



Cultural Heritage Agency  
Ministry of Education, Culture and Science

# Underwater Archaeology Training in Vietnam

*UNESCO / SEMEO - SPAFAA  
Vietnam, 2015*





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## COLOPHON

### **Underwater Archaeology Training in Vietnam**

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Vietnam, 2015

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**The International  
Underwater Archaeology Field School**  
14 June to 12 July 2015, Hoi An - Vietnam



fig. 1: T-shirts made for the participants of the course (Photo: R. Muthucumara)

fig. 2: Surveying underwater (Photo: R. Muthucumara)

# 1. Introduction

Between 15<sup>th</sup> of June and 12<sup>th</sup> of July 2015 the UNESCO / SEAMEO SPAFA Vietnam Underwater Archaeology Training (VUAT) course was held in Hoi An, Vietnam. The course can be seen as a follow up of the UNESCO Foundation courses for Underwater Cultural Heritage Management that were originally held between 2009 and 2011 in Thailand. Three six week Foundation Courses and two ten-days advanced courses were successfully organized. The publication *'Training Manual for the UNESCO Foundation Course on the Protection and Management of Underwater Cultural Heritage in Asia and the Pacific'* was developed in that same period. The publication combines all of the curriculum material developed by a pool of international experts trainers and forms the basis for future Foundation Courses.<sup>1</sup> Other similar courses were later on executed in the Caribbean area, 2012 in Port Royal, Jamaica and in 2014 on St. Eustatius.<sup>2</sup> A new adaptation of the training manual is under development for the Caribbean and Latin-American region. The Vietnam Underwater Archaeology Training however does have a somewhat different background. In December 2011 Dr. Mark Staniforth (Monash University, Centre for Geography and Environmental Science, Australia) started the Vietnam underwater archaeology project together with the Institute of Archaeology in Hanoi, Vietnam. The project aimed for the establishment of an Institute for Underwater Archaeology in Vietnam. As part of this project, the idea raised to organize a field school to build capacity within the country. The Ancient Town World Heritage Site, Hoi An, was chosen as the site of this field school because of its incredible

maritime archaeological potential. The town of Hoi An developed as a major trading entrepôt in the Southeast Asian network in the 16<sup>th</sup> century and the area had been a key player in the older Cham trading network well before then. It was thus considered as the ideal place to conduct underwater archaeology training.

The project comprised of two main components – a 1 week PADI Scuba Diving certification programme provided by the Blue Coral Diving dive shop in Hoi An and a 3 week advanced fieldwork practicum. The objectives were reached through a series of lectures and fieldwork. The lectures were based on the above mentioned *Training Manual for the UNESCO Foundation Course on the Protection and Management of Underwater Cultural Heritage in Asia and the Pacific*. The course focused on the underwater archaeology, underwater survey, guidelines and best practice regarding the management of underwater cultural heritage, as well as the 2001 UNESCO Convention on the Protection of the underwater heritage. The fieldwork allowed participants to conduct realistic practical training exercises involving underwater survey, photography and drawings as well as artefact measurements, recording and photography in a terrestrial context. In total 34 persons have been involved in the training: 12 trainers staff, 20 students and 4 more experienced team leaders. Twelve countries were represented in the training; participants, experts and trainers came from Australia, Cambodia, Hungary, Indonesia, the Netherlands, the Philippines, Sri Lanka, Thailand, the United States, and Vietnam.

<sup>1</sup> M. Manders, C.J. Underwood, *Training Manual for the UNESCO Foundation Course on the Protection and Management of Underwater Cultural Heritage in Asia and the Pacific*, 2012  
<sup>2</sup> M. Manders, *UNESCO Foundation Course in the Caribbean, St. Eustatius*, 2014

### **Shared Cultural Heritage**

The Cultural Heritage Agency of the Netherlands (RCE) has been involved in this course in Vietnam through the delivery of trainings and allocate budget. The reason to be involved in the project lies in the multiple tasks it has in the region to manage Dutch shipwrecks overseas and therefore to exchange knowledge and building capacity in Asia to be able to do so.

The RCE, together with the Central Government Real Estate Agency and the Ministry of Foreign Affairs, is responsible for the management and preservation of Dutch Shipwrecks located outside the Netherlands' territorial waters. The Netherlands claim the ownership of shipwrecks that have belonged to the West India Company (WIC), East India Company (VOC) and the Admiralty or other (more recent) navy ships. Within the RCE two programmes combined and executed in one hand – the maritime section of the Shared Heritage Programme and the Maritime Programme – deal with this issue.

International cooperation and knowledge exchange in the field of maritime heritage is of great importance, as it is a crucial factor for the management and preservation of the unique maritime heritage. This is also the reason why the RCE has been involved in the UNESCO trainings before. The training in Vietnam has been partly organised and financed by SEAMEO SPAFAA. This is the international organization dedicated to promoting co-operation in education, science and culture in Southeast Asia, which is part of the Southeast Asian Ministers of Education Organization (SEAMEO). The Netherlands will be ratify the UNESCO Convention on the Protection of Cultural Heritage. This has been announced by the ministers of Foreign Affairs and Education, Culture and Science. Joining in with such a large framework and network of countries and making an effort to jointly protect the valuable, rich cultural resource underwater is another step in the foreign policy of Dutch maritime cultural heritage management.







## 2. Geographical and historical context

The reason why the training was organised in Vietnam and was partly sponsored by the RCE has multiple reasons. First of all there is an historical tie between the Netherlands and Vietnam. Vietnam is conveniently located in an extremely favourable geographical position lying across the East-West and the North-South maritime routes in Southeast Asia. Vietnam, and the various states and cultures that preceded the modern Vietnamese nation, have been involved in more than 2,000 years of international seafaring activity. As a result of this seafaring, along the Vietnamese coast the remains of vessels can be found that originally came from for example – besides local and regional origin – the Arab world, China, Japan, the USA, Portugal, France, the Netherlands and Great Britain. Historical research on the Dutch East-India (VOC) trade has rightly considered its well-devised intra-Asian trade the key factor in the commercial success of the Dutch Company in Asia in the seventeenth century. Shortly after their arrival in Asia, Dutch merchants realized the importance

of establishing and maintaining a closely-knit trading network between various trading markets. The prime task of such a network was to supply goods for their homeward-bound ships but a second essential role: to yield profits by redistributing Asian goods to these places<sup>3</sup>.

### **Vietnam and the Dutch East India Company**

Despite of the difficult initial contacts with Vietnam the Dutch continued to keep interest in the area. In 1632 a couple Dutchmen hijacked a ship of the Portuguese, unfortunately the ship wrecked on the coast of central Vietnam at that time called Quinam. The king of Quinam imprisoned the Dutch merchants and confiscated their goods. A Chinese merchant, however, advised the king to send the castaways to the Dutch headquarters in Batavia, with an invitation to the VOC to establish trade relations with Quinam. The VOC decided to send ships in 1637 and they even built an Dutch trading post in the port Faifo, today's Hoi An. In Faifo, Dutch merchants encountered many

<sup>3</sup> Hoang Anh Tuan, *Silk for silver: Dutch-Vietnamese relations, 1637-1700*, Faculty of Arts, Leiden University, 4

fig. Page 10, Fig. 3:  
Underwater  
assignment  
(Photo:  
M. de Booij)

fig. 4: Hoi-An is a  
beautiful city  
located on the  
east coast of  
central Vietnam  
(Photo:  
M. de Booij)





The people and the possessions of the VOC in Faifo were in danger, and in 1638 the Company interrupted therefore the trade with Quinam. It even came to heavy engagement between ships of the East India Company and Quinam. A battle the Dutch dramatically lost. After years of instability finally peace was established in 1651 and a new trading contract was signed. However, the king of Quinam remained suspicious. He captured five Dutchmen with the treat to decapitate them on the marketplace of Faifo. At the last moment he granted them pardon. After this affair the VOC decided to close the trading post in Faifo and moved the trading post to the northern located Tonkin. Hundred years later the Dutch East India Company tried for the last time to renew the trading relations with Faifo. In 1756 the VOC finally left Faifo.<sup>4</sup>

<sup>4</sup> [https://issuu.com/iamsterdam/docs/vietnam\\_nl](https://issuu.com/iamsterdam/docs/vietnam_nl) (Consulted on 27 October 2016)

<sup>5</sup> M. Staniforth, Shared Underwater Cultural Heritage in Vietnam: Opportunities for collaboration (International Symposium Underwater Archaeology in Vietnam and Southeast Asia; Cooperation for Development, 1 - 10)

<sup>6</sup> H. Cosserat, Au Sujet du monogramme de la compagnie Néerlandaise des Indes Orientales (Bulletin Des Amis Du Vieux Hue, 1916)

### **Shared Cultural Heritage in Vietnam**

How much of the Dutch VOC past is still traceable in Vietnam? A position paper written by Mark Staniforth states that at least six 17<sup>th</sup> century vessels belonging to the Dutch East Indian Company (VOC) have been wrecked in Vietnam's jurisdiction; Kemphaan (built in 1627, wrecked in 1633), Groetbroek (built in 1626, wrecked in 1634), Keizerin (built in 1635, wrecked in 1637), Maria the Medici (built 1639, wrecked in 1641), Gulden Buijs (wrecked in 1641).<sup>5</sup>

The bulletin des Amis du Vieux Hué (1916) describes also the existences of different canons that belong to the VOC in the collection of the Royal Antiquities Museum in Hué, which are still on exposition nowadays.<sup>6</sup> In chapter 7 more information will be presented about these artefacts.



### 3. Preparation of the Course

In order to build a strong foundation for maritime and underwater archaeology and maritime and underwater cultural heritage management in countries with a shared cultural heritage with the Netherlands, the Maritime Programme promotes the capacity building of professionals in the region. One of the tools to do this is to organize an underwater archaeology field school in the Asian – Pacific region preferably every two years. In 2015 the programme planned to organize a Field School in cooperation with UNESCO office in Bangkok, as was done in the previous years as well. During this process Dr. Staniforth (Monash University, Centre for Geography and Environmental Science, Australia) contacted Mr. Manders, head of the Maritime Programme to collaborate in the Vietnam Underwater Archaeology Training. In December 2011, Dr. Staniforth had started the Vietnam Underwater Archaeology project together with the Institute of Archaeology in Hanoi, Vietnam. This project aimed to establish an Institute for Underwater Archaeology in Vietnam. As part of this project, the idea arose to organize a field school to build capacity within the country. As a result of the discussions taken place between Dr. Staniforth and Mr. Manders this project was embraced. This meant an adaptation of the original plans developed by Dr. Staniforth and also the RCE. However, the benefits were that not a fully new Foundation Course had to be set up by the RCE and UNESCO and funding could be provided for the initiative taken by Dr. Staniforth. The Netherlands National Commission for UNESCO gave patronage to support the project. The project

embraced a wider focus than in the original plans: capacity building on shared underwater heritage in the Asian region was now the aim. This meant that also Shared Heritage priority countries for the Netherlands were included in the project. The focus of the training was scheduled on different levels: a cooperation between trainers (including those from the Netherlands, Japan and Australia), inclusion of the Foundation Course Manual, training of advanced trainees to become leaders (including trainees from Australia, Sri Lanka, Indonesia and South Africa), adaption of the Foundation Course manual chapters and training novice underwater archaeologists, according to the methods developed within the NAS training courses and the UNESCO Foundation Course. Besides the few priority countries, also other countries with existing Dutch cultural heritage in their coastal waters were involved. The development of capacity in these countries will help the Netherlands with their aim to manage Dutch cultural heritage overseas. Vietnam is such a country where underwater cultural heritage, including several Dutch owned shipwrecks, is still under pressure.

fig. Page 14, Fig. 6:  
The historical  
city of Hoi-An  
by night (Photo:  
M. de Booij)

fig. Page 17, 18,  
Fig. 7: Seafaring  
in Vietnam  
(Photo:  
M. de Booij)









## 4. The students

The 20 students came from 12 different countries, to know: Australia, Cambodia, Hungary, Indonesia, the Netherlands, the Philippines, Sri Lanka, Thailand, the United States, and Vietnam. They were either students archaeology or already working at cultural heritage/ archaeology offices in their country. The level of English was very different: from fluent to poor. This proved to be a real challenge in many ways; from students engaging to understanding of the course material and interaction between trainer and student. This is the reason why for the earlier organized Foundation Courses a screening of students was done, also focussing on the ability

to speak and understand English. Having said this, the atmosphere in the group was good. According to the students it took at least two weeks to develop this. This should be however created in a much earlier stage of the course. Building a team is vital part of a successful training. This can be created by organizing social events and assignments in groups in an early stage. The gender balance in the group was sufficient. Although from all the students only 6 out of 20 persons were female, from the staff it was 6 out of 10. During the course naturally more balance in the gender profile was created because a few male students from Vietnam dropped out for



fig. page 18, Fig. 8:  
Visiting the  
shipbuilding  
yards near Hoi  
An (Photo:  
M. de Booi)

fig. 9: Practical  
assignment  
underwater  
archaeology  
(Photo:  
R. Muthucuma-  
rana)

various reasons and two male students from Sri Lanka had to return earlier home. The level of knowledge in diving within the group was also different. Three participants received their PADI Open Water Diver certification at the end of the first week. One student failed. All the other students did have dive experience, in practice however some stood more out than others. The archaeological knowledge in general and the underwater archaeological knowledge between the students were very different as well. This was also due to the different education systems in the countries, the

possibilities to gain practical experiences and also to gain practices in different skills. The field school was a great opportunity for the participant to learn about underwater cultural heritage and maritime archaeology in other countries.

According to the project plan the training of 5 students from the Netherlands (1), Indonesia (2) and Sri Lanka (2) were directly financed by the Dutch Cultural Heritage Agency. In total 8 students came from countries that are included in the Shared Heritage Policy Programme.

## 5. The trainers

The 12 trainers for this course came from 6 different countries: Australia, Japan, The Netherlands, Thailand and South Africa. The funding for four trainers, the dive supervisor Rasika Muthucumarana from Sri Lanka, archaeologist Jun Kimura from Japan and Linn Borghuis and Martijn Manders from the Netherlands was been funded directly by the

RCE. A total of 9 trainers came from countries that are included in the Shared Heritage Policy Programme. The training team comprised of a Field School Director Mark Staniforth, 11 trainers in several subjects and 4 so-called team leaders from 4 different countries, Indonesia, Thailand, Philippines and Vietnam.

Name	Role
Mark Staniforth	Field School Director (Australia)
Le Thi Lien	Senior Archaeologist (Vietnam)
Jun Kimura (24-28 June)	Senior Archaeologist (Japan)
Martijn Manders (5-10 July)	Underwater Cultural Heritage Trainer (Netherlands)
Linn Borghuis (5-10 July)	Underwater Cultural Heritage Trainer (Netherlands)
Rasika Muthucumarana	Diving Supervisor (Sri Lanka)
Ian McCann	3D Photogrammetry (Australia)
Sally May	Objects trainer (Australia)
Sophie Winton	Archaeologist (South Africa)
Erbprem Vatcharrangkul	Trainer (Thailand)
Pornnatcha Sankhaprasit	Trainer (Thailand)
Attapon Temgyen	Trainer (Thailand)

fig. page 22, Fig. 10:  
Measuring the  
Dutch VOC  
cannons at the  
Royal Antiquities  
Museum in  
Hué (Photo:  
L. Borghuis)



## 6. The course

The course was set up on different levels. First of all there were practical components on different dive sites. Also field visits to several places like museums and traditional boatbuilding places were conducted in Hoi An and Hué.

The training thus comprised of three main components – a one week PADI Scuba Diving certification programme provided by the Blue Coral Diving dive shop in Hoi An, theoretical training and an advanced fieldwork practicum. The objectives were met by combining the series of lectures with the fieldwork. The lectures were based on the *Training Manual for the UNESCO Foundation Course on the Protection and Management of Underwater Cultural Heritage in Asia and the Pacific*. They focused on an introduction to underwater Archaeology, underwater survey, guidelines and best practice regarding the

management of underwater cultural heritage, as well as the 2001 UNESCO Convention on the Protection of the underwater heritage. The fieldwork allowed participants to conduct realistic practical training exercises involving underwater survey, photography and drawings as well as artefact measurements, recording and photography in a terrestrial context. The students were divided into 4 groups with each one team leader. Also 6 projects were composed, 3 underwater and 3 on land that needed to be executed by the different teams. These consisted of an underwater survey, the documentation of a stone anchor underwater, a swim line search, ceramics documentation at a museum, Vietnamese boat building and the mapping of foreign traders in Hoi An. Eventually also a project to document the Dutch Canons in Hieu was included in the programme.

fig. page 24,  
Fig. 11: Practical  
Assignment  
underwater  
at Bai Lang  
(Photo:  
R. Muthucuma-  
rana)

fig. 12: Traditional  
seafaring  
(Photo:  
R. Muthucuma-  
rana)





Red Team	White Team	Blue Team	Green Team
Sheldon Clyde Jagoon (Philippines)	Bui Van Hieu (Vietnam)	Wongsakorn Rahothan (Thailand)	Agni Mochtar (Indonesia)
Lily Rogers (Australia)	Edit Boszormenyi (Hungary)	Kate Lim (Philippines)	Kanlaphangha Kiawmas (Thailand)
Indika Upal Hewage (Sri Lanka)	Ulung Jantama Wisna (Indonesia)	W.H. Rukshan Priyandana (Sri Lanka)	I Wayan Sumerata (Indonesia)
Gendro Keling (Indonesia)	Mike de Booij (Netherlands)	Dinh Thi Thanh Nga (Vietnam)	Charlotte Looram (USA)
Nguyen Chien Thang (Vietnam)	Sous Khemera (Cambodia)	Emil Nell B. Bersamera (Philippines)	

fig. 13: Surveying underwater  
(Photo: M. de Booij)



### **Projects**

Trainees worked on 3 underwater projects and 6 land projects that allowed them to use the skills they learned in the theoretical lessons. Each weekday two teams went to Cu Lao Cham and work underwater while the other two teams worked on the land projects.

- Land project 1: Shipwreck Ceramics
- Land project 2: Vietnamese ship and boat building
- Land project 3: Foreign Merchants
- Land project 4: Ships' Lines
- Land project 5: Museum Visits
- Land project 6: Trip to Huế
- Underwater Project 2: Bai Xep
- Underwater project 3: Bai Ong 1

The trainees worked on projects from Monday to Friday, Saturday was a day of and Sunday was lecture day.



## 7. The Venues

The venues of the training consisted of the Bach Dang Hotel in Hoi An, a presentation room from the municipality in the centre of Hoi An, a three day stay for some of the trainers and students at Hieu, the dive boat and the dive site. The Bach Dang Hotel is a beautiful place and more than one would initially expect for a field school. The swimming pool is large and perfect for initial diving exercises. The food had enough variability and the hosting was pleasant. The rooms were clean and well equipped. On top of that there was Wifi, which is enormously helpful with so many foreign students and trainers that are away for a long time. Besides that, it helps also in the execution

of different assignments during the project. For the closing ceremony and one or two gatherings a large room at the 4<sup>th</sup> floor of the hotel was used. This place was excellent for this purpose.

The presentation room provided by the municipality in the city of Hoi An was used for several classes during the course. It was also sufficient for its purpose, but did not have much ventilation, which caused a short focus span for most of the students.

### Lectures

The topics of the lectures covered practical archaeological methods, theory and history,



fig. page 28, Fig. 14:  
Daily market in  
the old town of  
Hoi An (Photo:  
M. de Booiij)

fig. 15: First week  
training to  
become a  
certified PADI  
open water  
diver (Photo:  
R. Muthucuma-  
rana)



as well as best practice regarding the management of underwater cultural heritage. Some examples of the lectures participants received: “Underwater Photography” and “3D Photogrammetry” by Ian McCann, “Material Cultural Analysis” and “Ships’ Lines” by Sally May, “Case Study on Asian Anchor Development” and “12<sup>th</sup>-13<sup>th</sup> century shipwrecks in East and Southeast Asia” by Jun Kimura, “Vietnamese Ceramics” by Dr. Le Thi Lien, “Data Management in Maritime and Underwater Archaeology” by Martijn Manders, “Desk Based Assessment and Significance Assessments”, “Publications” by Linn Borghuis and “The Sydney Cove Project Case Study” by

Mark Staniforth. These lectures helped to develop awareness of, and capacity building in, Vietnamese and Southeast Asian maritime and underwater archaeology and the management, investigation and protection of maritime and underwater cultural heritage.

#### **Trip to Huế**

The Blue Team went to Huế for three days during week 4. They visited the palaces, the Thien Huế Museum of History and Revolution, and the Royal Antiquities Museum. The focus of the museum visits was on shipwreck materials, in particular an anchor and a couple of Dutch Cannons. The anchor is an 8m long

*fig. 16: Lectures at the university of Hoi An (Photo: L. Borghuis)*

wooden anchor that was brought in by a school teacher from Thuan An village. Now housed at the Museum of History and Revolution, its exact provenance is unknown. The Blue Team produced a detailed report that includes photographs, measurements, and a technical drawing. At the Royal Antiquities Museum, the team identified 3 Dutch cannons (museum registrations numbers BTH TB2 53, BTH – KL252, and BTH – TB KL 254), which they drew and photographed and presented to the rest of the VUAT upon returning from Hué.

### **Cannons of the Dutch India Company (VOC) in the Royal Antiquities Museum**

The Royal Antiquities Museum in Hué has also a three bronze cannons of the Dutch India Company on exposition. According to the director of the Museum, Ms. Huynh Thi Anh Van, the bronze cannons are being in the collection of the museum for a long time. We spoke to hear about the collection and she mentioned a published article in the Bulletin des Amis du Vieux Hué (BAVH) in 1916 about the cannons<sup>7</sup>.



<sup>7</sup> H. Cosserat, Au Sujet du monogramme de la compagnie Néerlandaise des Indes Orientales (Bulletin Des Amis Du Vieux Hué, 1916)

**fig. 17 :** Canon of the VOC with the inscription Gerard Koster. Me. Fecit. Amstelredami, A° 1661 (Photo: L. Borghuis)

### **INSCRIPTION CANON I**

*Gerard Koster. Me. Fecit. Amstelredami. A° 1661.*

*Length: 2 m 12*

*Base ring: 37 cm*

*Caliber: 10 cm*

*No: 1364*

*Museum Registration Number: BTH TB2 53*

### **INSCRIPTION CANON II**

*This canon isn't having any inscriptions and decoration*

*Length:*

*Base ring:*

*Caliber: 10 cm*

*No: 1355 (the unit is unknown)*

*Museum Registration Number: BTH - TB KL 254*

### **INSCRIPTION CANON III**

*Kylianus Wegewart Me Fecit Campis A° 1640*

*Length: 2m 02*

*Base ring: 36 cm*

*Caliber: 10 cm*

*No: 1355 (the unit in unknown)*

*Museum Registration Number: BTH - KL252*

## GRAVESTONE THIEN HUÉ MUSEUM OF HISTORY AND REVOLUTION

In the Thien Hué Museum of History and revolution the gravestone of the Dutch Skipper Jacob Roeper was discovered. The stone was investigated and its history was tracked because the museum didn't know the provenance of the gravestone. Specialist on historical Dutch graveyards, Leon Bok, helped to make a reconstruction.

### Inscription:

*'Hier legt begraven*

*Jacob Roeper*

*In ... leeven*

*Schipper in dienst der Neederl*

*Geoctrooide Oostindische Cop*

*Overleden den 12 November in jaar 1756'*

Jacob Roeper came into the service as Skipper of the East India Company on 2<sup>st</sup> November 1754<sup>8</sup>. It's still a mystery how the stone ended up in Vietnam, because Jacob Roeper died in 1756 in Batavia (Indonesia) and must have been buried there.<sup>9</sup> Probably the stone has become in private hands after the removal of it from the graveyard Tanah Abang in Batavia (currently Jakarta). It can be the case that the stone has been used for ballast on a Junk or other ship. The stone is a stele or stela, a taller erected monument.

The register books of Tanah Abang seem to have disappeared. In the 90's of the last century the graveyard has been drastic reduced and the place itself has been transformed as a museum. A lot of the grave monuments disappeared in this period.



<sup>8</sup> ([https://en.wikipedia.org/wiki/Taman\\_Prasasti\\_Museum](https://en.wikipedia.org/wiki/Taman_Prasasti_Museum)) (consulted on 1 November 2016)  
<sup>9</sup> Open Office: <https://www.openarch.nl/show.php?archive=ghn&identifier=83e4832c-5b1d-4714-91c5-bfa6a99d071b6lang=nl> (Consulted on 1 November 2016)

fig. 18: Gravestone of the Skipper Jacob Roeper (Photo: L. Borghuis)

## 8. Project Results

Four weeks long 20 students have been trained in various aspects of underwater archaeology and underwater cultural heritage management. It was the first time a course like this was supported by as well SEAMEO SPAFA as UNESCO. The learning curve of the individual students will be different. Some have taken a lot out of the course, other less. This is unavoidable. However, some lessons can be learned to improve the outcome of this sort of trainings.

1. Set up a selection procedure for students as well as trainers, like has been done in the UNESCO foundation courses and as explained in the Training Manual (Manders & Underwood eds 2012).
2. Make sure everybody knows what the outline of the course is
3. So that the trainers, but also students may be able to prepare
4. Make sure the outline is understood and that it is logical
5. Be clear to what you expect from the trainers as well as the students from the beginning of the course
6. Team building is very important from right from the start, provide opportunities for that
7. Organize a room for working where the teams and trainers will meet every day
8. Do a thorough briefing at the start of the day and one debriefing at the end of the day.
9. Make sure that throughout the course everybody has to contribute and need to be actively involved, also verbally. One can do this for example during the briefings.
10. The students worked in teams, but make sure the teams also work together.
11. Trainers should be always available for talks, but may need to force a conversation as well once in a while. Let the students know you are there to help out.
12. Teachers need to talk regularly to each other and
13. A course outline may be altered if necessary.
14. If there are complaints from the students (or trainers), these should always be taken seriously and the approach should be accordingly.
15. A good local team for preparation is very important for the success of the course.
16. Take on problems in an early stage. Mitigating in an early stage is always easier then when things are already escalating.

*fig. page 34, Fig. 19:  
Students are  
preparing their  
dives (photo:  
R. Muthucuma-  
rana*





## 9. Budget

For the financing of the course, several options were explored from crowdsourcing to self-funded students from abroad being taken on the training project. But even after a funding from SEAMEO SPAFA it proved to be difficult to get the full funding together. A foundation training was also planned for 2015. In order to avoid double work and efforts it was decided to support the initiative in Vietnam and to get UNESCO involved in the project as well. The RCE decided to finance this project, as it would have done for the UNESCO Foundation Course as well.

The training was thus primarily funded by SEAMEO-SPAFA and the Cultural Heritage

Agency of the Netherlands (RCE) with contributions from the Institute of Archaeology (IA), the Vietnam Academy of Social Science (VASS) and some participants private funding. UNESCO Paris and the Netherlands have granted patronage of the project and the RCE invested in money and trainers for the course. An agreement was prepared to add different Dutch Priority countries as students. Also a student from the Leiden University was added to the list. Agreed was also to loosely follow the Training Manual for the Foundation Courses for the lectures given.<sup>10</sup>

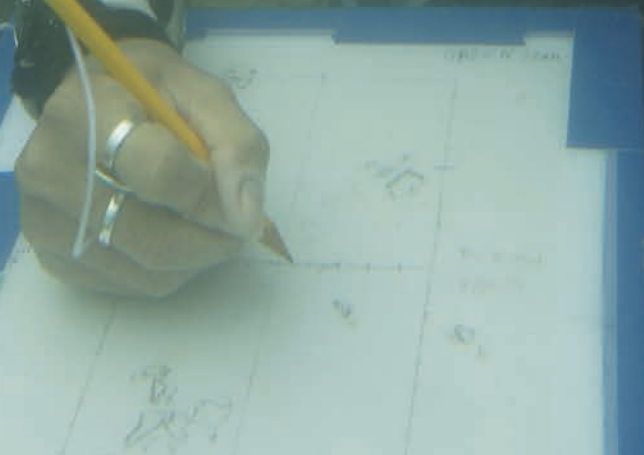
<sup>10</sup> Manders & Underwood, 2012

fig. page 36,  
Fig. 20: Diving  
session in the  
Cham Marine  
Park (Photo:  
R. Muthucuma-  
rana)



IMPREX 3B

DATE: 10/10/2010



## 10. Follow up

The initiator of the Underwater Archaeology Training in Vietnam, Mark Staniforth, is in contact with the Institute of Archaeology in Hanoi for many years. Maritime investigations within the Vietnam Maritime Archaeology Project Center will continue the coming years. One of the main goals to organize the Field Schools for Underwater Archaeology was the exchange of knowledge and to create a network between archaeologist in de Asian region and – from a shared heritage perspective – also with the Netherlands. There are still many stories to discover and cultural (underwater) heritage to find in the shared relation between Vietnam and the Netherlands. This project gave glimpse of the stories that could be explored; the Dutch

artefacts in the collections of museums in Hue, the proposed Dutch shipwrecks (at least 6) in Vietnam’s jurisdiction and for example the formal trading posts in Hanoi and Hoi An. The Cultural Heritage Agency of the Netherlands is very interested in cooperation when there is a shared relation in cultural heritage. As we have seen there are much more opportunities to explore, especially when we look at the stories and wreck sites in Vietnamese waters. It is coherent that the RCE participated in this training to raise capacity and give a quality injection to build strong relation with the Vietnamese partners for future projects.

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*fig. page 38, Fig. 21:  
Surveying  
underwater  
(Photo:  
M. de Booij)*

## Bibliography

**E. Boszormenyi, Loram C. & M. Staniforth, 2015:** Report of the 2015 Vietnam Underwater Archaeology Training (VUAT).

**H. Cosserat, 1916:** Au Sujet du monogramme de la compagnie Néerlandaise des Indes Orientales, Bulletin Des Amis Du Vieux Hue.

**M. Hageman, 2013:** Vietnam – Amsterdam, Historische banden, Stadsarchief Amsterdam, Amsterdam.

**Hoang Anh Tuan, 2006:** Silk for silver: Dutch-Vietnamse relations, 1637-1700, Leiden University, Leiden.

**M.R. Manders & C.J. Underwood, 2012:** Training Manual for the UNESCO Foundation Course on the Protection and Management of Underwater Cultural Heritage in Asia and the Pacific, UNESCO Bangkok, Thailand.

**M. R. Manders, 2016:** UNESCO Foundation Course in the Caribbean, St. Eustatius, Amersfoort

**M. Staniforth, 2014:** Shared Underwater Cultural Heritage in Vietnam: Opportunities for collaboration (International Symposium Underwater Archaeology in Vietnam and Southeast Asia; Cooperation for Development.

## Websites

**Open Archieven, genealogische gegevens van Nederlandse Archieven**

Retrieved from: <https://www.openarch.nl/show.php?archive=ghn&identifier=83e4832c-5b1d-4714-91c5-bfa6a99d071b&lang=nl>

**Wikipedia**

Taman Prasati Museum.

Retrieved from:

[https://en.wikipedia.org/wiki/Taman\\_Prasasti\\_Museum](https://en.wikipedia.org/wiki/Taman_Prasasti_Museum)

## Appendix I: Press release

The press release was published on the website of Cultural Heritage Agency of the Netherlands. See for more information: <http://culturalheritageagency.nl/en/news/students-trained-in-management-of-underwater-heritage>

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### Students trained in management of underwater heritage

June 16, 2015 - 3:59pm

In Hoi An, the Ancient Town World Heritage Site in Vietnam, twenty students from six countries take part in the Vietnam Underwater Archaeology Training. From 15 June until 10 July 2015 the trainees and team leaders from Vietnam, Japan, Sri Lanka, Indonesia, Australia and Philippines will be trained in management, research and protection of the underwater heritage. This also increases opportunities to manage and protect Dutch wrecks in foreign countries.

The international training consists of lectures, hands-on exercises and fieldwork. The Cultural Heritage Agency of the Netherlands supports this project to build a strong foundation for knowledge, research, policy, cooperation and education.

**Dutch heritage worldwide**

The Cultural Heritage Agency's focus not only includes various submerged sites within the Netherlands, but also wrecks of VOC, WIC and Dutch Admiralty vessels outside its borders. Vietnam is known to have at least six 17th century VOC shipwrecks located in Vietnamese territorial waters. Martijn Manders, Head of the Maritime Programme: 'Cooperation and the sharing of knowledge is important in underwater cultural heritage management. This approach opens up ways of preserving Netherlands' vast national cultural heritage, while at the same time strengthening its international ties.'


**Underwater archeology in Asia and the Pacific**

One of the aims of this project is to develop awareness of, and capacity building of underwater archaeology in the Asiatic Region. The lectures follow the UNESCO Convention on the Protection of the Underwater Cultural Heritage and are based on the Training manual for the UNESCO foundation course on the protection and management of underwater cultural heritage in Asia and the Pacific.

You can follow the project online via the Facebookpage '[Vietnam Maritime Archaeology project](#)' or [blog of the Maritime Programme](#).

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See also:  
UNESCO Underwater Cultural Heritage



## Appendix II: Foundation Course blog

During the Foundation Course a blog has been written by Mike de Booij, student at the course and archaeology student of Leiden University. The blog was published on: <https://maritiemprogramma.wordpress.com/category/vietnam-maritime-archaeology-training>.

The text of these blogs can be read in the following pages.



## START OF THE INTERNATIONAL MARITIME ARCHAEOLOGY TRAINING IN VIETNAM

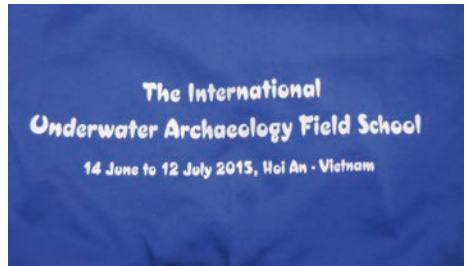
Hoi An, 16 June 2015

Today marks the start of the Vietnam Maritime Archaeology Project (VMAP), taking place in the historic city of Hoi-An. The project is an attempt at promoting the Vietnamese (maritime) cultural heritage among not just the Vietnamese population itself but across all of the participating countries. With about 30 participants from all over the world this truly is an international project. However, promoting Vietnamese heritage is not the only goal of this project. It also aims to train a new generation of (mostly young) students for a possible future as maritime archaeologists.

After most of the participants of this project had become acquainted with one another, the group was split up into two smaller groups. The first (and largest) group consisted of participants that already possessed a valid diving certificate. The second group consisted of trainees that would spend their first week training to become a certified PADI open water diver.

The first group started their day off with a sightseeing tour of Hoi-An. During this tour they were shown the rich cultural heritage of the city, as well as its museums, restaurants, and other places of interest which could be useful during their time in this city. After this tour ended, the project was officially opened in one of the most impressive museums of Hoi-An with a speech by Mark Staniforth, the project leader. The opening of the project was of course followed by a group picture of all the participants that were present.

After the opening ceremony and lunch, the group went back to the hotel swimming pool to undergo



a mandatory diving check-up under the watchful eye of Sri-Lankan diver Rasika. Check-ups like this play an important role in the safety of the participants as it shows any weaknesses the participants might have before they continue into the deep open waters.

At the same time, in another part of the town, a group of 6 PADI-trainees started their first courses on how to become a certified PADI diver. As they have no experience with diving, their first day consisted of a number of theory classes and videos, followed by questionnaires, which would give them an impression of what rules they will have to follow to become a certified diver.

When everyone returned to the hotel, the day ended with a communal dinner followed by a mandatory debriefing in which the participants were placed in different groups, all tasked with different objectives. Furthermore, the project's schedule for the upcoming week was also announced before everyone was free to leave.

### About the project

The Maritime Programme and the Shared Cultural Heritage programme of the Cultural Heritage Agency of the Netherlands (RCE) support this

project to build a strong foundation for knowledge, research, policy, cooperation and education. Students will be trained in management, research and protection of the underwater archaeology. One of the aims is to develop awareness of, and capacity building of underwater archaeology in the Asiatic Region. We consider it a good follow up to the training sessions that were held between 2009 and 2012 in Chanthaburi, Thailand (see [http://www.culturalheritageconnections.org/wiki/UNESCO\\_fieldschool\\_for\\_Underwater\\_Cultural\\_Heritage](http://www.culturalheritageconnections.org/wiki/UNESCO_fieldschool_for_Underwater_Cultural_Heritage)). The lectures follow the UNESCO Convention on the Protection of the Underwater Cultural Heritage and are based on the training manual for the UNESCO foundation course on the protection and management of underwater cultural heritage in Asia and the Pacific: <http://unesdoc.unesco.org/images/0021/002172/217234e.pdf>. We are delighted that the Institute of Archaeology (IA) in Hanoi will be hosting the training and that the training is organised and supported by SEAMEO SPAFA and the UNESCO underwater heritage-training programme.

Greetings from Hoi-An,  
**MIKE DE BOOIJ**



*Practical Assignment Underwater*  
(Photo: R. Muthucumarana)

*Students preparing their dive equipment*  
(Photo: R. Muthucumarana)



## HOI-AN FIELDSCHOOL DAY 3: CHAM MARINE PARK DIVING SESSION

### Hoi An, 17 June 2015

**Today marked a big step for this year's Vietnam maritime archaeology project, namely: the first (archaeological) dives and surveys. After spending the first 2 days getting acclimatised and testing the diving skills of all the participants, the time had finally come to head out to open sea.**

The main diving sites for this project will be near the Vietnamese island group of Cu Lao Cham, also known as the Cham islands. The Cham islands are located just east off the coast of the city of Hoi-An and the whole area is a protected UNESCO biosphere reserve. The main and only inhabited island of the Cham islands is Hon Lao and this island will therefore be the main focus of the project at this stage. The geological layout of the bay of Hon Lao, in which the island its main harbour is situated, creates a "death-trap" for ships anchored there during a typhoon and heavy winds. This means that

suddenly changing tides and weather conditions can cause large numbers of ships to sink here, especially during the historical period. These ships often contain a plethora of information regarding the different foreign trading parties that would visit the Cham islands. It is up to us to retrieve the information that sank along with these ships.

At approximately 10:00 AM the first team of divers exited the ship to test the waters and start the first archaeological survey of this year's project. The main approach that will be used for surveying during this project is the swim-line search. Which is basically a team of divers that are spread out alongside a rope, surveying a large area at the same time. This technique was not used today however due to the it being the first day and therefore the different diving teams still need to grow accustomed to each-other.



Practical Assignment underwater  
(Photo:  
M. de Booi)



Instead of using the swim-line search, today's dives consisted mainly out of a free swim survey which, while not the most efficient technique, also came up with a number of results. The most noteworthy of which was a large anchor found in relatively shallow water (>6 meter). While these finds are not necessarily always what you are looking for, they can serve as base or starting points for future surveys and it is therefore important to document the coordinates/exact location of where they are found.

Whilst the more experienced divers were already out at sea conducting surveys, some of the PADI-trainees experienced their first open sea dive today, with the rest of the PADI –trainees following tomorrow. Once these trainees are done with their PADI courses by the end of this week they can join the rest of the group in conducting underwater-surveys and will hopefully be valuable assets for the project!

Once again, greetings from Hoi-An.

**MIKE DE BOOIJ**

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*Boattrip to the Cham Island the main diving sites of the training (Photo: R. Muthucumara)*

## VIETNAM MARITIME ARCHAEOLOGY PROJECT DAY 4-5, TO BAI LANG AND BEYOND

Bai Lang, 21 June 2015

**While the first 3 days were spent practicing our diving skills and getting comfortable in the water, Day 4 and 5 marked the beginning of our scientific approach to maritime archaeology. This is a process that will be developed and perfected over the coming weeks to make our work better, easier, and hopefully create a new generation of (Vietnamese) maritime archaeologists.**

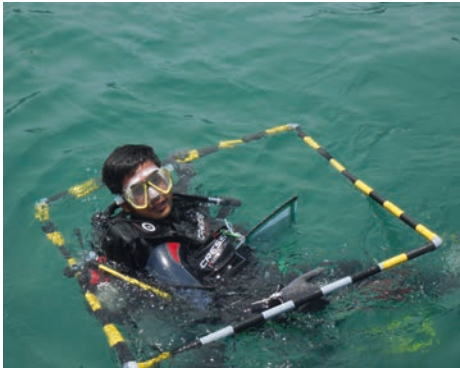
*The first dives were performed at Bai Lang, where our main wreck site is. As mentioned before, Bai Lang is a beautiful, historic bay on the main island and this is where we attempted to set up our first research area. These “research areas” consist out of squares marked by buoys and GPS coordinates and are mainly used for surveys. Setting up these areas helps us in marking which regions we have already surveyed as to avoid redundancy. However, the beauty of the bay means that many tourists in speedboats visit the region, creating a safety*

*hazard for our divers. It was therefore decided that we would continue to work in Bai Lang at a later stage and for now go to a nearby bay just around the corner. As this area had no name (or we just didn’t know its name) it was spontaneously dubbed “around the corner of Bai Lang bay”.*

*“Around the corner of Bai Lang bay” much resembles a less touristic version of Bai Lang bay. This does also mean that it is likely that there is less evidence of human activity in this area. However, the presence of a small, ancient temple along with pillboxes from the Vietnam war indicates that there is still plenty of (maritime)archaeology to be found here. An added bonus is that the island is also a military base which increases the likelihood that any possible archaeology has not been plundered yet.*

*An important part in setting up an underwater survey is setting up the baseline. This makes redundancy less likely and stops people from getting*





A set of circular ballast stones was found and this at least proves that we are searching in the right area.

Another important process that we started at the end of this week was the GPS mapping of the bay. By taking coordinates of certain points along the bay, alongside a rough sketch, it becomes easier to keep track of where certain objects are found so we can find them again in the future. As this can be done from the surface, this was mostly done by divers who were on their surface interval to increase our efficiency.

lost underwater. Furthermore, a measuring-tape is laid out so people know where they left off in their previous dive and thus know where to start on their next dive. This proved to be a tricky undertaking as many people, experienced as they are with diving, had little experience in using tools underwater or effectively tying water resistant knots. After we got most of the basic requirements out of the way it was time to start the first circular surveys. These initial circular surveys yielded some interesting results.

After a week of mostly training and getting used to the circumstances these final 2 days showed great promise and created a perfect starting point for us to fully kick-start the project next week. Hopefully this means that the discovery of many interesting sites will follow!

Greetings from Hoi-An,  
**MIKE**



Practical Assignment in the water  
(Photo: R. Muthucumarana)

## VIETNAM MARITIME ARCHAEOLOGY PROJECT HOI-AN SPECIAL

### Hoi An, 23 June 2015

Hoi-An is a beautiful city located on the east coast of central Vietnam. Consisting out of a beautiful historic city and an ever growing modern part, Hoi-An was rightfully chosen to be considered a UNESCO world heritage site. However, the city's appeal comes not only from the historic inner city, but is also derived from the fact that it's a hub for divers, snorkels, and sightseers' to go and visit the nearby Cham islands.



The historic city of Hoi-An dates back to the 15<sup>th</sup>-16<sup>th</sup> century. It was originally a minor trading village in the 15<sup>th</sup> century with some Portuguese influences throughout the 16<sup>th</sup> century. It wasn't until the end of the 16<sup>th</sup> century that Hoi-An really started flourishing under the Nguyen lords. The commercial interest of these lords was unprecedented in Vietnam in that period and under their rule Hoi-An became a major player in Vietnamese trade relations. Traders from Portugal, England, China, Japan, and more all flocked to Hoi-An to share in the profits. This turned the city into one of the most important trading conduits between Asia and Europe.

Hoi-An's status as UNESCO world heritage site is also closely linked to the city's demise as a major trade port. Nearing the end of the 19<sup>th</sup> century, alongside the demise of the Nguyen lords, Hoi-An ceased to function as a major harbour. An important reason for this was the fact that the river alongside which Hoi-An is situated silted up at it's river mouth making it almost impossible for ships to reach the city. While this meant that trading with Hoi-An ceased, it also meant that the city was largely sheltered from outside influences. Because of this most of the city has remained almost untouched since it started functioning as a major port and many of the buildings dating back to this period still



Historical inner City  
of Hoi An by night  
(Photo:  
M. de Boij)



remain standing. This makes Hoi-an one of the only cities in Vietnam with an almost fully preserved “old town” with many of the old homes and warehouses still standing and accessible to the public.

While the land-based cultural heritage of Hoi-An is under strict protection, the same cannot be said regarding the underwater cultural heritage. Vietnam’s underwater cultural heritage is still an underrated aspect of Vietnamese society and is commonly subjected to looting, salvaging and natural degradation. The main reason for this is because the underwater cultural heritage does not draw nearly as many visitors to the country as the

land based cultural heritage does, and therefore does not bring in enough money to warrant a protected status.



Traditional Vietnamese market in Hoi An (Photo: M. de Booij)

Flag of Vietnam (Photo: M. de Booij)

The Vietnam Maritime Archaeology project hopes to change this carelessness regarding the underwater cultural heritage by showing what sort of cultural wealth is hidden underwater. The city of Hoi-An is a perfect base of operations for this as it is easily accessible from all over the world and has a lot to thank to its underwater cultural heritage. Furthermore, Hoi-An has many museums showcasing the treasures found underwater. Finally, the city is also an important hub for our project as not does it have its own underwater cultural heritage, it is also relatively easy to access a plethora of other different sites from the Hoi-An harbour. With the Cham islands being one of our most important dive-sites, only 30 minutes by boat away from the harbour.

Hopefully this project will manage to garner attention for Vietnam's (And specifically Hoi-An's) underwater cultural heritage by showing the country what it has to offer which can then in turn be used to educate a new generation of archaeologists and cultural heritage specialists.

Greetings from Hoi-An,

**MIKE DE BOOIJ**



Visiting the ship-building yards near Hoi An (Photo: M. de Booiij)

## VIETNAM MARITIME ARCHAEOLOGY PROJECT FIGHTING THE SILT

Hoi An, 25 June 2015



**While the weather has taken a turn for the worst, the project steadily continues. During week one the main focus was on all the different people getting accustomed to each-other and practicing our underwater surveying skills. Week two is all about putting these skills to the test. Furthermore, this week marks the first archaeological dives for some of the recent recipients of a diving certificate.**

*Diving is however not the only aspect of this project. Another similarly important project is processing the different artefacts this project might turn up. An important tool in processing these artefacts is named 3D photogrammetry. This “tool” turns your photos of an object into a digital 3D rendition which can then be send to, and researched by, professors, experts, and other people from all over the world almost as if they had access to the physical object. This makes it a lot easier for experts from outside the project to give their input and quickens the*

*research process. The teams have been practicing this rather successfully on some of the artefacts present in one of the local museums with incredibly detailed results.*

*Another important aspect is understanding the Vietnamese maritime culture and giving the trainees in this project a number of reference points that they can look out for under water. The groups were therefore sent to a number of different boatbuilding- and-repairing villages surrounding Hoi-An where they were shown the specifics of Vietnamese boats as well as how they are made and repaired. Apart from being a very interesting process, it also helped to create an understanding of Vietnamese maritime culture which will help the trainees while they are out in the field, or in this case out in the ocean.*

*Simultaneously to these other activities, there were of course also people diving near the wonderful Cham islands. After a rocky start this week, with weather that prevented us from diving on Monday,*

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*Boatbuilding- and repairing villages close to Hoi An (Photo: M. de Booij)*



Tuesday and Wednesday proved to be a lot more eventful. Tuesday was spent at our usual diving spot of “around the corner of Bai Lang Bay”, which still requires a lot more research. While nothing of notable interest was found the teams did manage to GPS-map the bay which will make it easier to mark/reference any future points of interest on a map and prevents us from losing track of where all our different archaeological artefacts and sites are.

Wednesday proved to be a more eventful day as we were forced to move to a different site due to the Vietnamese military having target practice at our usual location. With both of the diving teams finding numerous artefacts at the bottom of the ocean, this day soon proved to be rather successful. While after some more thorough research it seems unlikely that

these artefacts are old enough to be of use for our research, it does show us that our teams do a good job and manage to pick up on any irregularities on the sea bottom.

Finally, while our diving teams were out scouring the bottom of the ocean, our Australian one-man snorkelling team (I’m talking to you, Ian) managed to find a possible new archaeological site with a number of, by the looks of it, very old and certainly very interesting pieces of ceramic alongside some very interesting sea-life. This surely was a site that we will have to research again in the near future and that might lead to some interesting results.

Greetings from Hoi-An,

**MIKE**



Boattrip to the main dive area at the Cham Islands  
(Photo: M. de Booij)

## VIETNAM MARITIME ARCHAEOLOGY PROJECT AUSTRALIAN 3DMAPPR SPECIAL

Hoi An, 1 July 2015

**Today's guest blog, written by Australian participant and trainer Ian McCan, is related to the use of 3D photogrammetry software and techniques. These techniques create a 3D image of an object by combining a number of photographs through a software programme (see also the blogs of the RCE dive team on the Oostvoornse meer: <http://wp.me/p4KclF-4v>). This 3D object can then be rotated and send to people around the world as a means for research, for promotion purposes, or as a way to get the public involved. Ian McCan will now tell you more about the 3D photogrammetry project that he is involved with.**

*The 3DMAPPR (3D Maritime Archaeology Project – Perth Region) dates back to April 2014 and is a community-based project partly funded by an Austral-Asian Institute for Maritime Archaeology (AIMA) Scholarship in order to financially support the first stage of the program of shipwrecks site documentation, visualization and management. The main focuses of this starting step are:*

*(1) the development of a low-cost photogrammetry package intended to facilitate the (3D) recording of underwater cultural heritage in the Perth region*

*(2) the training of community members in underwater photogrammetric recording and image processing techniques.*

*The longer-term objectives for this project are for the hardware/software package and 3D imagery results to be used as a solution for low-budget (archaeology) groups or volunteer organizations as a management tool for the continual monitoring of endangered and important archaeological and non-archaeological sites.*

*This would also provide the ground work for the future use of augmented reality technologies as part of new virtual shipwreck trail visualization and for the use of 3D printing technologies within museum displays. This project is therefore not only focused on its application in archaeology as it is conducted today, but also aims to help create the future of archaeology.*

*Despite a comprehensive knowledge of maritime sites in the Perth Metropolitan area, the current status and condition of many sites remains somewhat uncertain due to a lack of up to date management and monitoring. This is associated with several additional factors, including a scarcity of detailed documentation for many local sites; a lack of any facility or tool to monitor the causes, nature, and scale of changes to local sites and their immediate environments; and a reliance on the involvement of (often) amateurs and hobbyists, with accompanying pressure on time, money, and*



*Traditional Seafaring (Photo: R. Muthucumara)*



expertise. Given these issues and the considerable constraints and limitations inherent in traditional (manual) survey and recording techniques, there was a clear need for alternative approaches to be adopted and implemented if on-going management of the sites in the Perth area and beyond is to be both timely and effective. Necessarily, any such approach needs to meet several criteria in order to make it fit for purpose. This includes time and cost effectiveness; ability to utilize off-the-shelf hardware and software systems; capability of operating with minimal user intervention; and accuracy and repeatability.

#### **The technical details**

A detailed literature review and preliminary land-based and underwater testing indicates that multi-image 3D photogrammetry best meets the above

requirements. Multi-image 3D photogrammetry (MIP) is a term that describes the use of large 2D image datasets to reconstruct the 3D geometry of an object or scene using Structure from Motion (SfM) and Dense Multi-View 3D Reconstruction (DMVR) techniques. While the use of photogrammetric techniques has a long history in the context of land-based natural and cultural heritage documentation, its wider adoption and adaptation to underwater conditions has been considerably delayed owing to a number of technical and practical constraints and high technical overheads.

While several of these issues – particularly those related to underwater conditions (e.g. water turbidity, poor visibility, light attenuation and refraction) – remain, the advances in low-cost computing, digital imaging and software design have facilitated the

development of what are effectively multi-image photogrammetry solutions. These solutions offer considerable advantages over traditional techniques, including rapidity, objectivity and relative simplicity of implementation; suitability for capture of large and complex objects; high potential accuracy; ability to use inexpensive and highly portable equipment (such as GoPro cameras); captured images contain all data required to facilitate 3D reconstruction; and the ability to utilize legacy data, thereby facilitating reconstruction and comparison of data from successive surveys and/or archive sources.

There are a considerable number of open-source (the Bundler + PMVS2 + CMVS assembly), web-based (123D Catch, Hyper3D/Cubify3D) and stand-alone (Photoscan, Photomodeller Scanner) multi-image photogrammetry solutions available at the moment. Each of these solutions offers varying

degrees of user input and control over the resulting dataset. However, for the purposes of the project, it has been decided to employ Photoscan Pro, due to it being somewhat of a de facto standard in the field of archaeological photogrammetric documentation, being employed in a number of terrestrial and (increasingly) underwater scenarios. Unlike competing packages, Photoscan Pro represents a unified solution that incorporates not only the standard image acquisition, image rectification/alignment, and geometry extraction processing pipeline, but also has geo-registration capabilities and the option to output digital elevation models (DEM) and orthophotography (Geometrically corrected aerial photographs). These functions make it a versatile package suited for the many different archaeological needs.

**IAN MCCAN**

## VIETNAM MARITIME ARCHAEOLOGY PROJECT MY SON SPECIAL

### 3 July 2015

**An important aspect of the Vietnamese cultural heritage is the Cham (or Champa) period. The Cham people originally inhabited large parts of south-east Asia and Vietnam was no exception. One of their most important religious sites was the My Son temple complex. This is a series of Hindu temple complexes located near modern day Danang built by the Cham people between 400-1400 A.D.. While large parts of the complex were destroyed during the Vietnam war, a number of temples still remains.**

*My Son is a very popular site for tourists due to its inherent beauty and its notability as UNESCO world heritage site. Even outside of the tourist season the place has a lot of visitors and is a must see for people traveling through central Vietnam.*

*It is therefore that a number of people from the project decided to visit this site on our day off, under guidance of a tour guide from the Vietnamese ministry of culture.*

*The site of My-Son holds so much value to the Cham basically due to a number of facts. First of all, an important aspect of the Cham culture was its intangible heritage, which are their music, dances, and rituals. This type of heritage also plays an important role at the My Son site with a number of acts being performed at regular times such as dancing, singing, and musical performances. Due to the Champa people being spread over such a wide area at the height of their culture, these different intangible heritage aspects are present in multiple countries in this region.*



*My Son Temple complex with a number of acts being performed as dancing, singing and musical performances (Photo: M. de Booi)*

There are a number of different buildings in this temple complex, build in different time periods. The 4 main buildings still standing are the Kalan, the Mandapa, the Kosagrha, and the Gopura. These 4 buildings all have different functions and meanings: The Kalan, one of the most important buildings, is a sanctuary in which a deity houses. These sanctuaries are often “tower shaped” buildings constructed out of brick and play a major role in the ritual process of the Cham people. The Mandapa is not necessarily a functional building in itself, but more of a hallway leading to the main sanctuary/ritual building. While it is not a specifically interesting or important building by itself it still plays an important role in the ritual process.

The Kosagra is also known as the fire-house and is used as a storehouse for a deity’s valuables and



other objects. It is therefore closely related to the Kalan.

Finally you have the Gopura. These are basically the buildings through which you enter a ritual site and therefore they play an aesthetically important role.



Day out to the Son Temple Complex located near modern day Danang built by the Cham people between 400-1400 A.D. (Photo: M. de Booij)

My Son Temple complex located near modern day Danang built by the Cham people between 400-1400 A.D. (Photo: M. de Booij)

While there are a number of temples still standing in My Son, a large part of the complex has been partially destroyed. This is not due to natural erosion as one might expect however, but it is because the site was bombed during the Vietnam war. (Unexploded) bombs that were dropped here during this period of destruction are shown in some of the temples and are a permanent part of the exhibition.

Even though the site has largely been destroyed, it is still one of the major religious complexes in the region and shares a similar function as Angkor, even though it is not quite as famous.

If you want to learn more about this project, or any of the surrounding (UNESCO) sites then please follow us on facebook at: <https://www.facebook.com/pages/Vietnam-Maritime-Archeology-Project/308532315956425>

Greetings from Hoi-An,

**MIKE**

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My Son Temple complex located near modern day Danang built by the Cham people between 400-1400 A.D. (Photo: M. de Booi)



## VIETNAM MARITIME ARCHAEOLOGY PROJECT THE CU LAO CHAM SHIPWRECK

Hoi An, 7 July 2015

**By the end of the third week our surveys finally hit a breakthrough. While most of the artefacts so far were (likely) individual wash-ups or other objects that did not necessarily indicate the presence of a site, the objects found at our newest location are most likely part of a shipwreck and will therefore be the main focus of the rest of our project. This could be exciting news as this shipwreck was not documented anywhere and was therefore a surprise (yet expected) find.**

*This new location near Bai Lang was the place where we'd expect most of our finds and was one of our main locations in the first week. However, due to the touristic value of this beach and the accompanying presence of many speedboats, it was deemed too dangerous a location to dive for some of the more inexperienced divers and we were therefore forced to move to other locations*

*around the island. By the end of week 3 our divers were deemed experienced enough to move to this location and this proved to be a worthwhile decision when on one of the first days at this site we found a number of large clusters of ceramic artefacts.*

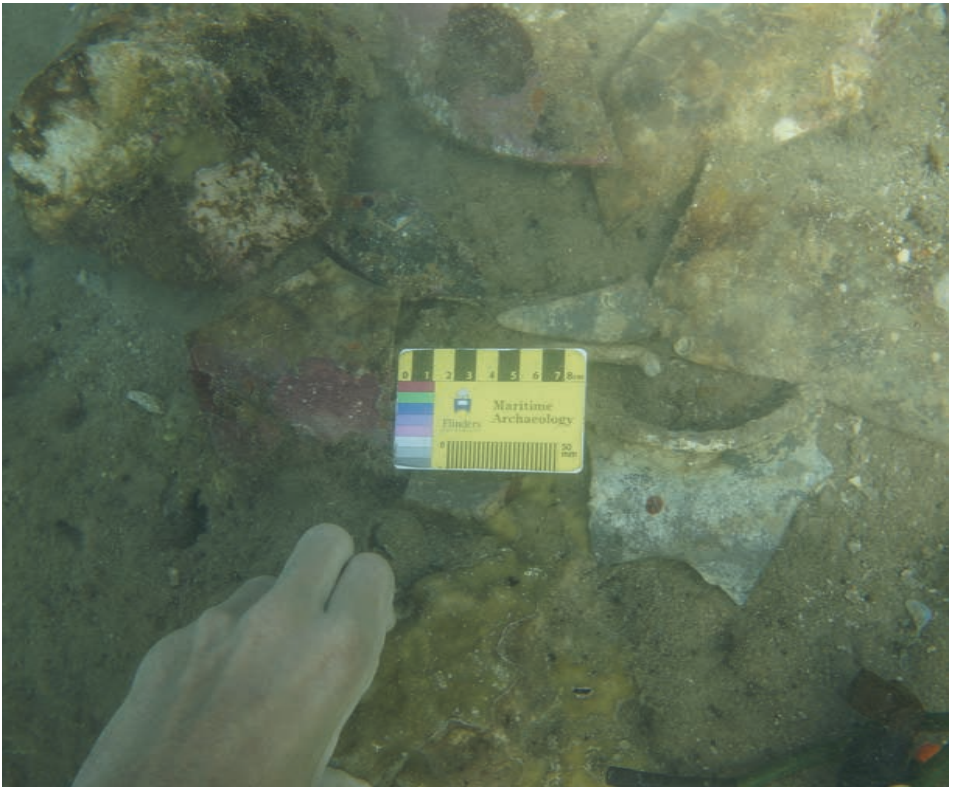
*These ceramic artefacts are mainly grouped up in a small area (approximately 20x30 square meter) as opposed to being spread out along the entire coast which instantly made us suspicious of a shipwreck. When, after further surveying, a large number of these ceramic artefacts seemed to date back to the same period and were suspiciously similar to each-other we were almost certain that this was the location of a shipwreck that was worthy of further investigation.*

*Based on the ceramic finds at the site this shipwreck likely dates back to approximately the 16<sup>th</sup> century and was probably importing ceramics from the mainland of Vietnam (or possibly even a different*



Measurements  
underwater (Photo:  
M. de Booij)





country) to the Cham Islands when it sunk, either because of a storm or because of other reasons.

However, due to the fact that almost nothing is known about this shipwreck, further investigation is required. This started on Friday with the photographing and GPS-mapping of some of the more interesting clusters of ceramic artefacts, as well as surveying the area for signs of the actual ship. These surveys were carried out by both snorkelling as well as scuba diving due to the shallow nature of the site. However, due to the presence of large amounts of coral which would

snag our baselines and measuring tapes it was decided that we would do a free-swim around the area as opposed to doing swim line searches.

The surveying of this area on Friday sets us up for properly grid based archaeological research of the artefacts in week 4 which should give us some more insight into how much earthenware remains in the area and increase our knowledge on what sort of shipwreck we actually encountered.

As always, greetings from Hoi-An,

**MIKE**

## VIETNAM MARITIME ARCHAEOLOGY PROJECT THE LAST DAYS OF DIVING

Hoi An, 10 July 2015

**With the project drawing to an end, Tuesday and Wednesday were our last days of diving. These last few days we tested our skills as (future) maritime archaeologists by letting the groups work individually at the Bai Ong site. It is important to note that this was the first time that many of us experienced an actual archaeological site underwater.**

*The site was set-up on Monday by one of our teams who placed down a permanent baseline which marked the beginning of our site. This baseline would from then on be our fixed point from which we would be able to map all of the research that we'd conduct on the site. This is an important aspect to avoid redundancy and prevent different teams from researching the same area. Most importantly though, these measurements can be used to recreate the locations of these artefacts comparative to each other. These comparisons play an important role in the interpretation of the site.*

*The earthenware on this site was mostly grouped in clusters of about multiple objects, with scores of individual pieces scattered throughout the site. It was therefore decided that we would work in 1 meter by 1 meter grids placed over these clusters and measured from the baseline to accurately map as many of these clusters as we could in the last few days. Specific objects were positioned through trilateration from the baseline as well.*

*With Approximately 4 people per team, each person had a specific role to make the process as streamlined as possible. With one person measuring the grid, one person describing the finds, someone to draw the grid and the location of the artefacts related to each other, and another person photographing the finds, the process of recording these grids took somewhere between 30 minutes to an hour.*

*These clusters consisted of a number of interesting ceramics, with some pieces dating back to the*



Practical Assignments underwater  
(Photo: M. de Booij)



16<sup>th</sup>/17<sup>th</sup> century whereas the date of (most) other pieces is still unknown. We mapped and researched as many of these clusters as we could in the 3 days that we had left while also taking GPS-locations of certain clusters and fixed points. While we ourselves might not continue our research here, this information will be handed over to the Vietnamese institute of archaeology who might continue our research there in the future.

good start on researching the site, this also leaves plenty of (possible) future work for the Vietnamese institute of Archaeology, or other archaeological organisations planning any research on the Cham Islands in the future.

With the project coming to a closure, there is only one blog remaining. This last blog will be posted this weekend and will speak of the project's conclusion.

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Transport by boat  
(Photo:  
M. de Boonj)

By the end of Wednesday, our last day of diving, we had researched a total of 8 grids. While this was a

Greetings from Hoi-An,  
**MIKE**

## VIETNAM MARITIME ARCHAEOLOGY PROJECT THE FINAL RESULTS

13 July 2015

**With the project coming to a close, results have to be written up. The versatility of the different assignments means that there are a number of conclusions that can be drawn for this project. These results range from the archaeological results of the underwater archaeology conducted to the more anthropological results of the Vietnamese shipbuilding research.**

*The visits to the different shipbuilding yards near Hoi-An helped in giving us an understanding of the maritime techniques used in Vietnam. This resulted in numerous drawings of ships as well as in giving the trainees extensive practice in the process of drawing these ships. These results are important*

*for both the capacity building as well as to create a frame of reference for possible finds, and how to register these finds.*

*Furthemore, extensive practice and research with 3D-photogrammetry software was carried out. This way we were able to create 3D records of a number of boats, ceramic artefacts, and cannons located in Hoi-An and Hue. These were usually objects of unknown origins and these 3D models can be used by experts to gain more information regarding these artefacts. Attempts are also being made at creating a 3D model of the site at Bai Ong which could be extremely useful for mapping and possibly even locating finds in the area. This modelling is still in progress.*



Group photo  
Vietnam Under-  
water Archaeology  
Training (Photo: M.  
de Booi)



As for the underwater archaeological surveys, a number of different results were achieved. First of all, we (re)located a number of potential archaeological sites, such as the stone anchor site, through diving surveys and interviews with local fishermen and divers. Also, numerous sites containing ceramic artefacts were located around the coastline of the Cu Lao Cham islands which can be useful for future research by the Vietnamese Institute of Archaeology.

Most importantly though was the discovery of the possible shipwreck site located in Bai Ong. This site contained a plethora of ceramic artefacts and could prove to be an important site for future research. What we were able to find out about the site in a three day non-intrusive survey was this: the site consists of an area with broken pottery. Most of them are from one type of storage jars from the 16<sup>th</sup> to 17<sup>th</sup> century. The objects are caught in sand pockets and beneath rocks in the shallows of the shore of the Cham Islands. Other pottery found at

the site– in smaller amounts – also has the same date. The pottery that is surfacing the seabed is concentrated in a small area of about 20 by 25 metres. A corroded iron nail that was found on site might indicate the presence of a shipwreck. Hopefully wood is still preserved in the larger depressions between the rocks that are filled with sand. Further research has to confirm this. There were reports of wood being sighted at the site but we were unable to relocate this.



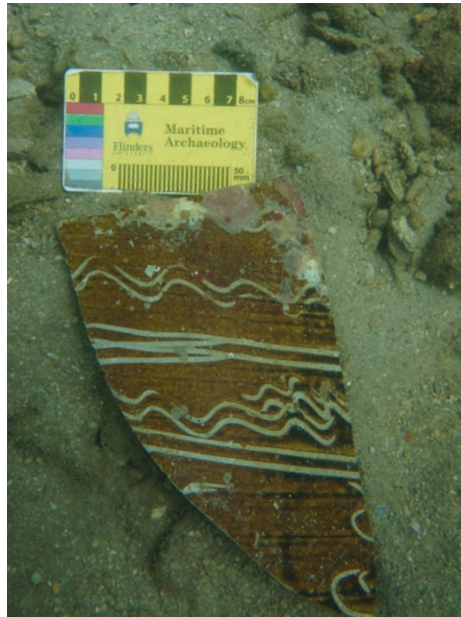

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Surveying Under-  
water (Photo:  
M. de Booij)

Recording  
underwater (Photo:  
M. de Booij)

I hope everyone has enjoyed following the project through this blog and other sources, and keep following the maritime programme for more updates on the numerous projects that they have going on!

For the last time, greetings from Hoi-An,  
**MIKE**



Photographing the artefacts found at the Cham Island site (Photo: M. de Booij)

Visiting the shipbuilding yards near Hoi An (Photo: M. de Booij)





This report presents the development and outcome of the Underwater Archaeology Training in Vietnam. The course can be seen as a follow up from the UNESCO Foundation courses originally held between 2009 and 2011 in Thailand. The Ancient Town and World Heritage Site, Hoi An, was chosen as the site of the field school because of its incredible maritime archaeological potential. Vietnam and the Netherlands historical ties goes back to 1637 when the Dutch built an trading post in the port of Faifo, today's Hoi An. At least six 17<sup>th</sup> century vessels belonging to the Dutch East Indian Company (VOC) have been wrecked in Vietnam's jurisdiction.

International cooperation and knowledge exchange in the field of maritime heritage is of great importance, as it is a crucial factor for the management and preservation of this unique heritage. Participating and funding the international Underwater Archaeology Training is one of the instruments to reach this goal. The Training was organized in Vietnam in 2015 in cooperation with the Maritime Programme, SEMEO – SPAFAA and UNESCO.

The Cultural Heritage Agency provides knowledge and advice to give the future the past.