



# UNDERWATER ARCHAEOLOGY AT KITEN BAY (BLACK SEA), BULGARIA

Course ID: ARCH XL 159

May 25-June 22, 2017

## FIELD SCHOOL DIRECTOR:

**Dr. Nayden Prahov**, archaeologist at the National Institute of Archaeology with Museum, Bulgarian Academy of Sciences; Balkan Heritage Foundation Program Director ([naydenprahov@gmail.com](mailto:naydenprahov@gmail.com))



## INTRODUCTION

The main goal of our project is to provide education and training in underwater archaeology through participation in ongoing research projects. The first of these will focus on shipbuilding in the Ottoman Era and seafaring in the area of the Black Sea and the Eastern Mediterranean. Our research aims to fill in the gaps in our scientific knowledge in this field. The main tools of the research will be excavation as well as the accurate recording of an actual shipwreck. There is a high number of Ottoman shipwrecks discovered along the Western coast of the Black Sea but only one of them has been excavated so far. The research will cover several important scientific areas such as: technology and tradition of Ottoman shipbuilding, shipbuilding centers, trading routes etc. Our second research project is aimed at the study of terrestrial and marine interactions of humans living in the region in prehistory. Its goals will be achieved through a variety of instruments, including a geophysical survey, mapping and 3D reconstruction of submerged ancient landscapes; in prehistory the entire seafloor of the Black Sea was dry land that was submerged during the Holocene. More than twenty submerged prehistoric settlements have been identified in Bulgarian waters until this day; some are associated with the highly complex Varna Copper Age culture. The main focus of this line of research will be the ancient coastal landscapes and the changes that took place there; an attempt at their reconstruction will be made.

The base of the field school is located in the coastal town of Kiten on the Southern Bulgarian Black Sea Coast. The town is recognized as a key location for archaeological projects in the Black Sea. The shipwreck chosen for our field work lies in the bay south of Kiten, at a depth of 8 – 9 meters. The bay is rich in archaeological finds and so far at least seven other shipwrecks have been discovered. Of those one has been excavated and recorded, and the others have not been studied up to the present moment. Another archaeological site of interest in the area is the submerged settlement from the early Bronze Age (late 4<sup>th</sup> – early 3<sup>rd</sup> millennium BCE); it has been partially excavated but a large portion still remains untouched. Several stone and iron anchors and lead stocks from wooden anchors, as well as pottery fragments from different periods have been found in the sea around Kiten. As a result of the abundance of important discoveries and found artefacts a Museum of Bulgarian Underwater Archaeology was founded in the town of Kiten.

The dynamic archaeological landscape of the Bay of Kiten makes it an ideal location for the exploration of multiple aspects of nautical archaeology, human adaptations to changes in the environment, site formation processes etc. As such it can also serve as the perfect education base for the teaching and training of archaeology students. Our goal is to broaden the knowledge of our participants, to refine

their skills and thus to propel them farther in their career in Maritime Archaeology. The field school is suitable for beginners in the field and will introduce students to a range of underwater archaeological techniques for research, recording, conservation, monitoring etc.; among them are: shipwreck excavation, underwater photography, photogrammetry and 3D modeling, scale drawing, diving field surveys, marine geophysics and remote sensing.

Our project has a public component, too. Our goal in this respect is to raise the public awareness with regard to the local archaeological heritage in order to facilitate and gain support for its protection, studying and presentation. This component will be achieved through providing a series of public lectures, opportunities for the wider public to visit the research area, as well as through encouraging a mutually positive experience between our students and the local people.

#### ACADEMIC CREDIT UNITS & TRANSCRIPTS

**Credit Units:** Attending students will be awarded 12 quarter credit units (equivalent to 8 semester units) through our academic partner, UCLA Extension. UCLA is a top ranked research university and its archaeology program is ranked amongst the best in the country. All IFR field schools instructors and curricula are approved both by the corresponding academic department and the Academic Senate at UCLA. This field school provides a minimum of 192 direct instructional hours.

**Transcripts:** Transcripts are available through UCLA UnEX and instructions for ordering transcripts may be found at <http://bit.ly/2bD0Z3E>. Grades will be posted and transcript available usually within six weeks after the end of this field school. All IFR field schools are designated XL classes – courses that are equivalent to undergraduate courses offered by the UCLA regular session. All XL courses are transferable for unit and subject credit toward the Bachelor's Degree at all campuses of the UC and CSU systems. Classes numbered 100 to 199 are considered upper division (junior/senior). For more information, go to <http://bit.ly/2bjAqmy>.

**UCLA students:** Students can take classes through UCLA Extension to complete requirements. However certain considerations must be taken into account. For more information, go to <http://bit.ly/2bJWeHK>.

**Credit Units Transfer:** Most universities accept UCLA credit units – there are very few exceptions. Students are strongly encouraged to discuss the transferability of the credit units with school officials BEFORE attending the field school.

#### COURSE OBJECTIVES

1. Introduce students to basic underwater shipwreck excavation methods and practices, including preparation and work with ejectors, trowels, identify artifacts, features and structures.
2. Develop capabilities to perform underwater documentation tasks using measuring and documentation devices, creating written records, photographic and other graphic records.
3. Teach students how to recognize and evaluate stratigraphic relationships and contextual information, generate and test site formation hypothesis.
4. Introduce students to basic finds processing methods – initial desalination, cleaning, sorting, labeling, drawing, photographing and description.
5. Introduce students to advanced documentation techniques – photogrammetry and 3D modeling of underwater sites and artefacts.
6. Introduce students to the basic principles of artifact conservation from salty water environment.
7. Introduce students to geophysical prospection techniques – scanning with multibeam echosounder, side scan sonar, sub-bottom profiler as well as to data processing and images interpretation.
8. Introduce students to remote sensing prospection and documentation techniques using ROV (theory and practice), bathymetric aerial lidar and aerial photography, etc.

9. Train students in developing diving skills in manner that allows scientific research – establish and maintain negative buoyancy, work upside down, avoid contaminating the water and use of proper communication signs.
10. Present to students Bulgarian underwater archaeology in the context of world maritime archaeology (sites, research, concerned institutions, legislation, etc.).
11. Introduce students to the Western Black Sea ship construction technology and seafaring during the Ottoman period.

#### **DISCLAIMER – PLEASE READ CAREFULLY**

This field school includes physical work underwater at archaeological sites. To avoid health problems and injuries, a strict discipline will be maintained, especially on diving days. Students will have to adhere to a regime of structured diving schedule, diet restrictions and rest periods. Although depth of diving will be fairly shallow – 9-12 meters – dive masters and program staff will monitor diving times and intervals and students will not be able to dive without strict supervision and report to directors.

Students are required to immediately report any health problems, physical discomfort or any other issues that may impact diving schedule. Project directors hold the full discretion to prevent students from diving if they deem that a student health and/or safety may be threaten by continued diving.

Be aware that in June days are hot (25-35°C) and nights are chilly (15-25°C). Although rare in this region, rainy days are a possibility. The Black Sea is usually calm at this time of the year, but diving will be halted during windy days, when waves are high, currents too strong or water too muddy. Diving decisions will be made and are at the sole discretion of the project directors.

Proper protection from the elements, both during dives and on terrestrial setting, will be required and enforced by project staff members.

Many Bulgarians speak English but cultural differences should be expected. Although many signs include in Latin letters, expect street signs and most public signs to primarily use Cyrillic alphabet.

If you have any medical concerns, please consult your doctor. For all other concerns, please consult the project director, as appropriate.

#### **COURSE SCHEDULE**

This Field School has four modules:

**MODULE I** – Methods and theory. Consists of following components (30 hours):

1. Lectures and instructions concerning underwater archaeological methods and practices for excavation and documentation, marine geophysics, artifact processing and documentation, artifacts and sites conservation.
2. Lectures about different aspects of seafaring and shipbuilding.
3. Lectures about the history and archaeology of the Western Black Sea Coast, Bulgaria and the Balkans.

**MODULE II** – Practicum. Consists of two components:

1. Field work: Basic practices of underwater excavation and documentation, marine geophysical survey, work with ROV (95 hours; min. 15 dives).
2. Workshops: Artifact processing and documentation (drawing, photographing, photogrammetry), artifact desalination and conservation (35 hours).

**MODULE III** - Excursions accompanied by lectures, presentations and behind-the-scenes visits to sites of historical/archaeological significance (app. 20 hours):

1. Sozopol – ancient Apollonia Pontica
2. Nesebar – ancient Messambria, a UNESCO World Heritage site

3. Museum of the Anchor in Ahtopol
4. Exposition “Secrets from Underwater” in Kiten

**MODULE IV** – Homework (app. 12 hours) will be assigned to all students. These will include work on:

1. Field journal
2. Context sheets
3. Artifact & feature drawings
4. Photogrammetry

Date	Morning	Afternoon
Day 1 May 25 Thu.		- Meeting students at Burgas airport. Transfer to Kiten. - Traditional Bulgarian welcome dinner.
Day 2 May 26 Fri.	-Orientation panel -Visit to the diving center and preparing of personal diving equipment	- Lecture: Archaeological Heritage of the Western Black Sea Coast. - Visiting the exposition “Secrets from Underwater” in Kiten
Day 3 May 27 Sat.	Safety instructions. Practicing basic underwater diving techniques. Preparing of ejectors and excavation tools	- Lecture and workshop: Underwater Photogrammetry and Photography
Day 4 May 28 Sun.	Practicing basic underwater diving techniques; Visiting the site (shipwreck) and orientation dive in Kiten bay	- Lecture and workshop: Underwater Photogrammetry and Photography
Day 5 May 29 Mon	Field work. Practicing excavation techniques.	- Lecture and workshop: Underwater Photogrammetry and Photography
Day 6 May 30 Tue	Field work. Practicing excavation techniques.	- Lecture and workshop: Underwater Photogrammetry and Photography
Day 7 May 31 Wed	Field work. Practicing excavation and recording techniques.	- Lecture and workshop: Underwater Photogrammetry and Photography
Day 8 June 1 Thu	Visit to Sozopol, ancient Apollonia	
Day 9 June 2 Fri	Day off	
Day 10 June 3 Sat	Field work. Practicing excavation techniques.	Lecture: Introduction to Nautical Archaeology
Day 11 June 4 Sun	Field work. Practicing excavation and recording techniques.	Lecture: Basic Ship Architecture
Day 12 June 5 Mon	Field work. Practicing excavation and recording techniques.	Lecture: Shipbuilding and Seafaring along the Western Black Sea Coast in 18 – 19 Century
Day 13 June 6	Field work. Practicing excavation and recording techniques.	Lecture: Overview of the Bulgarian Underwater Archaeology

Tue		
Day 14 June 7 Wed	Field work. Practicing excavation and recording techniques.	- Visit to Museum of the Anchor in Ahtopol
Day 15 June 8 Thu	Visit to the natural megalithic and archaeological site Begliktash	
Day 16 June 9 Fri	Field work. Practicing excavation techniques.	Workshop and lecture: Underwater geophysics and remote sensing
Day 17 June 10 Sat	Field work. Practicing excavation and recording techniques.	Workshop and lecture: Underwater geophysics and remote sensing
Day 18 June 11 Sun	Field work. Practicing excavation and recording techniques.	Workshop and lecture: Underwater geophysics and remote sensing
Day 19 June 12 Mon	Field work. Practicing excavation and recording techniques.	Workshop and lecture: Underwater geophysics and remote sensing
Day 20 June 13 Tue.	Field work. Practicing excavation and recording techniques.	Workshop and lecture: Underwater geophysics and remote sensing
Day 21 June 14 Wed.	Visit to Nesebar, ancient Mesambria (UNESCO World Heritage site).	
Day 22 June 15 Tue.	Day off	
Day 23 June 16 Sun.	Field work. Practicing excavation and recording techniques.	-Lecture. Conservation of artifacts from marine environment; - Finds processing
Day 24 June 17 Wed.	Field work. Practicing excavation and recording techniques.	- Finds processing
Day 25 June 18	Field work. Practicing excavation and recording techniques.	- Finds processing
Day 26 June 19	Field work. Practicing excavation and recording techniques.	- Finds processing
Day 27 June 20	Field work. Covering of the site.	Exam Finds processing
Day 28 June 21	Field work	- Free afternoon - Dinner and farewell party
Day 29 June 22	Departure – return home or further travel	- Departure

Course structure may be subject of change upon directors' discretion and weather conditions.

#### **Typical work day**

6.30 - 7.10 am	- Breakfast
8:00 am - 1.30 pm	- Diving at the excavation site / Geophysical survey
1.30 -4.30/5:30 pm	- Lunch and siesta

4.30/5.30 -7.00/7:30 pm	- Lectures and workshops
7.30 - 8.30 pm	- Dinner

## GRADING MATRIX

Students will be graded based on their work as follows.

% of Grade	Activity
20 %	Exam (test)
10 %	Excavation work
10 %	Keeping a field journal and filling in documentation sheet
10 %	Scale drawing; Measuring and leveling
10 %	Photography
10 %	Photogrammetry
10 %	Participation in Underwater Geophysics workshop
10 %	Underwater field survey
10 %	Diving skills

## ATTENDANCE POLICY

The required minimum attendance for the successful completion of the field school is 85% of the course hours. Any significant delay or early departure from an activity will be calculated as an absence from the activity. An acceptable number of absences for a medical or other personal reasons will not be taken into account if the student catches up on the field school study plan through additional readings, homework or tutorials with program staff members.

## REQUIREMENTS AND PREREQUISITES

Open Water Diving Certificate (any world-wide recognized training organization);

At least four dives within a year before the field school (log book). Students may choose, at their own expense, to participate in four dives in Bulgaria before the field school begins with the Marina Diving Center ([www.divebul.com](http://www.divebul.com)) our diving partner.

This is hands-on, experiential learning and students will study on-site how to conduct archaeological research. Archaeology involves physical work and exposure to the elements and thus requires a measure of understanding that this will not be the typical university learning environment. You will have to work underwater and in hot, rainy or cold weather conditions. Students are required to come equipped with sufficient excitement and adequate understanding that underwater archaeology requires hard work, consciousness, discipline, responsibility, common sense, patience and attention to detail.

This Field School will host students and professionals from across the world. With such an international team, it is vital that all students respect the IFR Student Code of conduct, each other's cultures, local cultures, and local rules and laws.

## EQUIPMENT LIST

- Diving gear – Except diving weights and tanks, which will be provided by the field school. If you do not wish to bring your own diving gear, you may rent such gear from the Marina Diving Center at a price of up to 15 Euros per day (depending on items rented).
- A set of walking or hiking shoes for the excursions.
- Clothing suitable for outdoor activities (consider weather conditions from hot and sunny to rainy and chilly).
- Wide brim hat.
- A light raincoat for possible rainy and windy days.
- Medication - It is not necessary to bring over-the-counter medicine since you can buy all common types in Bulgaria (e.g. aspirin and anti-insecticides, sunscreen/tanning lotion, etc). It is

recommended, however, that you bring any individual prescription medicines at sufficient quantities for the duration of this program;

- Don't forget to bring a converter for an EU type electricity wall-plug if needed.
- A good attitude for work, fun, study, and discoveries.

### **ACCOMMODATION**

Students will stay at a local hotel - *Kati*, in a single room occupancy (bathrooms with shower and WC, TV, air-conditioning). Cheap laundry service and free Wi-Fi is available at the hotel. Participants are not expected to bring any additional accommodation equipment, bedclothes or towels. Staying an extra day at the hotel costs 20 EUR (per night per person). The distance from the hotel to the site is app. 1.5 km/1 mile, and it takes app. 10 min to walk. Diving gear will be transported by a car.

### **MEALS**

Students will be provided with three meals per day. Meals usually take place (except the brown-bag lunches during excursions) at the hotel restaurant. This field school can accommodate vegetarians and individuals with lactose intolerance. Vegans and individuals with kosher and gluten-free diets should arrange may not be accommodated at this location.

### **TRAVEL**

Students will be met by project staff at the Burgas Airport (BOJ) on May 25 at 5:00 pm. The meeting point is at the arrival area. Look for a person carrying the "Balkan Heritage Program" sign. Students will be transferred from the meeting point to the field house via taxi service. If you arrive by bus from Sofia (or from elsewhere in the Balkans), contact project staff for meeting arrangements.

If you missed your connection or your flight was delayed/canceled, call, text or email the project staff (email: [bhfs.admissions@gmail.com](mailto:bhfs.admissions@gmail.com)). Local contact information will be provided to enrolled students.

### **VISA REQUIREMENTS**

Citizens of EU, EEA, USA, Canada, Japan, Republic of Korea, Australia and New Zealand do not need a visa to visit Bulgaria for up to 90 days or any of the Bulgaria's neighboring countries, except Turkey. However, the Turkish government facilitates tourism by providing the option for obtaining e-visa at [www.evisa.gov.tr/en/](http://www.evisa.gov.tr/en/).

Citizens of all other countries may need a visa. The Balkan Heritage Foundation can send an official invitation letter that should be used at the relevant embassy to secure a visa to the program.

For more information visit the Balkan Heritage Foundation web site at [www.bhfieldschool.org/information/visa-help](http://www.bhfieldschool.org/information/visa-help) and the links provided there.

### **HEALTH AND SAFETY**

Safety and health orientation will take place at the beginning of the program.

Underwater field work will be supervised by dive masters.

Students will always be supervised and accompanied by field school instructors and/or dive masters underwater.

Kiten offers medical facilities and pharmacies. The neighboring city – Primorsko (5 km) offers first aid. The nearest decompression chamber is in the city of Burgas (55 km).

Underwater field work will be performed at 9-12 meters depth. The diving time underwater as well as the diving requirements will be strictly kept to avoid any risk of decompression sickness.

### **PRACTICAL INFORMATION**

**Bulgarian dialing code:** +359

**Time Difference** (Summer time): UTC/GMT +2 hours (April through September).



**Measure units:** degree Celsius (°C), meter (m.), gram (gr.), liter (l)

**Money/Banks/Credit Cards:** The Bulgarian currency is the Bulgarian LEV (BGN). You cannot pay in Euros or other foreign currency, except in casinos and big hotels (where the exchange rate is really unfair)! Since 1997, the Bulgarian LEV has been pegged to the EURO at the exchange rate of 1 euro = 1.955 lev (usually sold for 1.94 lev). Bulgarian banks accept all credit cards and sometimes travellers' cheques. Usually banks open at 8.00-8.30 am and close at 17.00-18.00 pm. They work from Monday to Friday. Shopping malls, supermarkets, and many shops in Sofia and/or bigger towns and resorts will also accept credit cards. This is not valid for smaller "domestic" shops throughout the country where the only way of payment is cash! You can see Bulgarian notes and coins in circulation at: <http://www.bnb.bg/NotesAndCoins/NACNotesCurrency/index.htm?toLang= EN>

Exchange of foreign currencies is possible not only at banks but also at numerous exchange offices. NB, Most of them don't collect a commission fee and have acceptable exchange rates (+/- 0.5-1,5% of the official rate) However, those located in shopping areas of big cities, resorts, railway stations, airports, etc., can overcharge you varying amounts. Ask in advance how much money you will get!


ATMs are available all over the country and POS-terminals are in every bank office.

If you plan to use your credit/debit card in Bulgaria, please inform your bank of your intention before departure! Otherwise it is very possible that your bank will block your account/ card for security reasons when you try to use it abroad! Unblocking your card, when abroad, may cost you several phone calls and a lot of money.

### **Electricity**

The electricity power in the country is stable at 220 - Volts A.C. (50 Hertz). Don't forget to bring a voltage converter, if necessary!



Outlets in Bulgaria generally accept 1 type of plug:  two round pins. If your appliance's plug has a different shape, you will need a plug adapter.

### **Emergency**

National emergency number is 112.

### **REQUIRED READINGS**

PDF files of the mandatory reading will be posted on a shared Dropbox folder. Enrolled students will get access to this folder.

**Batchvarov, K.** Design and Construction of a Black Sea Ottoman Ship. – In: Gunsenin, N (Ed.) *Between Continents. Proceedings of the Twelfth Symposium on Boat and Ship Archaeology*, Istanbul, 2009, 175-182

**Batchvarov, K.** Rigging and Sailing the Kitten Ship: a Hypothetical Reconstruction. – *Archeologia Postmedievale*, 2014, 18, 189-200

**Batchvarov, K.** The Hull Remains of a Post Medieval Black Sea Merchantman from Kitten, Bulgaria. – *The International Journal of Nautical Archaeology*, 2014, 43.2, 397-412

**Bowens, A.** *Underwater Archaeology: The NAS Guide to Principles and Practice*, Second edition, 2009, Portsmouth, Blackwell Publishing, 15-169.

**Steffy, R.** *Wooden Shipbuilding and the Interpretation of Shipwrecks*, Texas A&M University Press, (2012), 189-299.

**McCarthy, J., J. Benjamin.** Multi-image Photogrammetry for Underwater Archaeological Site Recording: An Accessible, Diver-Based Approach. – *Journal of Maritime Archaeology*, 2014, 1, 95-114



**Yamafune, R. Torres, F. Castro.** Multi-image Photogrammetry to Record and Reconstruct Underwater Shipwreck Sites.- *Journal of Archaeological Method and Theory*, 2016, 1-23

**Plets, R., J. Dix, R. Bates.** *Marine Geophysics Data Acquisition, Processing and Interpretation. Guidance Notes*, English Heritage, 2013, 12-40.

#### **RECOMMENDED READINGS**

**Batchvarov, K.** *The Kitten Shipwreck: Archaeology and Reconstruction of a Black Sea Merchantman* (Dissertation at Texas A&M University), 2009

**Catsambis, A., B. Ford, D. Hamilton.** *The Oxford Handbook of Maritime Archaeology*, Oxford University Press, 2011.