katagiri, 2009), iron products of Miyako-Ikemajima Island and the like are so far recognized of this kind (Fig. 2, Table 2, Site No.37). They provide us the clue to figure out the ships sailing in this sea area.

## **Experimental Site Open Day**

After the 10 years of distributional survey in sea area of the Ryukyu Archipelago, as a result, we now have a rough idea about the types and quantity of underwater cultural heritage in the area. The next step forward is to search for a method for protection and utilization of such cultural heritage bore in the beautiful sea in this region with high degree of transparency formed by coral reef. For this purpose, we have experimentally undertaken a public site open day for underwater cultural heritage around Kumejima Island in Kumejimacho (Katagiri et al., 2012).

Fig. 3 shows Landscape of Ohajima underwater site and sea area that held a tour. The major attraction of the day was Ohajima Underwater Site with dense distribution of Chinese pottery dated back to between the latter half of the 14th century and beginning of the 15th century. For the better understanding of the nature and characteristics of underwater cultural heritage, we had delivered a preliminary lecture for 30 minutes before the site visit, as well as observation tour of the artifacts already raised on land, such as pottery pieces collected from the seabed at Ohajima and a stone anchor found at UeGusuku (castle) for 30 minutes. Furthermore, we organized a tour visiting related cultural heritage sites on land, such as Tenkogu Site, Kuramoto-ato Site, Majako Port Site, quarries, and the like, for an hour, which aimed at explaining why the underwater site had been formed on seabed of Ohajima. We prepared 2 ways to visit for the actual

visit of Ohajima Underwater site on seabed, both of which last for about an hour. We organized 2 groups of people with 20 people each, one for visiting the site by snorkeling and the other by a glass-bottom boat for those who are not willing to go into the water. Fig. 4 shows the tour scene of snorkel in Ohajima Underwater Site. This attempt was able to establish a model case for the site open day for the public visiting underwater cultural heritage, which could be followed by the other sites in the Ryukyu Archipelago although we still have to scrutinize this case to evaluate how far the case can be applied to the other cases as well as to the wider public.

## **Conclusion**

History and culture of the Ryukyu Archipelago have long been together with the sea. Due to its few resources and small areas, it is often claimed that island areas provide harsh environment for the life and survival of human-being. Nevertheless, there is a distinctive maritime culture which have overcome and formed till now. The distinctive characteristics and history of such culture has not yet been fully revealed and evaluated even now. It needs further investigations. We believe that study of underwater cultural heritage would be essential field of research for the future of this area around the Ryukyu Archipelago. The researches so far done helped us to identify a wide variety of underwater cultural heritage ranging from the medial to the pre-modern and modern period. It is also found out that most sites tend to be related to the trade, port and production activity. Now, after the distributional survey, further intensive investigation on a particular area needs to be carried out. Even though we are still facing many problems for conservation and utilization of the site, utilization of underwater cultural heritage in the Ryukyu Archipelago has a bright future, we believe. Many people from all over the world visit Okinawa to enjoy the observation of the seabed of the area by marine sports and glass-bottom boats. As it has been undertaken in Kumejima Island, the concept of establishing Seabed Site Museums is ideal way of utilization for such environment with beautiful sea in the Ryukyu Archipelago. We further intend to promote this attempt to the other sea area.

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## Biography

**Chiaki Katagiri** is the chief curator of the Okinawa Prefectural Museum and Art Museum. He was born in Nagano, Japan in 1976, graduated from Okinawa International University in 1999 majoring in archeology. From 2000 to 2011, he worked as a Specialist in Okinawa Prefectural Archaeological Center and appointed to current post in 2011. He is specializing in anthropology of the islands, carrying out anthropological and archaeological fieldwork throughout Asia. He has been actively

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**Yuji Yamamoto** *is an underwater photographer participating in several projects by Asian Research Institute of Underwater Archaeology, as well as many other underwater heritage projects. Having graduated from Fukuoka University, he was taking pictures of Paris-Dakar Rally and F-1 races. He has participated in the investigation of Takashima Underwater Remains since 1998 and successfully photographed parts of the ship hull, tetsuhau, a helmet, the bundle of arrows of Mongolian Invasion discovered in muddled water. His pictures are published serially in the diver's monthly magazine "Gekkan Diver" since 2014.*

**Yumiko Nakanishi** *is an archaeologist working at Osaka Prefectural Government. She obtained M.Phil in Archaeology at Cambridge University in 2001 and is currently a PhD candidate, specializing on heritage management and public archaeology, as well as the final phase of Kofun Period in Kinki region of Japan. She is an Expert Member of ICOMOS Committee for Archaeological Heritage Management (ICAHM). Her publication includes, Theory and praxis of Cultural Heritage Studies in England, Journal of Heritage Studies, Vol. 1: 47-5; The Great East Japan Earthquake and cultural heritage: towards an archaeology of disaster, Antiquity, Vol. 87: 258-269.*