

“Underwater Cultural Heritage and Exploration of Potential Sites in the Black Sea, Turkey”

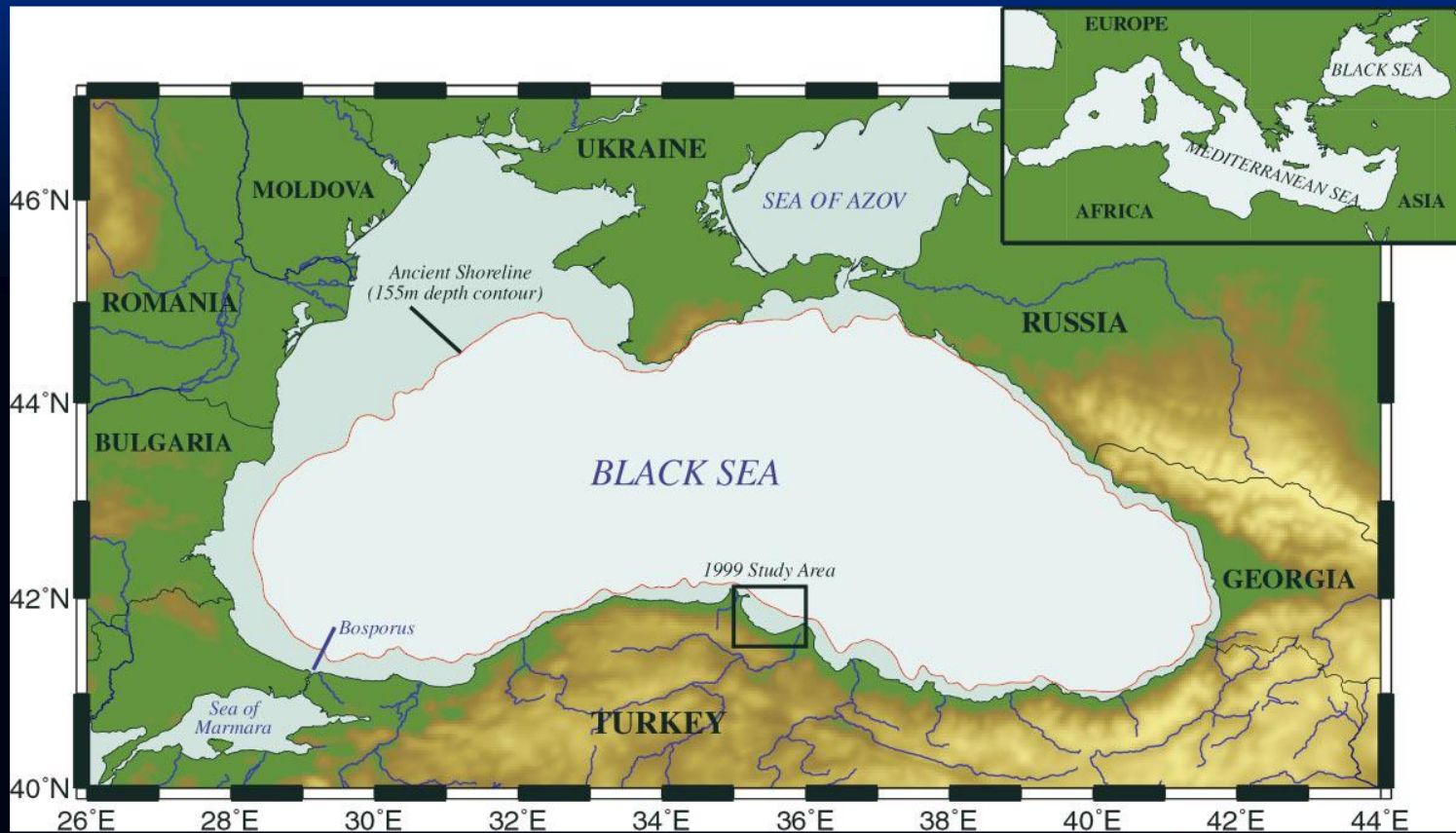
A.Harun OZDAS ,PhD.

Dokuz Eylul University
Assoc. Prof.

Institute of Marine Sciences and Technology
Izmir, TURKEY

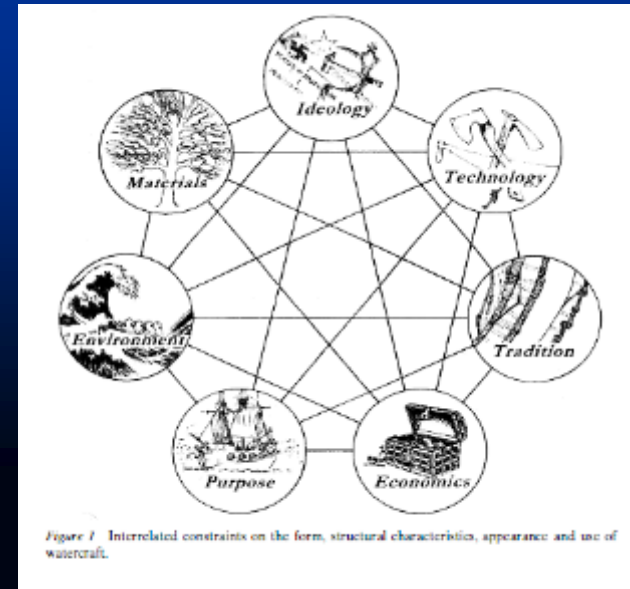
harun.ozdas@deu.edu.tr

13.04.2021 İzmir



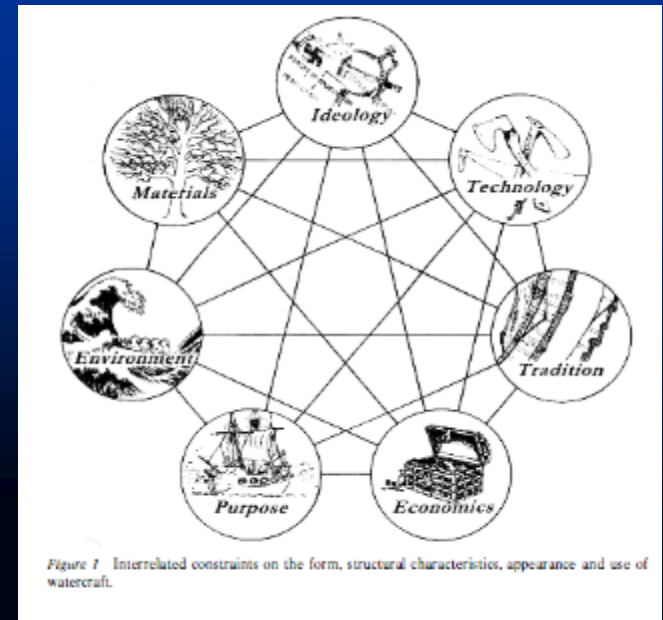
Ships as things

- *Purpose* refers to the intended function(s) of the vessel and directly relates to society's maritime needs, whether providing various forms of communication and trade, subsistence or industry such as fishing, military purposes or leisure.
- *Technology* refers to the technological means available for constructing the vessel
- The craft *tradition* within which the vessel is constructed will embody a system of ideas about what boats and ships are and how they should be designed and constructed.



Ships as things

- *Materials* are the natural or manufactured materials available for construction.
- *Economics* refers to the resources in terms of labour and/or wealth required to produce the vessel
- *Environment* is the intended operating environment of the vessel. Obviously if a boat is built for use in sheltered coastal waters or lakes it does not need the same characteristics of stability and robust construction as a vessel intended for the open sea.
- *Ideology*:... ‘the ship as symbol’, as ideology afloat and the expression of social ideas, including those of the tradition within which the craft is constructed...



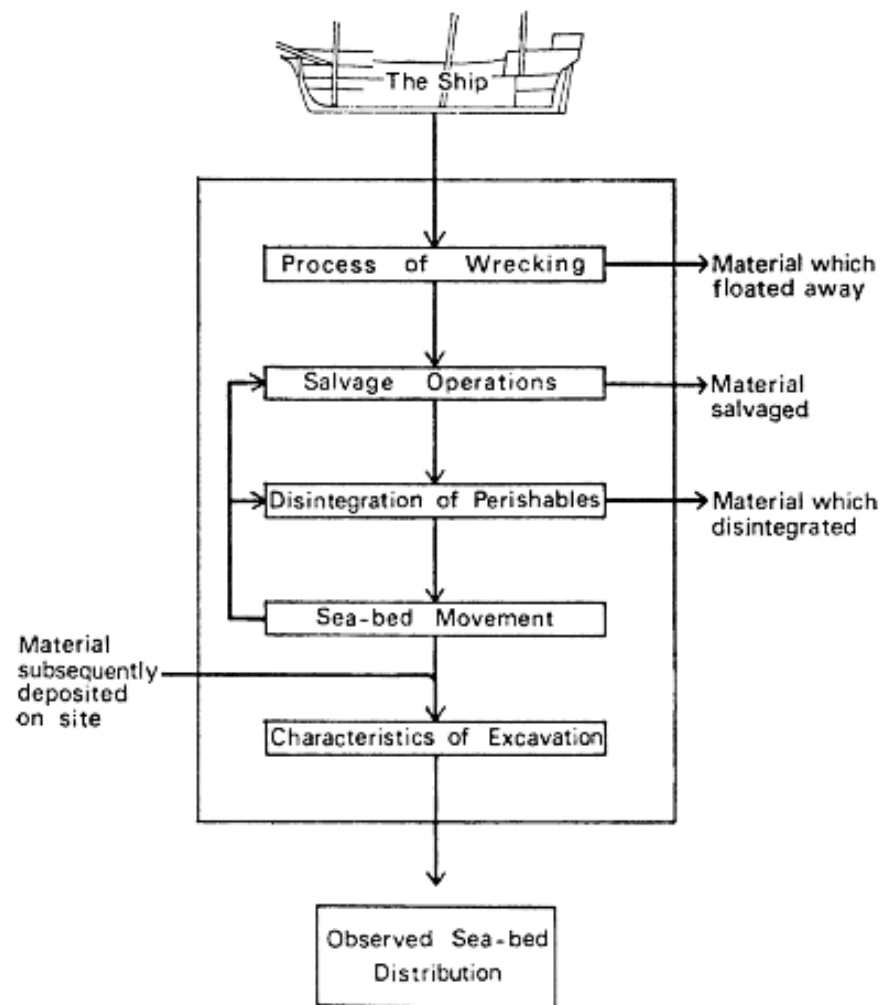


Fig. 1 Muckelroy's Flow Diagram depicting the forces that affect a ship as it sinks and becomes an archaeological site on the sea floor. From Muckelroy 1976, Fig. 6

Scientists Discovered the World's Oldest Intact Shipwreck
2,400 years old.



PROTECT UNDERWATER
CULTURAL HERITAGE FOR
FUTURE GENERATIONS.

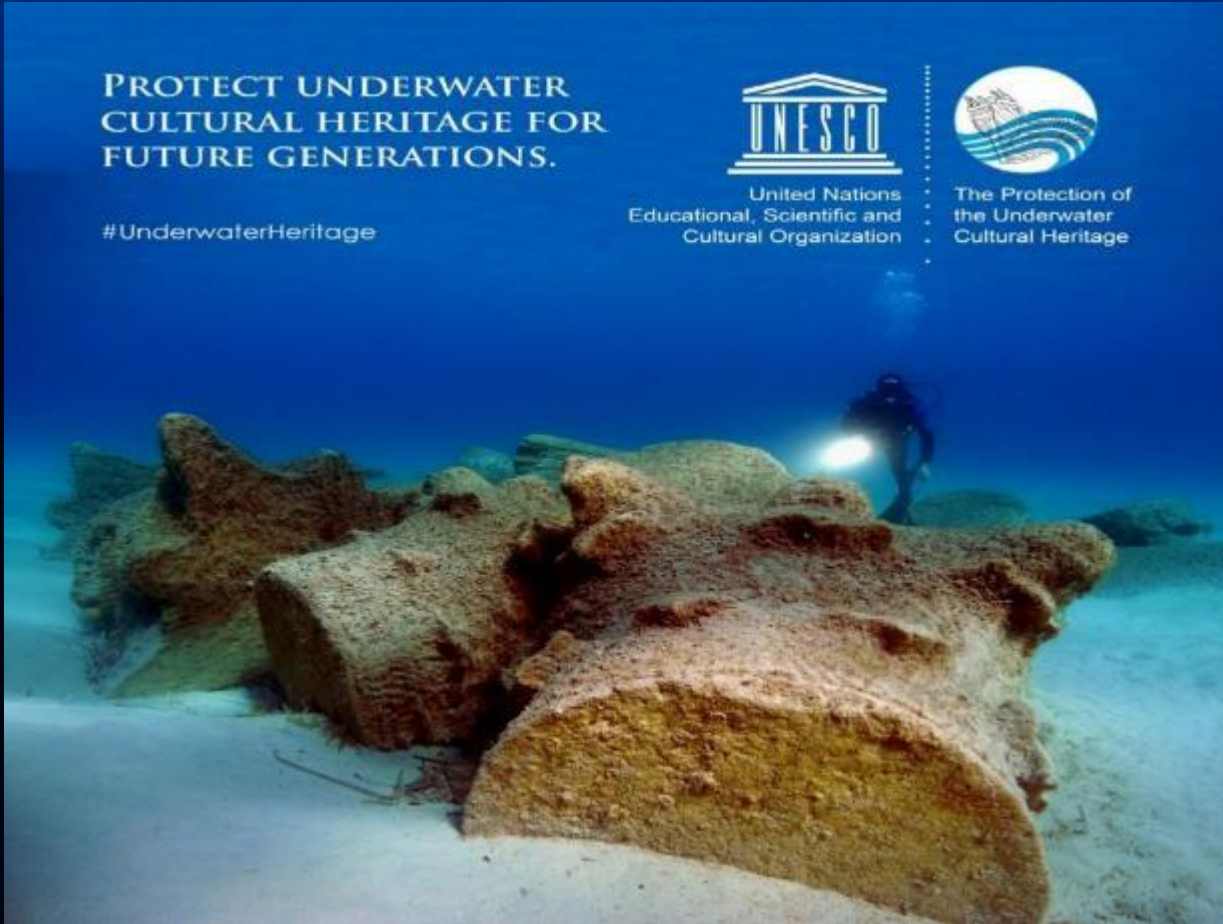
#UnderwaterHeritage



United Nations
Educational, Scientific and
Cultural Organization



The Protection of
the Underwater
Cultural Heritage



Tegekürler I

2001 UNESCO Convention

- The Convention
- The 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage has been elaborated and adopted by the Member States of UNESCO. It is an international treaty, which represents the response of the international community to the increasing looting and destruction of underwater cultural heritage.
- The Convention sets a common standard for the protection of such heritage, with a view to preventing its being looted or destroyed. This standard is comparable to that granted by other UNESCO Conventions or national legislation on cultural heritage on land, and yet specific to archaeological sites under water
- The first principle is the obligation to protect cultural heritage for the benefit of humanity.

- The principles
- There are four main principles:

1) Obligation to Preserve Underwater Cultural Heritage

2) In situ Preservation as the First Option

3) No Commercial Exploitation

4) Training and Information Sharing

- The wrecks of ships present today an invaluable information source.
- The Convention designates underwater cultural heritage as *“all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at least 100 years.”*

Threats to Underwater Archaeological Heritage

- Physical-mechanical Threats
- Biological Threats
- Chemical Threats
- *Human Threats*

- - *Human Threats*

- The **dismemberment** of the wrecks.

- - Wrecks are at risk of being **exploited** by companies interested in the value of the ships' cargo. (**treasure hunters**)

- - **Deliberate destruction** and **looting damage** also affected the wreck.

- Article 25 of the UNESCO Convention on the Protection of the Underwater Cultural Heritage states that *in situ* preservation of underwater heritage shall be considered as the **first option** before engaging in any activities directed at the heritage site.
- -Does it mean leaving sites at the place they have been found?
- -Do the sites also require physical protection?
- -Are excavations still possible?
- -Once preserved *in situ*, what is the next step? ??

The Content of the Convention

- **The 2001 Convention:**
 - Harmonizes the protection of underwater cultural heritage with that of cultural heritage on land
 - **Guarantees cooperation among States, and also among scientists worldwide**
 - Promotes underwater archaeology, and sets a high standard for archaeological research
- **It contains:**
 - Ethical principles
 - Strong site protection measures
 - A State cooperation mechanism
 - **Scientific guidelines for underwater archaeology (The Annex)**
 - **No regulations regarding the ownership of heritage or national jurisdiction at sea**
- **The Convention is in absolute harmony with UNCLOS (Art. 3).**

The Definition of Underwater Cultural Heritage

The Convention defines underwater cultural heritage as:

‘all traces of human existence having a cultural, historical or archaeological character which have been partially or totally under water, periodically or continuously, for at **least 100 years**’ (Art. 1)

UNESCO 2001 Covention 35 Articles



Ethical Principles

- States Parties must protect their underwater cultural heritage
- The commercial exploitation and salvage of underwater cultural heritage is forbidden
- ***In situ* preservation shall always be considered as the first option, unless there is a good reason to recover heritage (i.e. protection, research or public education)**
- Responsible public access to underwater cultural heritage is encouraged
- States Parties must ensure that proper respect is given to human remains on underwater cultural heritage sites

- State Cooperation Mechanism
- Anti-Pillaging Measures
- Capacity Building
- Publications
- Scientific Guidance – The Annex

- **Turkey**
- **Law on the Conservation of Cultural and Natural Property** (1983, Law No. 2863, last amended February 2008);
- Regulation on Survey, Sounding and Excavation to be Performed in Relation to Cultural and Natural Property (1984); and,
- Cultural heritage protection measures are legally regulated by national laws, regulations and ordinances, and by international conventions ratified by Turkey.
- All archaeological fieldwork will be approved General Directorate for Cultural Heritage and Museums; Turkish Ministry of Culture and Tourism;

- There is no difference between the general archaeological heritage and underwater archaeological heritage legislation.
- Turkish Law on the Conservation of Cultural and Natural Property covers both. All zones in need of protection and a subsequent establishment of **forbidden diving zones** have declared due to *Article 35 of the Law* which provided for the protection of underwater cultural heritage.
- This zoning information was published in 1989 and amended later.
- According this law, applying for permit for archaeological diving anywhere in Turkish waters became necessary. **With respect to the law only academic and scientific qualified researchers such as professor at the university can get permit for work in Turkey.**
- Ministry of Culture and Tourism has jurisdiction over underwater archaeological heritage **Turkish Coastguard is responsible for the protection** of the sites within the territorial waters.

■ Forbidden diving zone

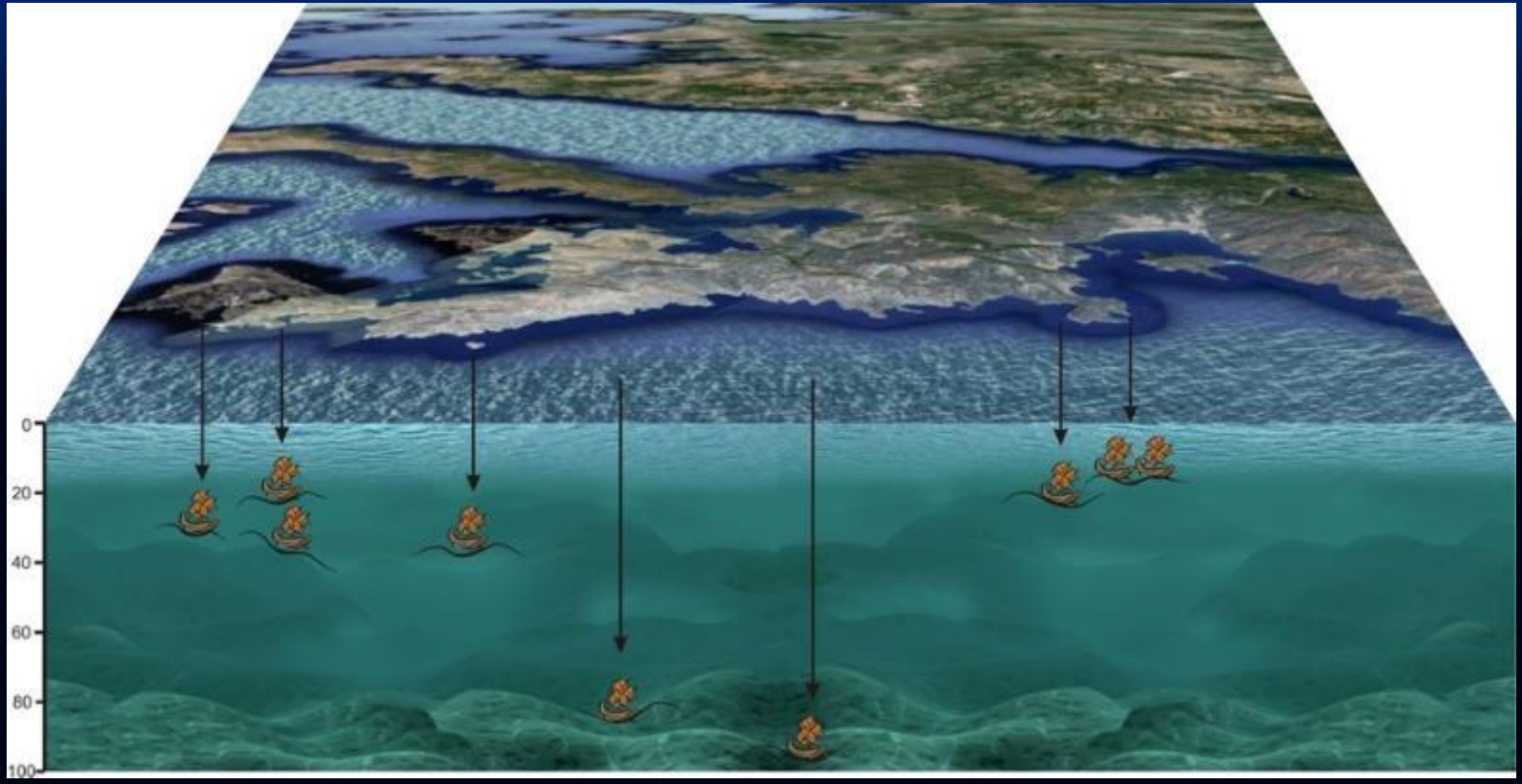


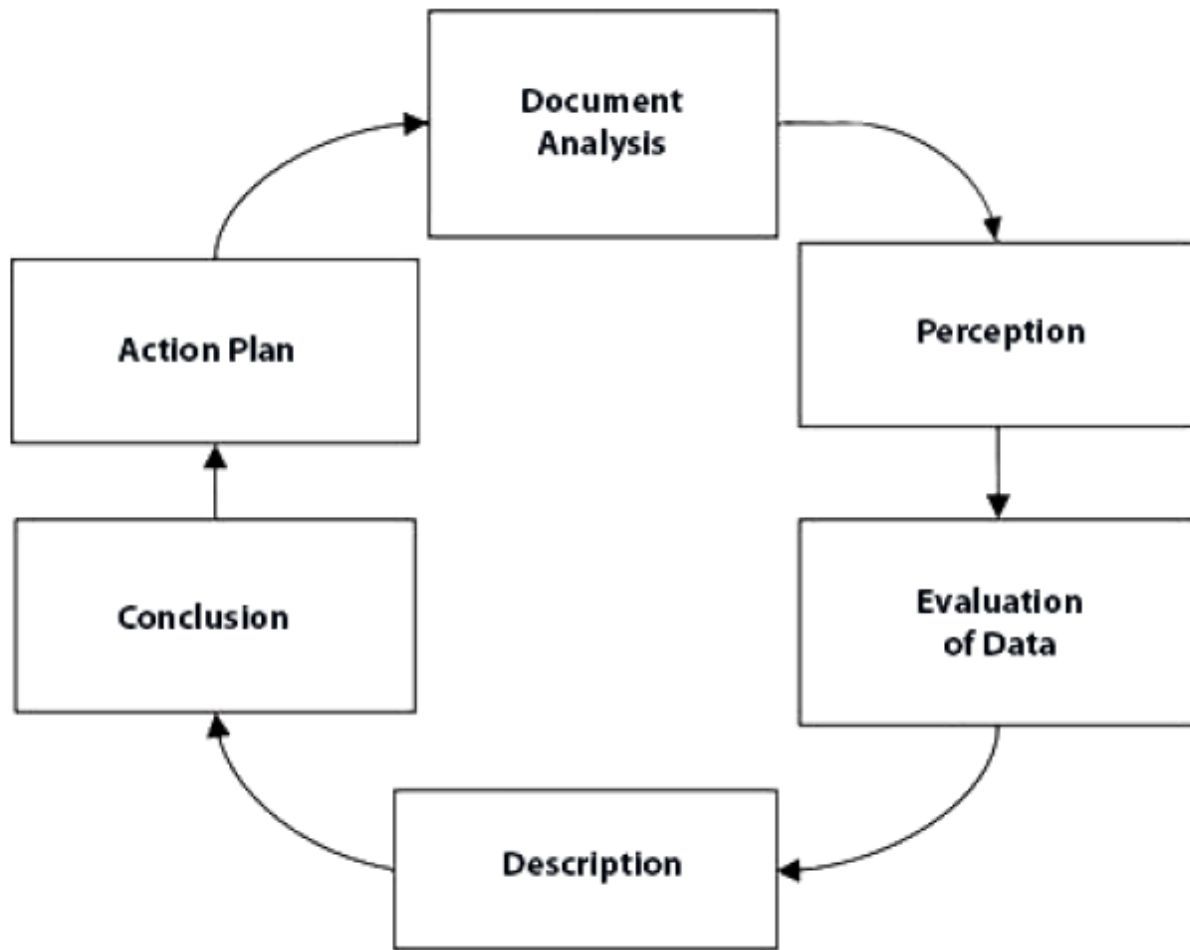
- BLUE-BLACKSEA Project
- **Create a Scientific Advisory Body-working group.**
- Inspire from Blue-Med
- **Potencial Underwater Archaeological Sites across the Black Sea**
- **Plan and coordinate the operation** of Underwater Cultural Heritage site.
- **Protect and promote** the Underwater Cultural Heritage across the Black Sea.
- **Support the sustainable development** in coastal regions.
- Site management and maintenance
- Public Access
- International cooperation

- Ministries of Culture and Tourism,
- *Universities & Scientific Institutions*
- International Organizations
- Regional Authorities
- Municipalities
- NGOs
- The tourism sector
- Diving centers, clubs etc.

- Among key issues to consider
- **Strategies & Direction**
- **Mapping And Selection Of Sites**
- **Implementation Team & Cooperation Framework**
- **Research Plan**
- **Potential Risks**
- **Funding**







THE 2001 UNESCO CONVENTION
on the
Protection of the Underwater Cultural Heritage,





Daily **Mail**

BY BEGEN

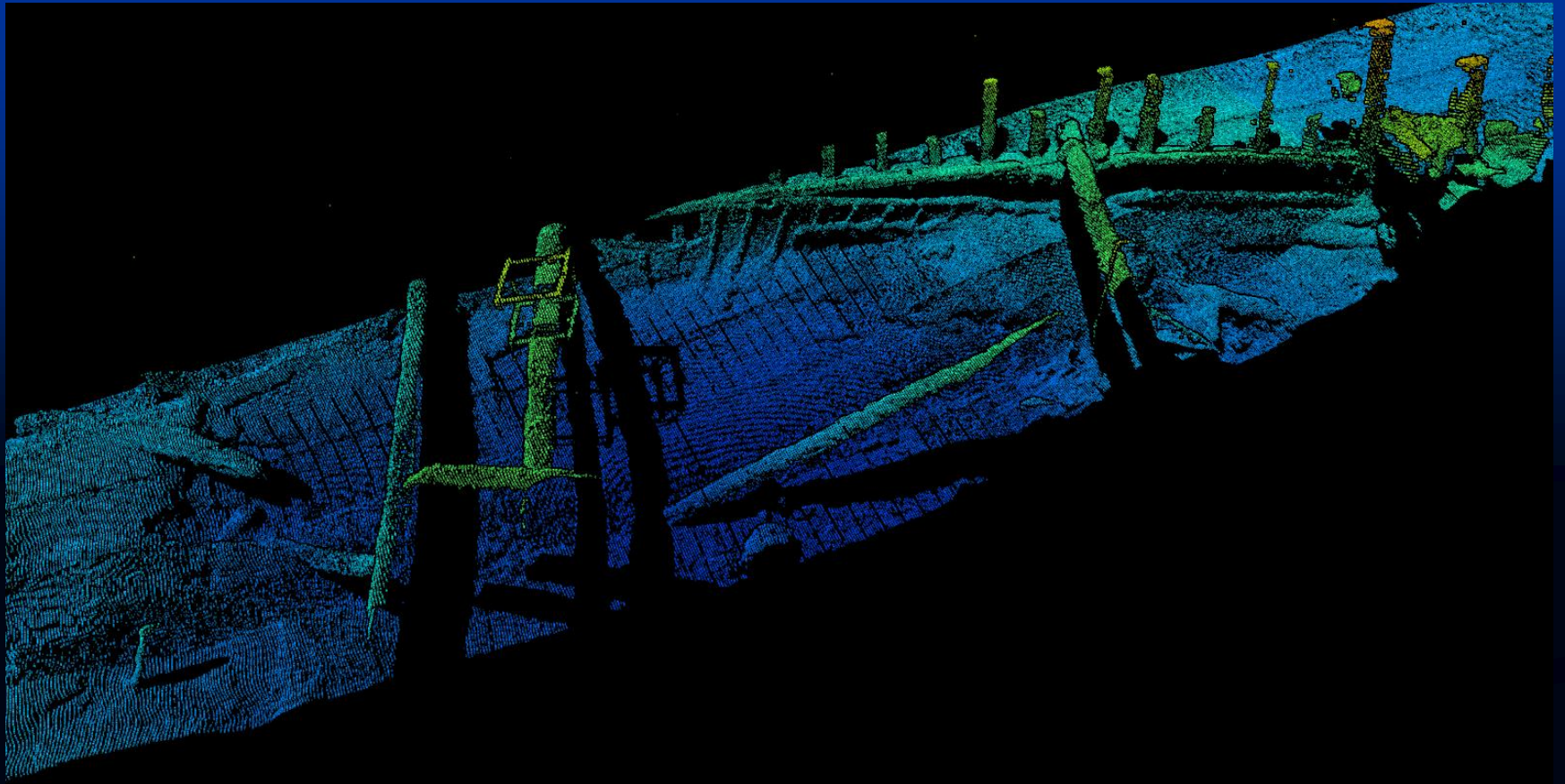
SCIENCE

Ghostly graveyard of 60 perfectly preserved ancient shipwrecks is found by climate scientists at the bottom of the Black Sea

Ekleyen: Harry Pettit For Mail online
19 Eylül 2017 11:42

- **The Black Sea Maritime Archaeology Project** has been scouring the sea bed of the Black Sea

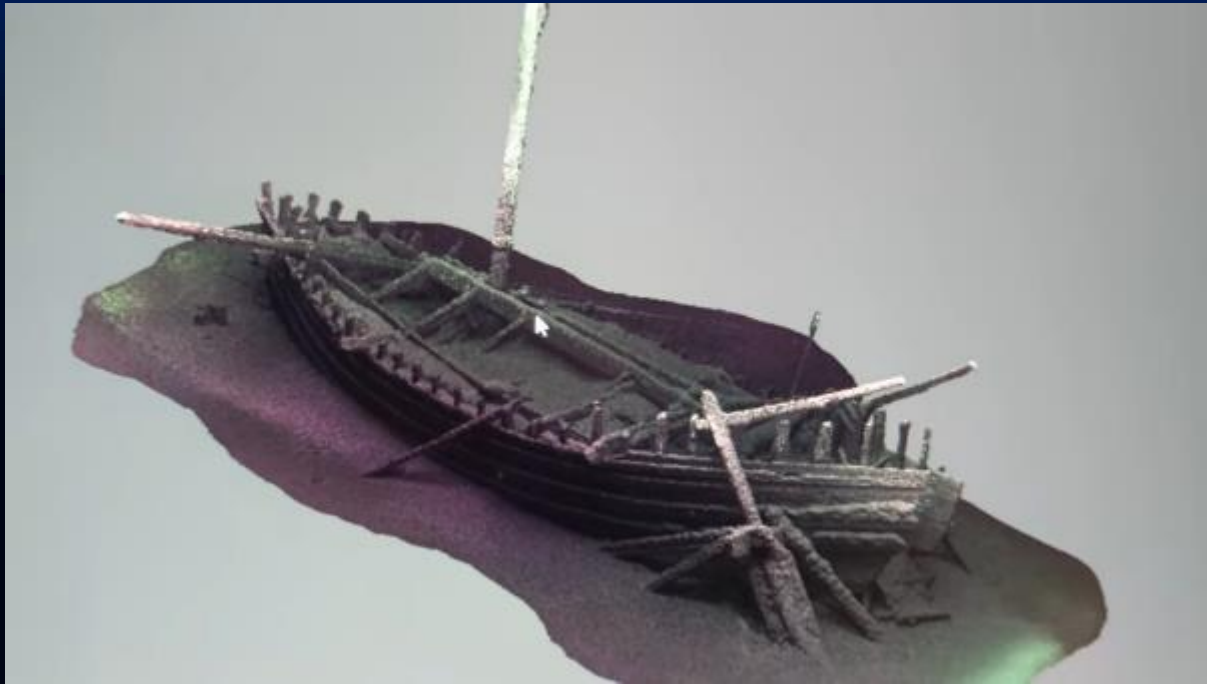




ROV-mounted laser scanner point cloud of an Early Byzantine shipwreck found at a depth of 2000m. Photo Chris Bailey



Deep Sea Archaeological photogrammetry
of Roman wreck in the Black Sea



Roman shipwreck found and surveyed by Black Sea MAP

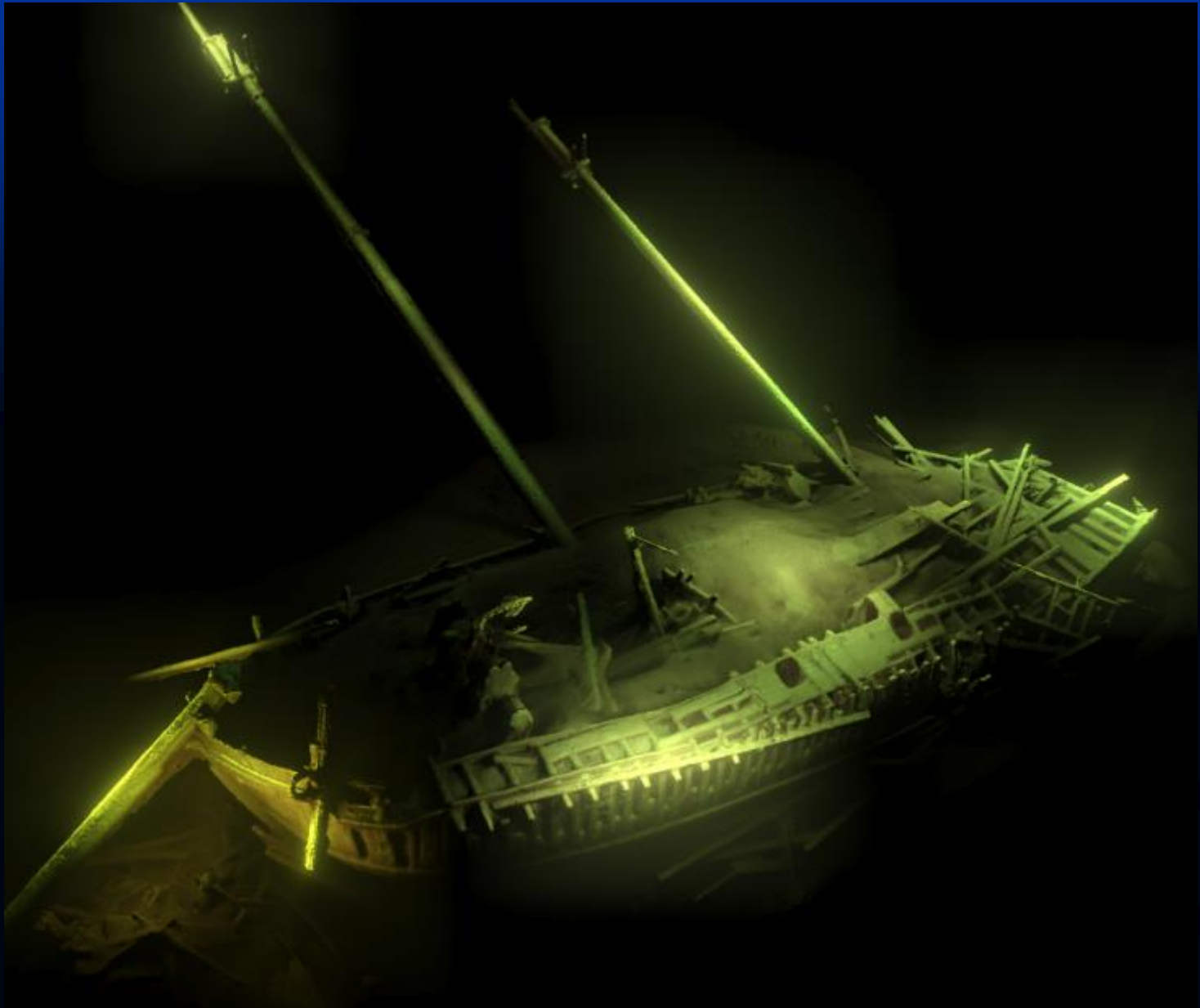


A photogrammetric image of the stern of the Ottoman-era ship showing coils of rope and a tiller with elaborate carvings. A lack of oxygen at the icy depths of the Black Sea left the wrecks relatively undisturbed. Credit... Expedition and Education Foundation/Black Sea MAP



BS MAP 2015 Wreck 006 (301m)

A photogrammetric image of a ship from the Ottoman era that most likely went down between the 17th and 19th centuries.



Southstream 2014_576 Wreck BS 576 (130m)



Drawing from a carved relief

BS MAP 2016 Wreck 002 (1102m)

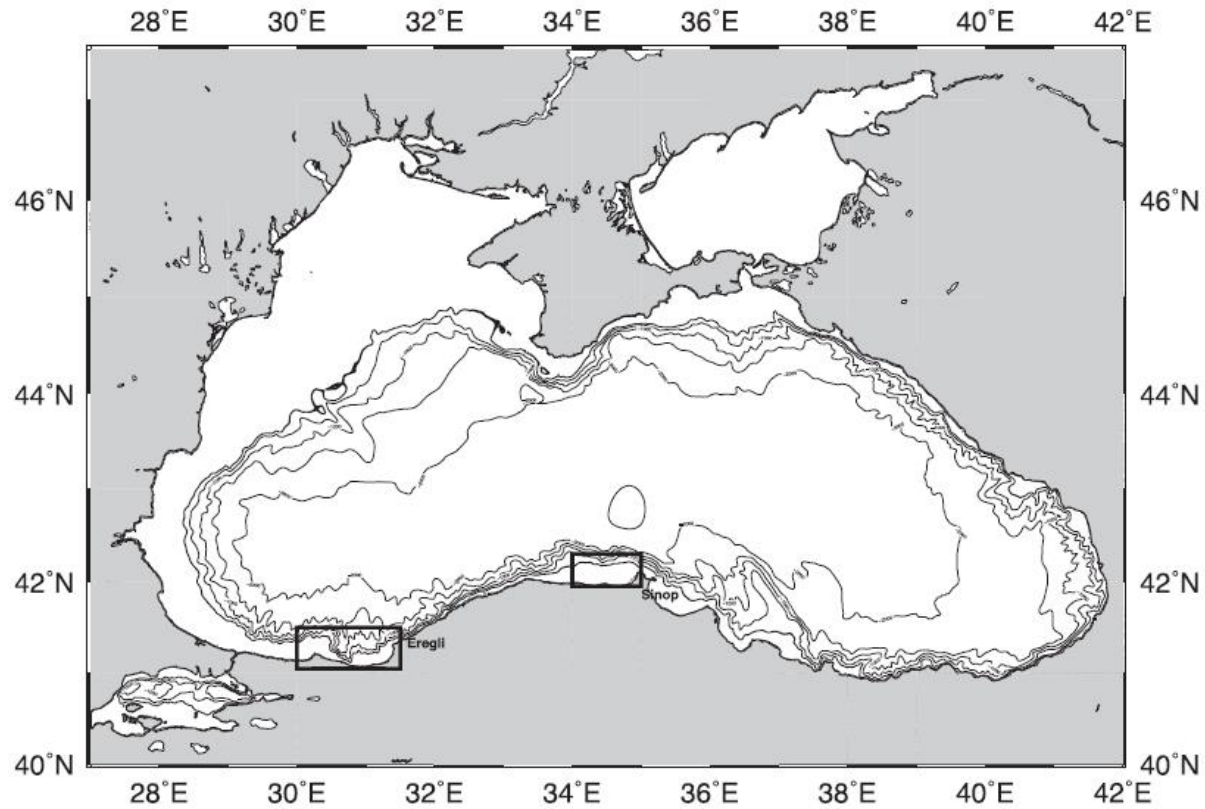
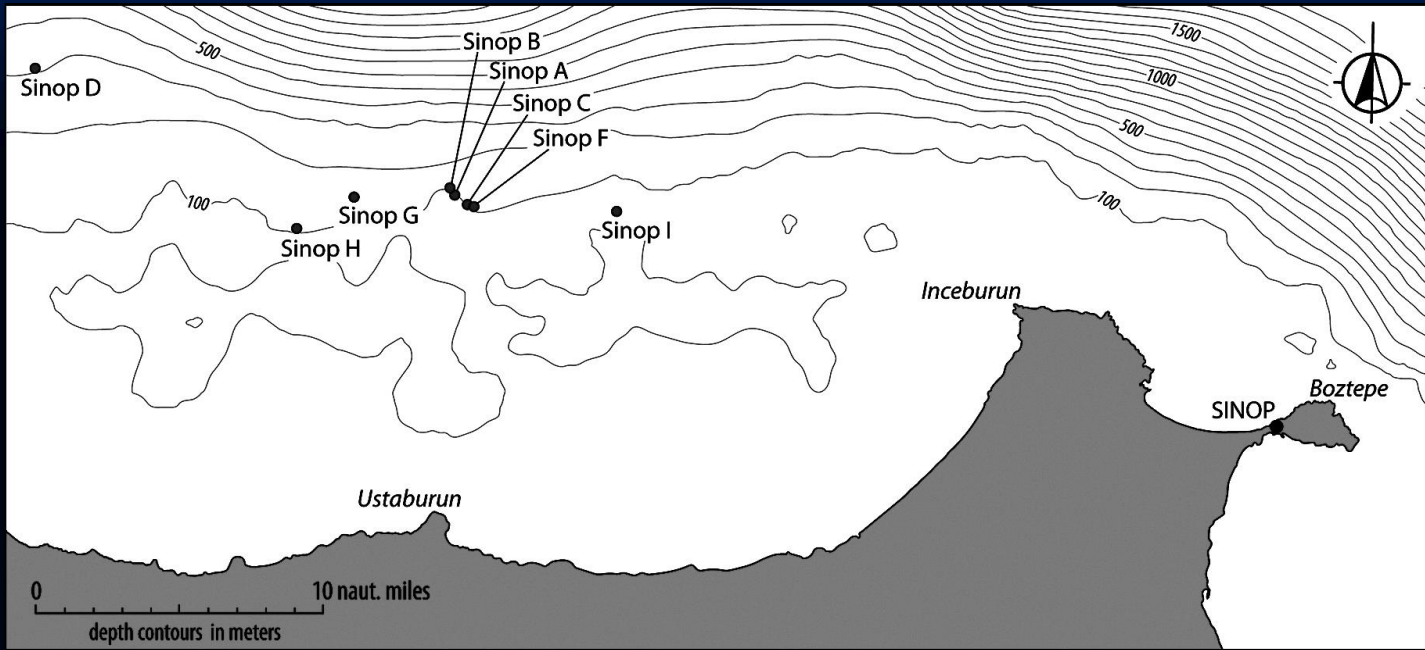


Fig. 1. Map of the Black Sea showing survey locations off Ereğli and Sinop, Turkey. Bathymetry data (in m) from the GEBCO_08 Grid, version 20091120, <http://www.gebco.net>.



8 shipwrecks Sinop region

Table 1

List of shipwrecks located off Sinop and Ereğli including approximate date, dissolved oxygen level, cargo, and whether or not trawl damage is visible.

Wreck	Depth (m)	Date	2011 O ₂ level	Trawled	Cargo
Sinop A	105 ^a	Mid 5th century A.D.	5.82	Yes	Amphorae
Sinop B	107 ^a	Mid 5th century A.D.	2.07	Yes	Amphorae
Sinop C	102 ^a	Mid 5th century A.D.	3.85	Yes	Amphorae
Sinop F	105	Late 5th century A.D.	5.68	Yes	Amphorae
Sinop G	100	17th–19th century	5.59	No	Not Apparent
Sinop H	103	17th–19th century	6.03	No	Not Apparent
Sinop I	109	1st century A.D.	4.35	No	Amphorae
Ereğli A	103	17th–19th century	5.93	Yes	Not Apparent
Ereğli B	112	17th–19th century	5.22	Yes	Not Apparent
Ereğli C	112	6th century A.D.	3.90	Yes	Not Apparent
Ereğli D	114	17th–19th century	1.95	No	Wood
Ereğli E	101	late 4th century B.C.	5.47	Yes	Amphorae

^a Depths reported in Ballard et al. (2001) and subsequent publications do not correlate with depths logged in 2011.

Total meiofauna abundances in three zones

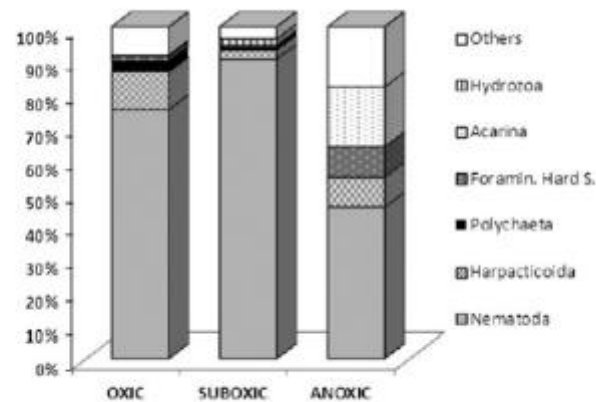
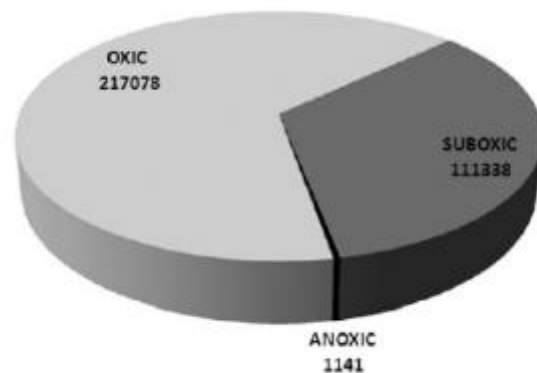
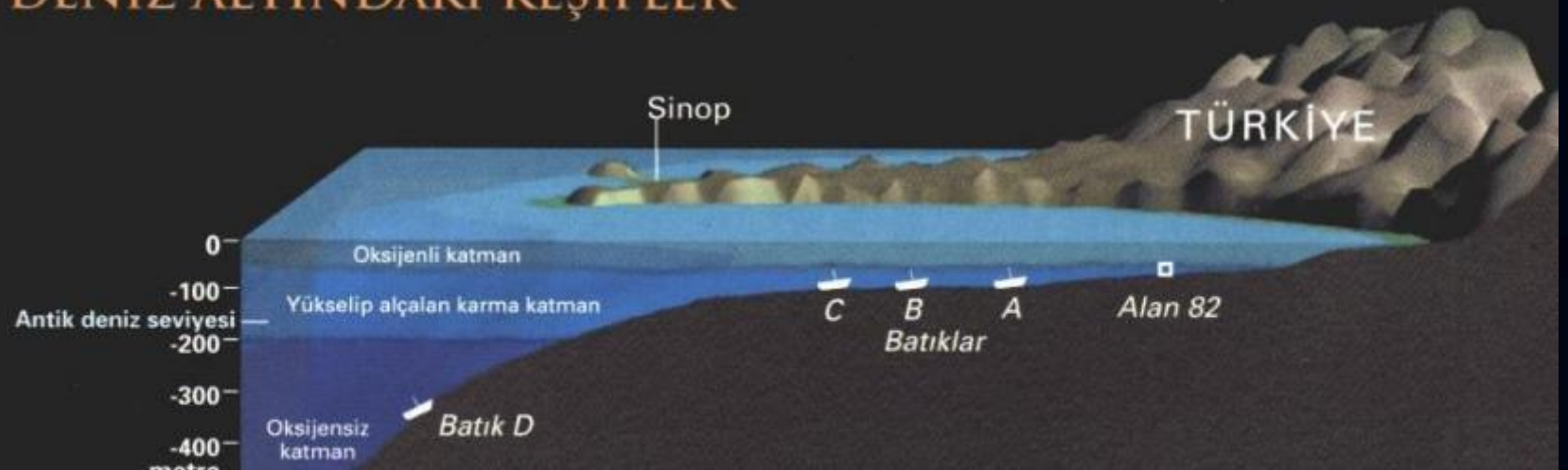
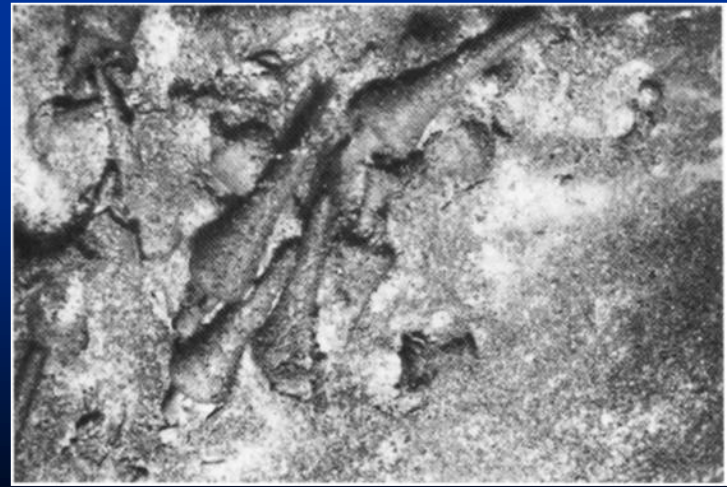


Fig. 6. Contribution (%) of main taxa to total meiobenthos in cores from the three water layers.



DENİZ ALTINDAKİ KEŞİFLER





Video camera image of **shipwreck A** Electronic still camera image shipwreck A
Carrot shaped amphorae from Sinop are visible covering the entire site.
Approx- imately 23 m in length and 10 m wide, oriented approximately north-south
Byzantine period 5th -7th cent AD



Video camera image (left) and electronic still camera image (right) **shipwreck B**



Partial photomosaic of **Shipwreck A** from electronic still camera images. (Courtesy Institute for Exploration/
Institute for Archaeological Oceanography-URI/
GSO).





Photomosaic of part of **Shipwreck B** from electronic still camera images (Courtesy
Institute for Exploration/
Institute for Archaeological Oceanography)

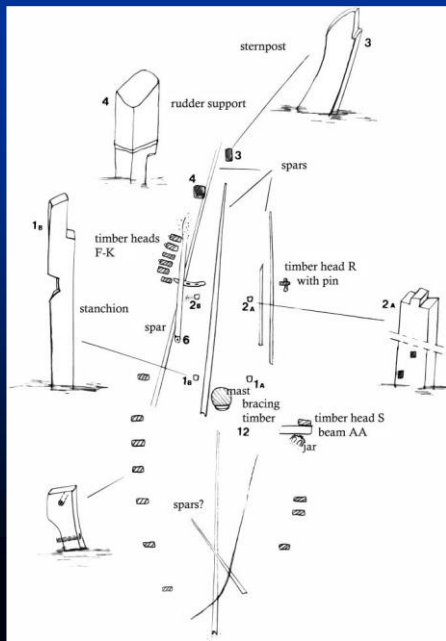


The **shipwreck D** was located in an area where the seafloor has little topography and lies at a depth of approximately 320 m.

The hull seems to be nearly as long as the mast is tall (11-12 m) and approximately one third as wide (3.5-4 m). C14 resulted in a date of 1610 ? (Beta-147532) calibrated to 410-520 A.D. Late Roman Early Byzantine



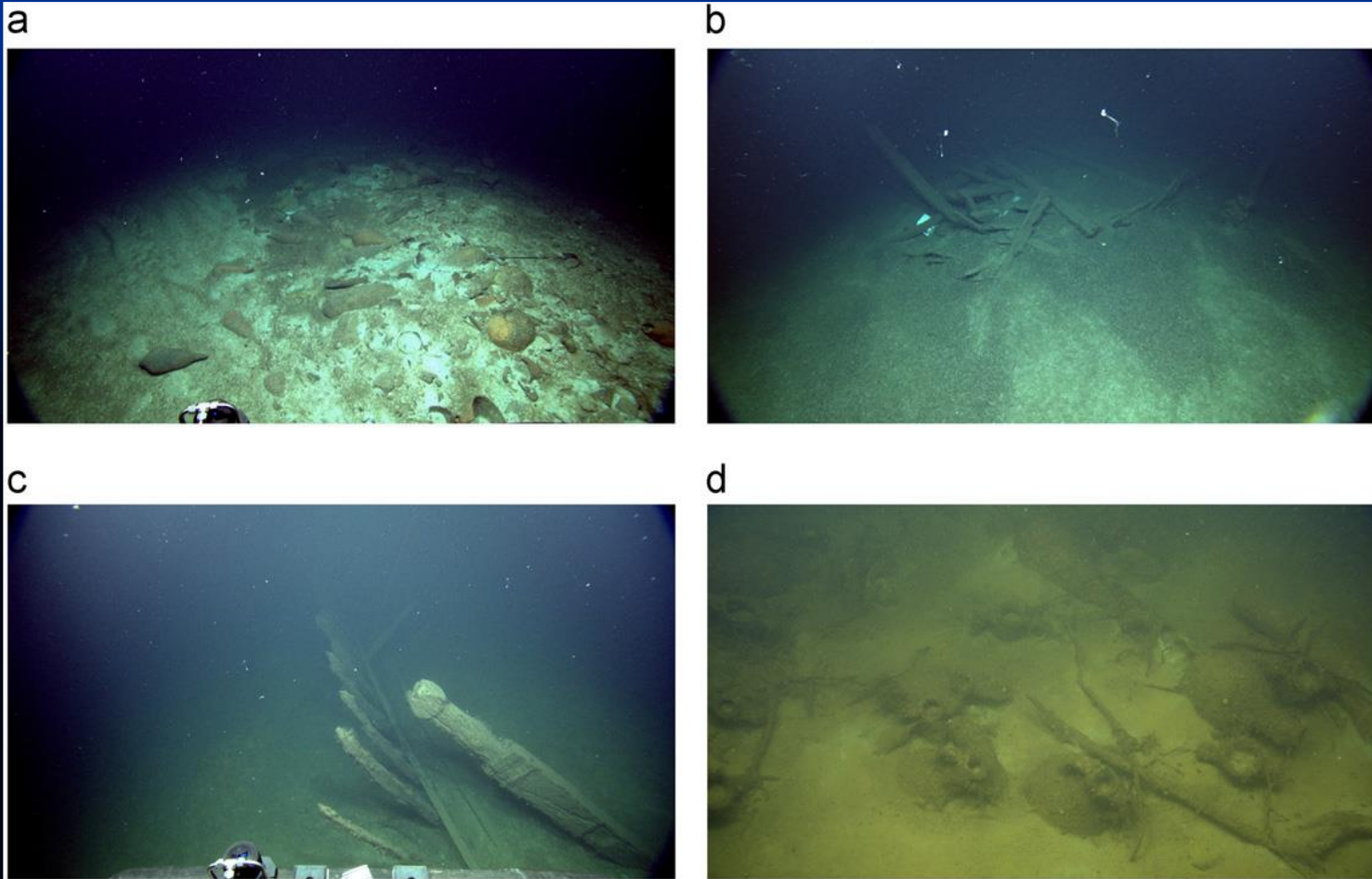
Images along the deck of **Shipwreck D**: right, frame ends, rudder support and towards the stern); left, upright stanchions.



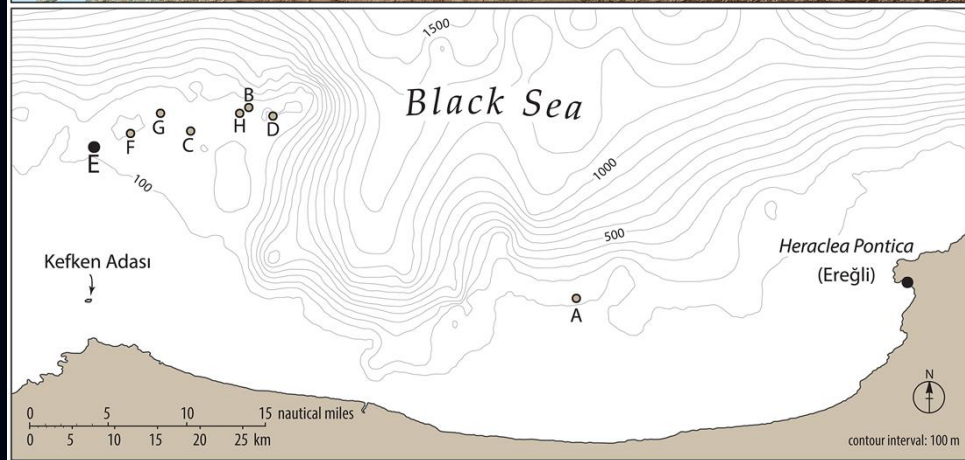
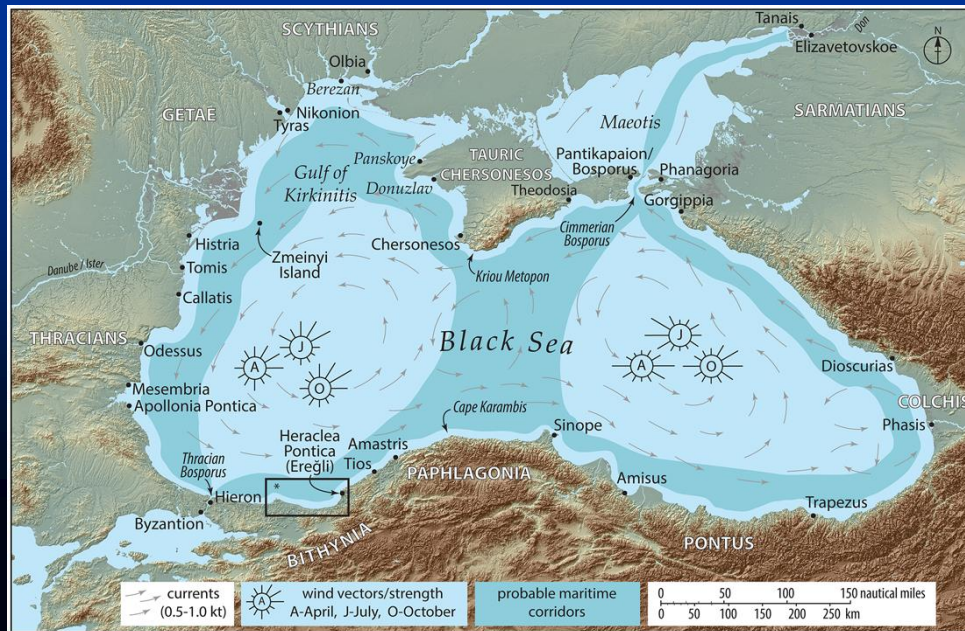
Hercules taking a push core at Sinop D's helm station, directly aft of Unidentified timber 4 (U4) and just forward of the stern post.



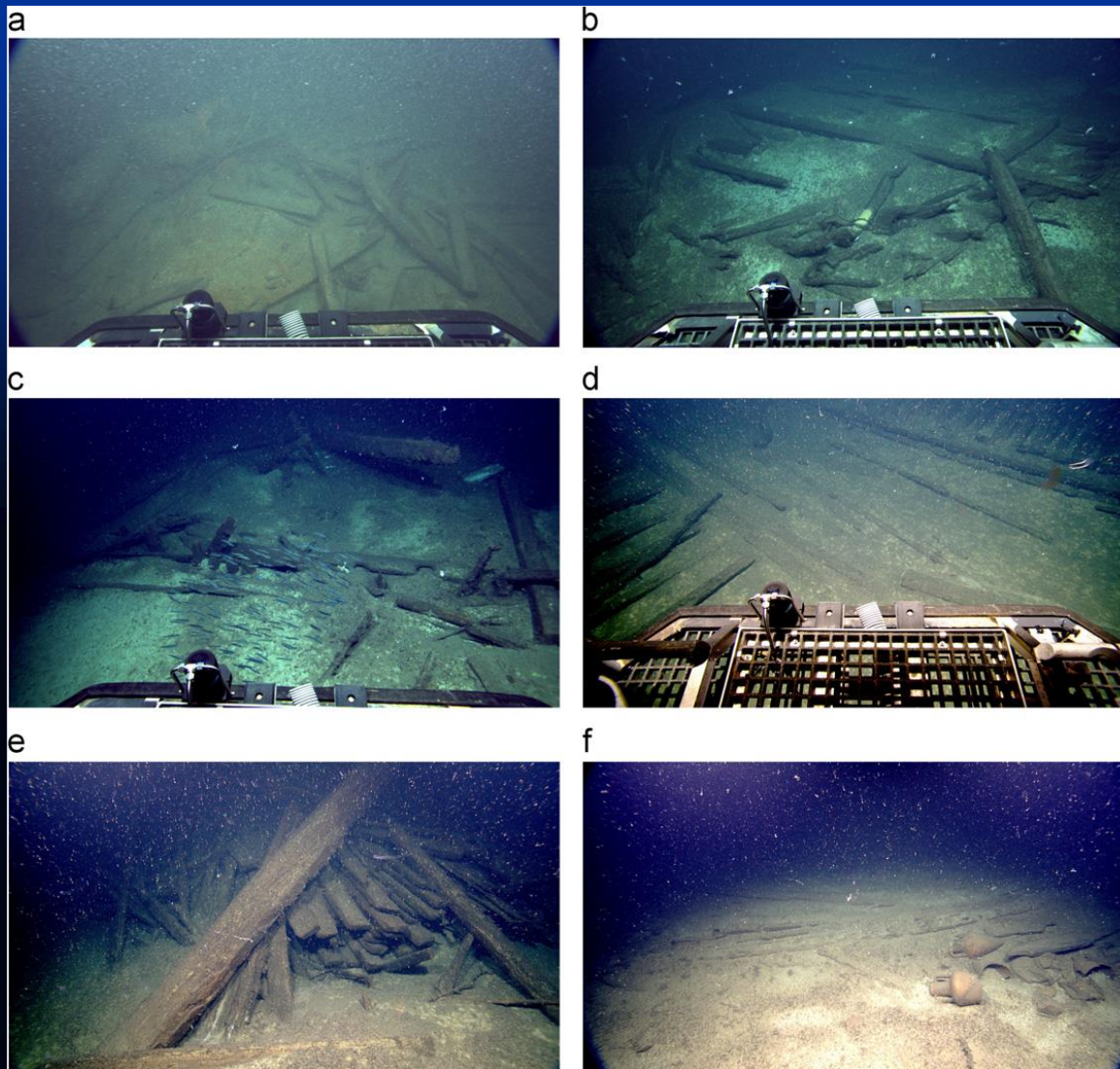
Plan of **Shipwreck D** with labelled elements, including details (C. Ward).



High definition video captures of wreck sites(a) **SinopF**; (b)**Sinop G**;(c) **SinopH**;(d)**Sinop I**.

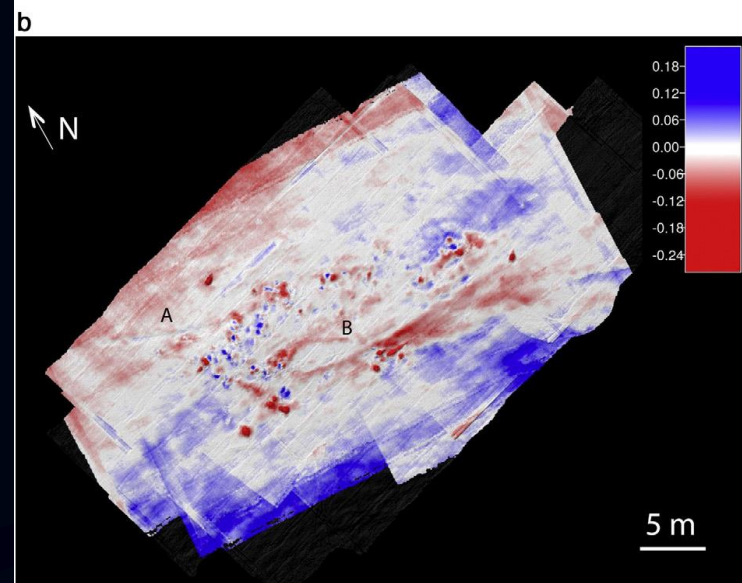
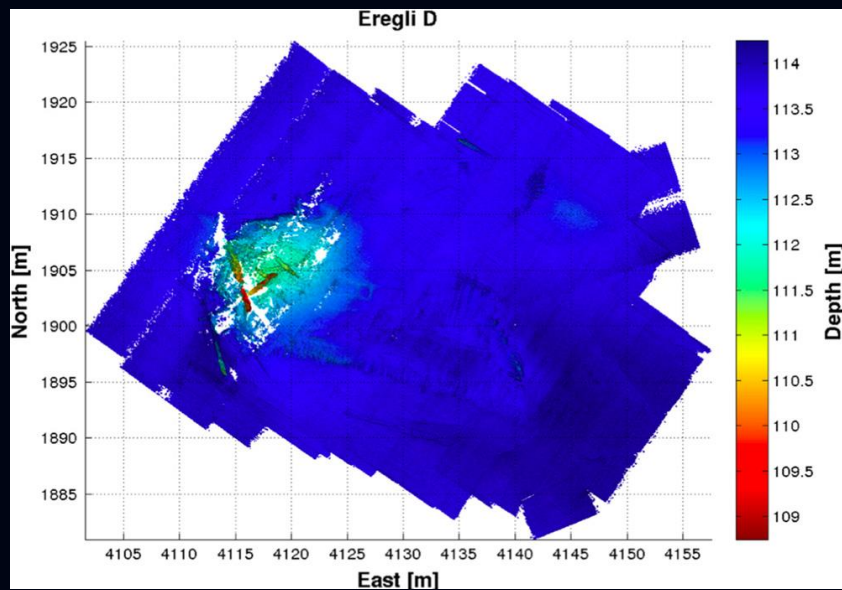
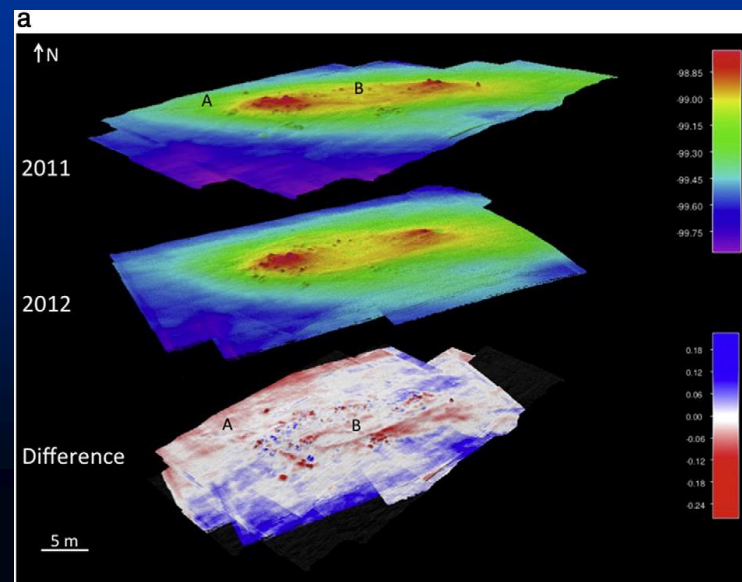
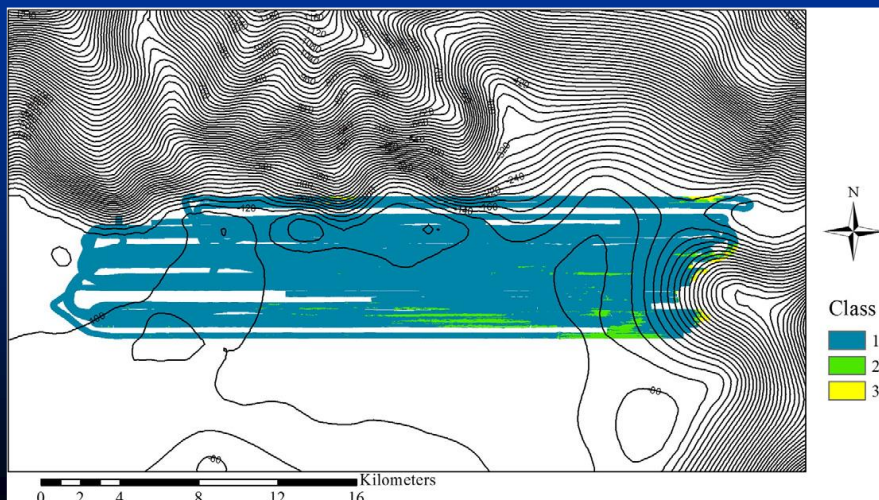


8 shipwrecks Kefken- Ereğli region

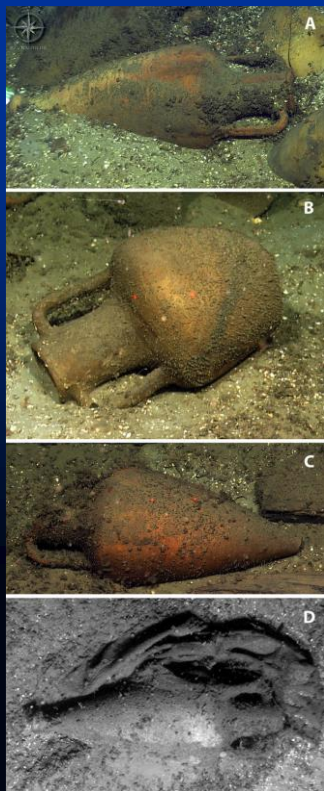


High definition video captures of wreck sites

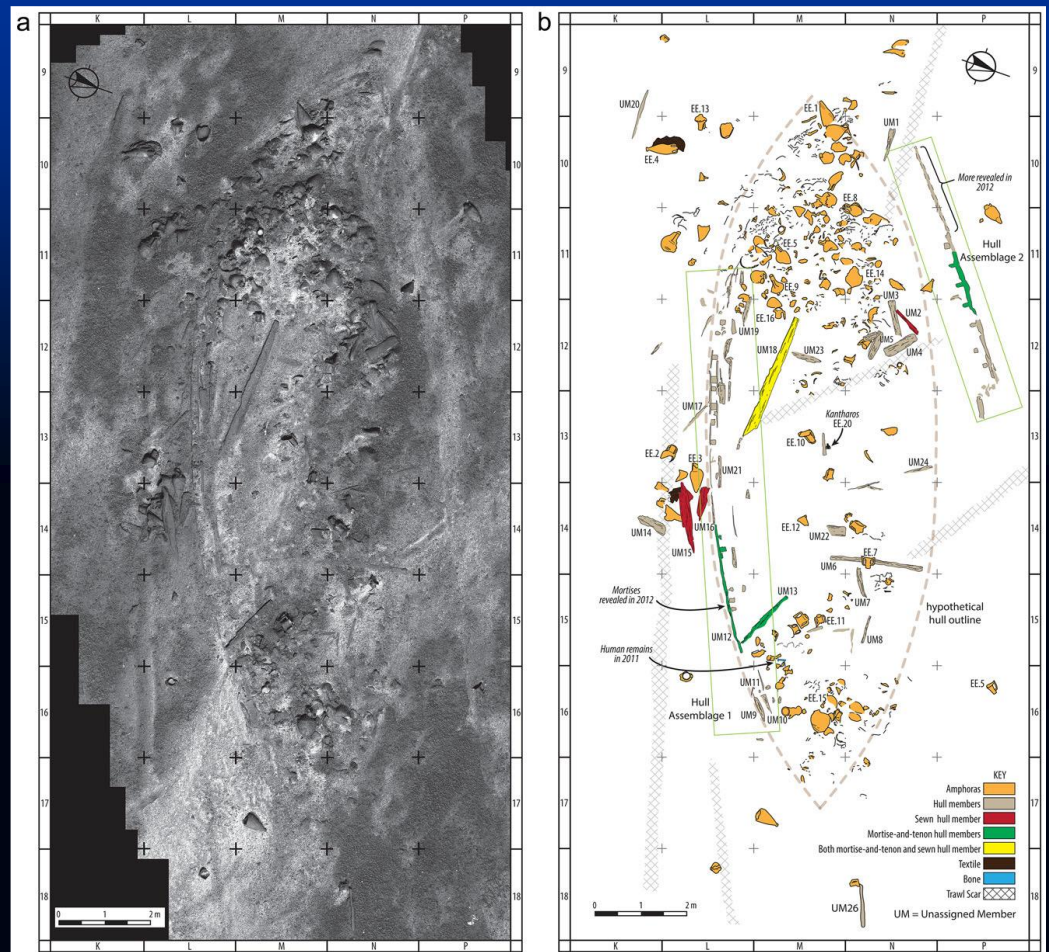
(a)Eregli A;(b)Eregli B;(c)Eregli C;(d)Eregli D;(e)wood pileon Eregli D;(f)Eregli E.



Map of the side-scan sonar survey west of Ereğli,

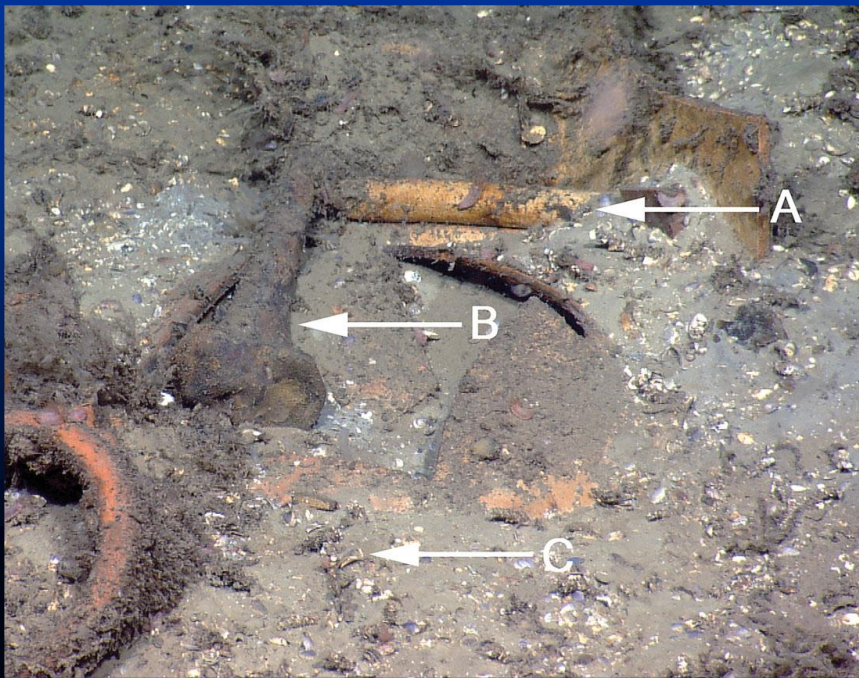


Chersonesian amphoras



Early 3rd century BC

a) Photomosaic of the **Eregli E** wreck-site (2011) (Courtesy Ocean Exploration Trust); ~ b) Eregli E site plan, based on the 2011 survey with some additions from 2012. Some amphoras and amphora fragments that appeared only in 2012 are not included here (Illustrated by D. Davis).



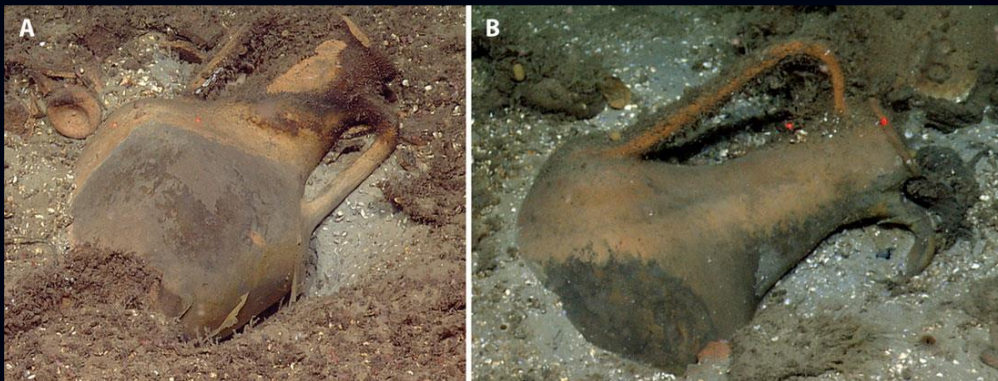
Human skeletal remains assemblage.
 A: probable femur, B: tibia, C: tooth



Timber UM2: a) Plan view of timber assemblage in N12, including UM2;
 b) Detail detail of UM2, oblique view



Three views of kantharos EE.20



Thasian amphorae: a) EE.8; and b) EE.9

Early 3rd century BC



Image Landsat / Copernicus

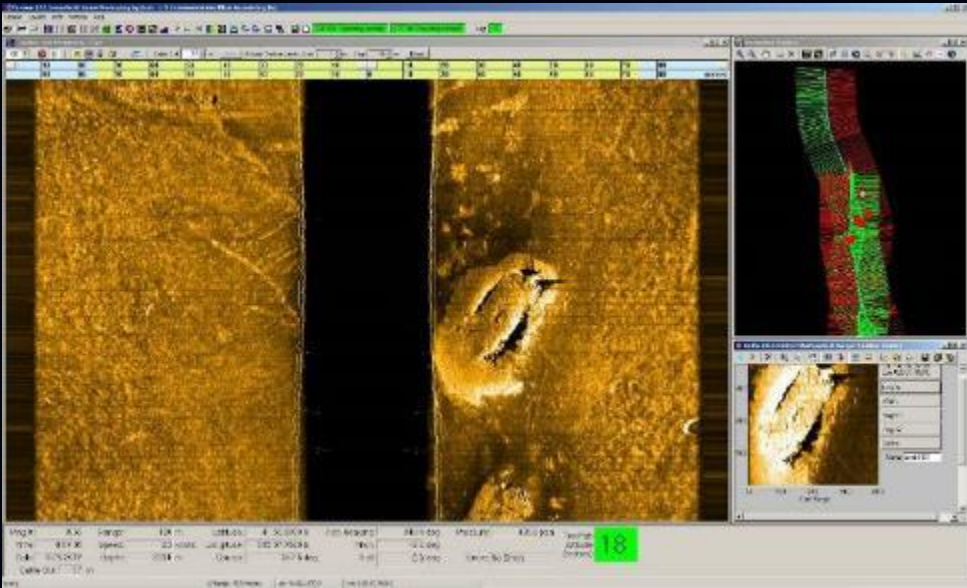
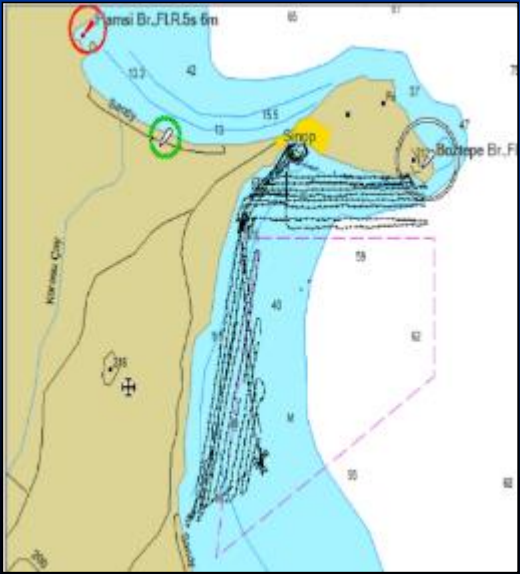
The Naval Battle of Sinop, 1853



View of Sinop Harbor from the Sea



View of Sinop Harbor from the Sea





Nesim-i Zafer (?)

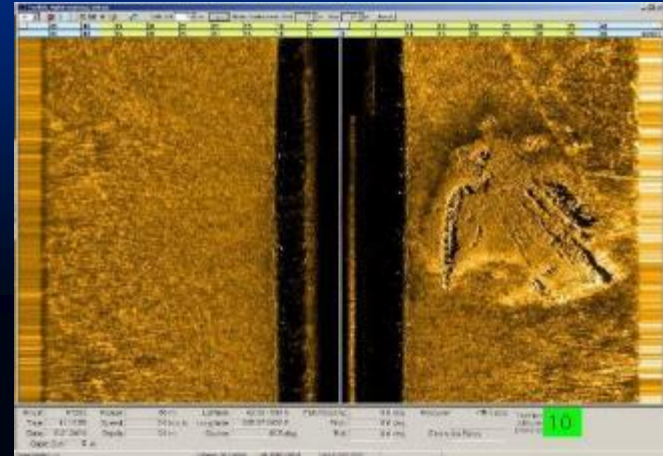


Avnillah (?)



Avnillah (?)

Navek-i Bahri (?)





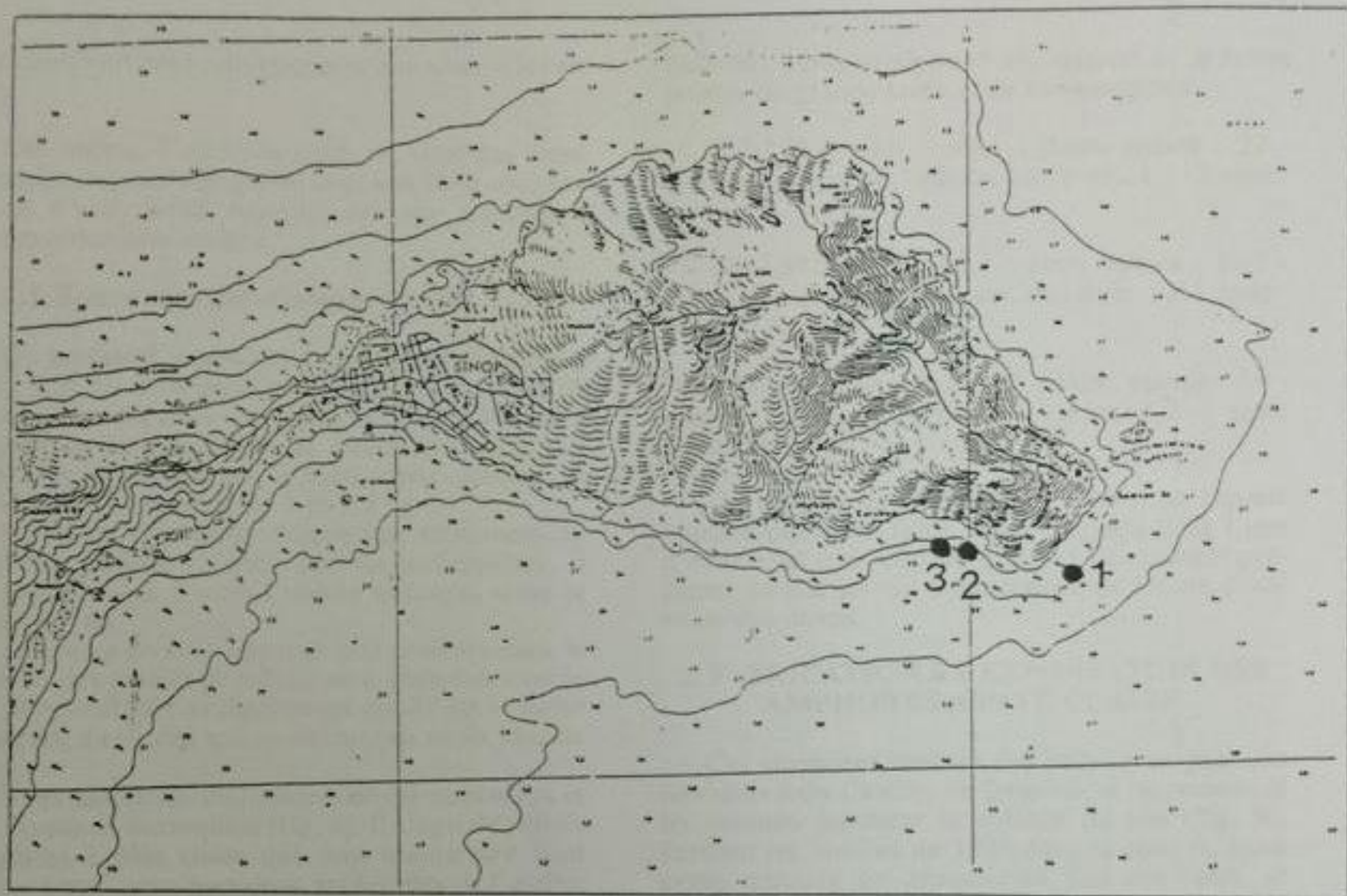
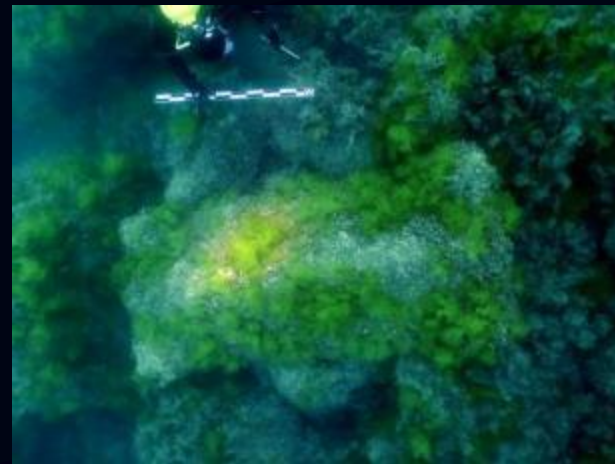


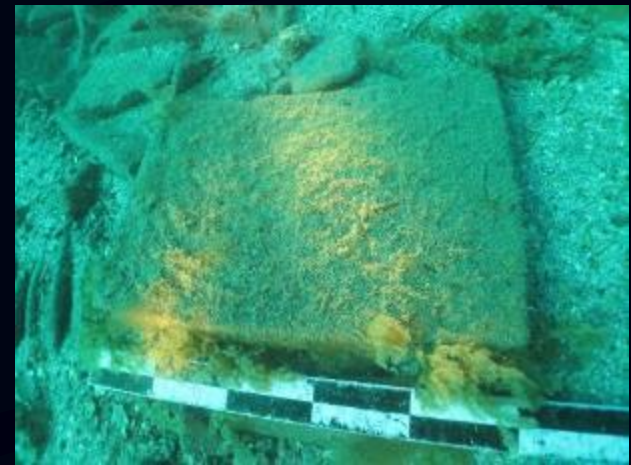
Fig. 1 : Carte de la péninsule de Sinop avec l'emplacement des épaves.



Cannons



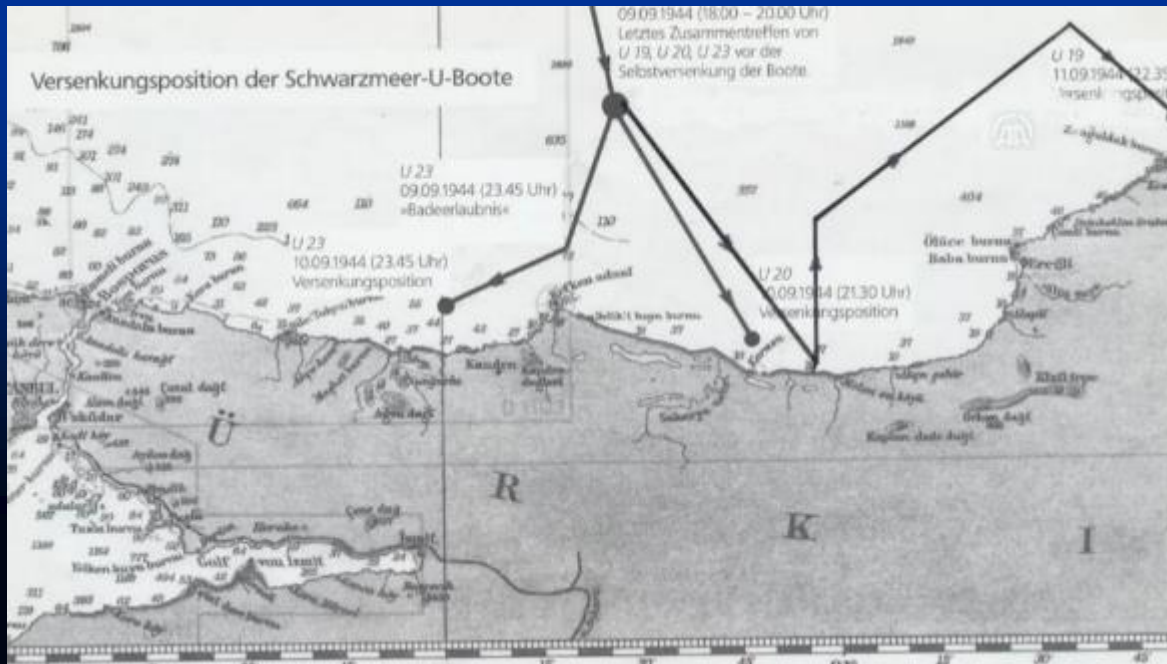
Sarcophagus wreck



Tile wreck

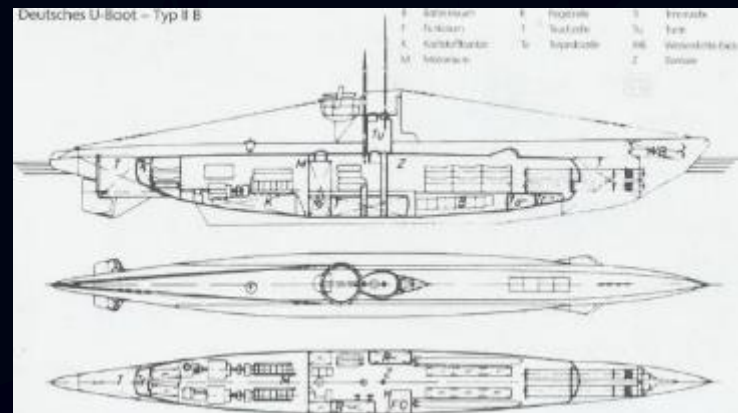


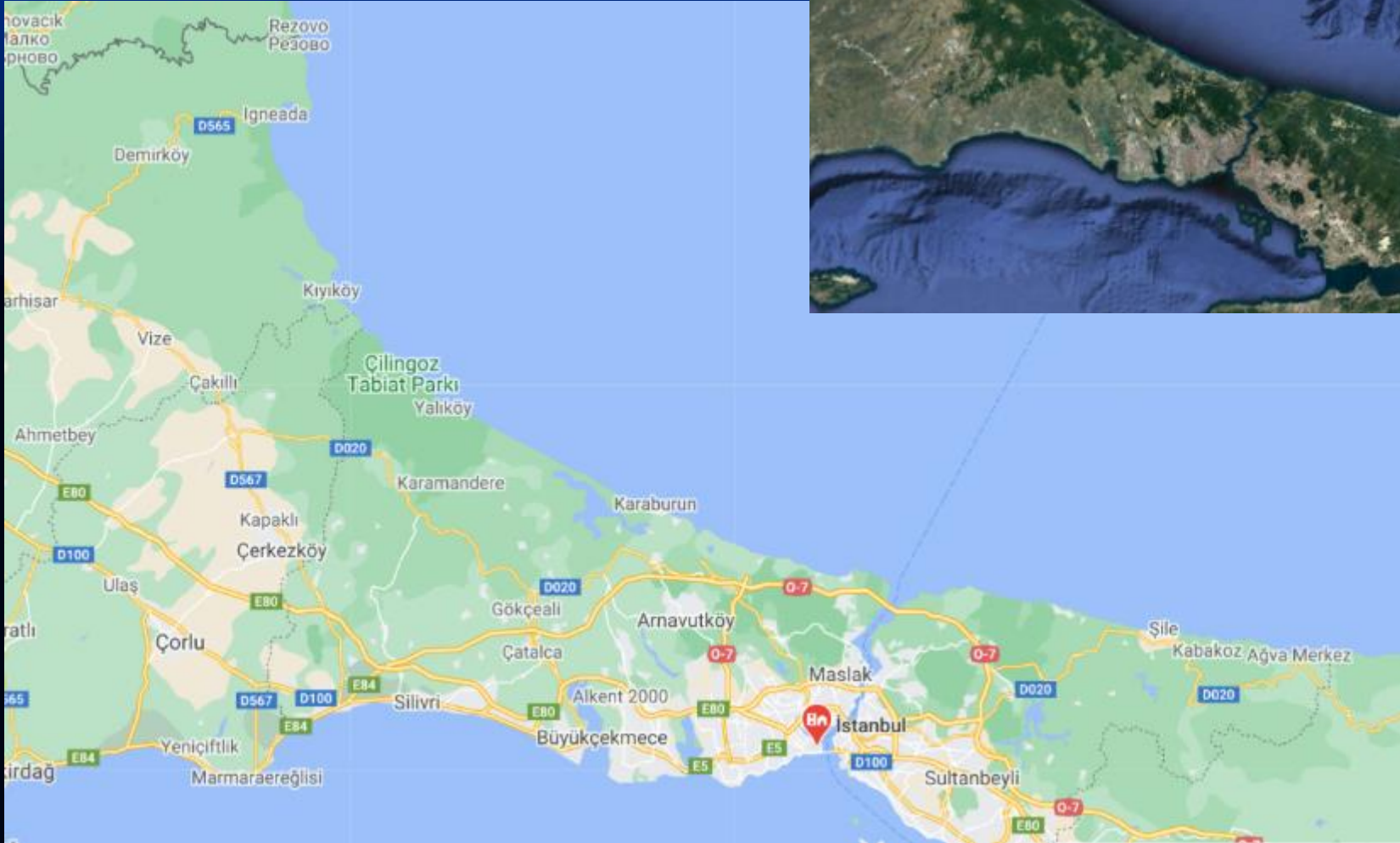
Tile wreck





U-23 German Submarine

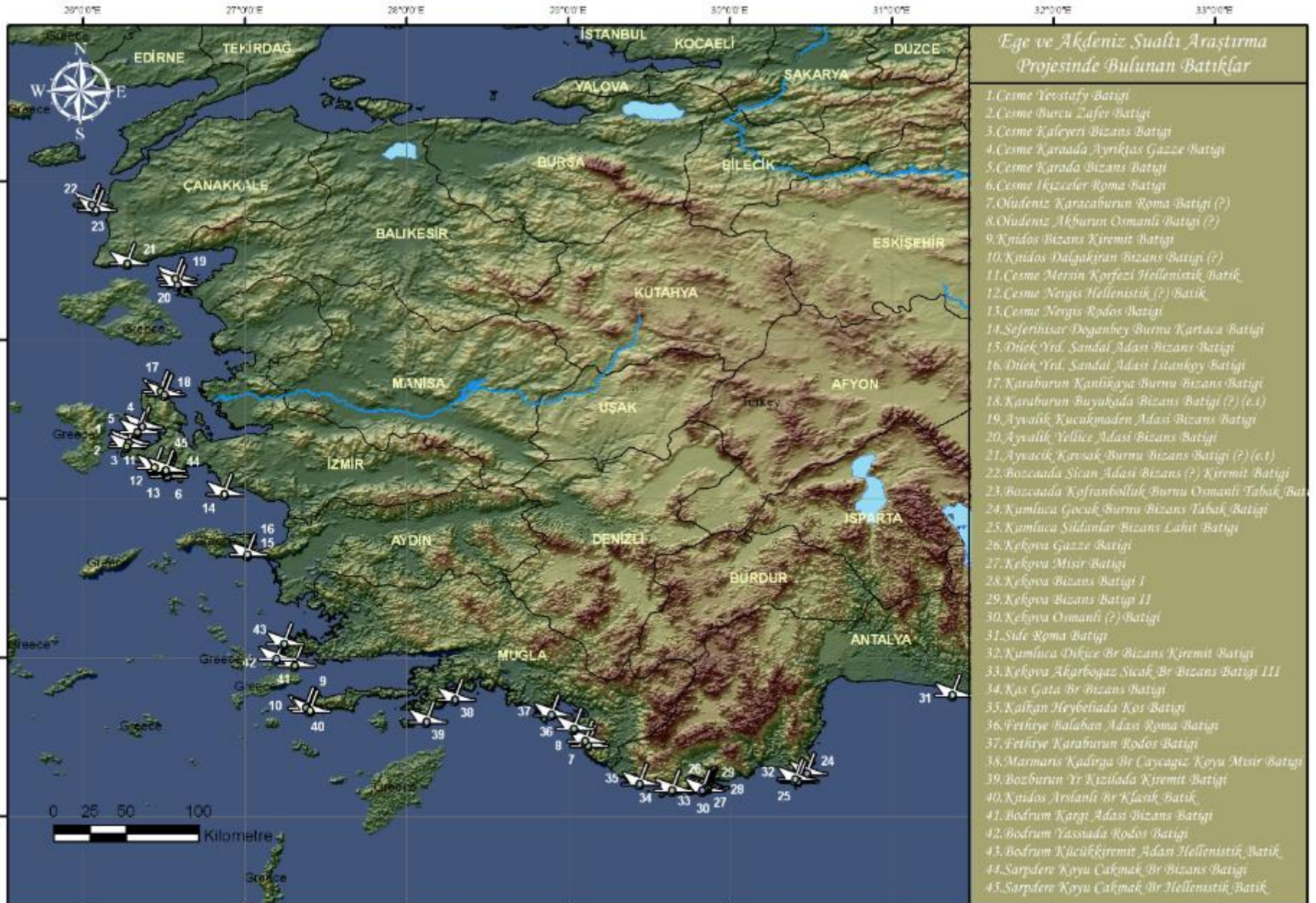




Potential Sites

Dokuz Eylul University, Institute of Marine Science and Technology

Underwater Cultural Heritage ,GIS System



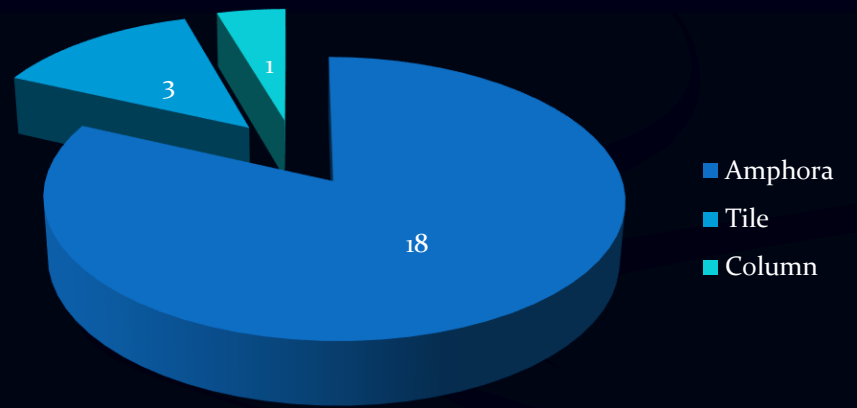
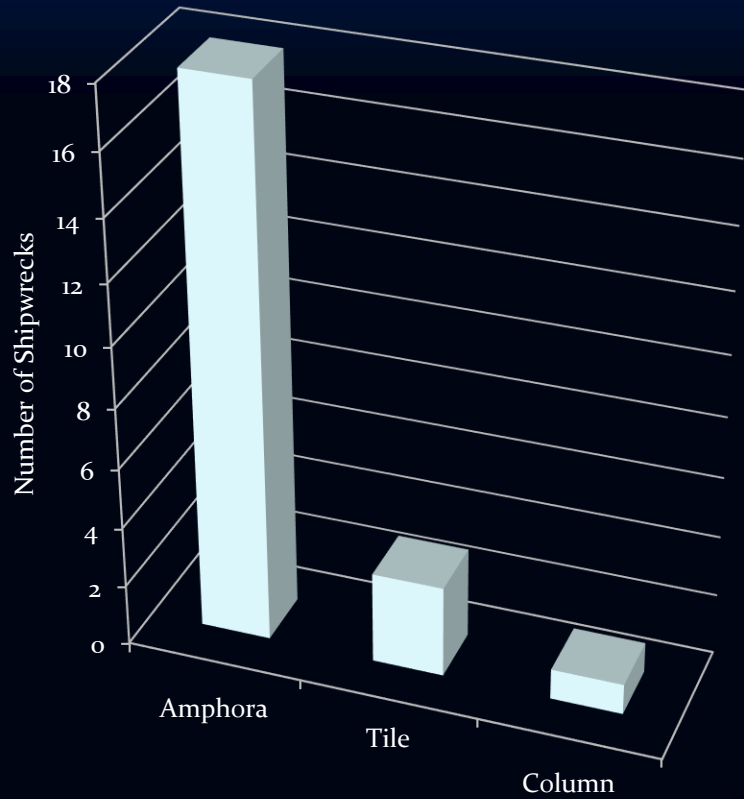
OSMANLI DÖNEMİ BATIKLARI

BOZCAADA TABAK BATIĞI

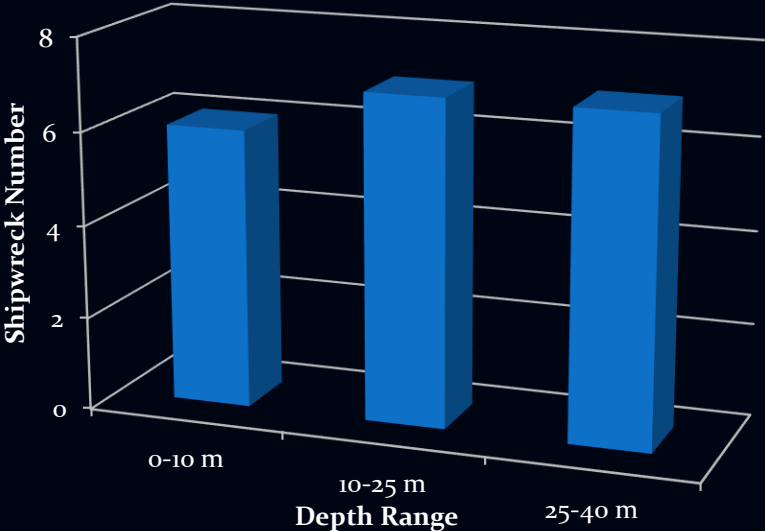
Batık No	21
Batık ID	17BTO
İl	Canakkale
İlçe	Bozcaada
Batık Adı	Bozcaada Tabak Bt
Dönemi	Osmanlı
Yüzyil	MS.18.yy sonu-19.yy.basi
İnceleme Tarihi	25.09.2006
Kargo Tipi	Tabak
Gemi Tipi	Ticaret
Batık Durumu	çok tahrip olmus (D-I)
Derinlik (m)	3-4
Dağılım Alanı	500 m ²
Çapa Adeti	
Çapa Tipi	
Amphora Tipi	
Amphora Dönemi	
Buluntu Adet	500-1000
Diğer Buluntular	Pipo
Fauna	
Taban Morfolojisi	
Yer Gösteren	Sungerci Kerim
Çalışan Ekib	DEU DBTE Sualti Arkeolojisi
Çıkarılan Eserler	2 adet kırık tabak (CKOB-01 ve CKOB-02), 1 adet pipo (CKOB-03), 1 adet metal parca (CKOB-04), 25.09.2006
İlk Araştırma Ekibi	
Görsel/Akustik Kayıt	
Tanım	
Notlar	Kırık amphoralar, çok sayıda tabak
Kaynakça	21



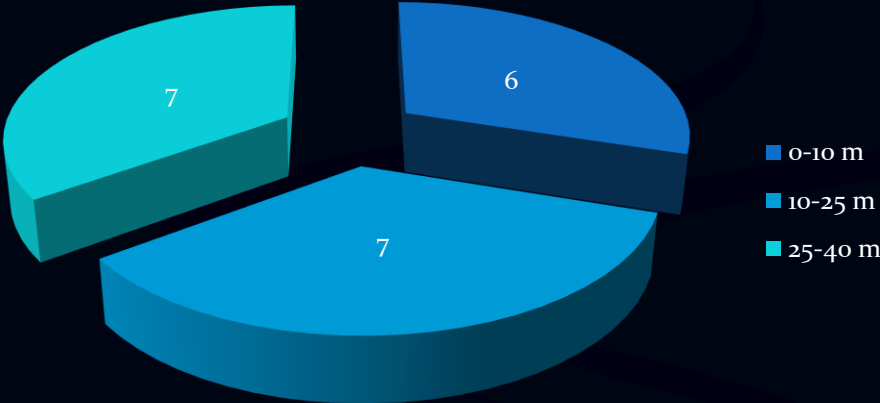
Cargo Types



Shipwreck numbers according to depth range



Shipwreck Number



Piri Reis, Research Vessel



Acoustic Equipment

Deep water

Side Scan Sonar

Shallow water

Geoacoustics Deep Tow 2000



Imaginex Yellowfin

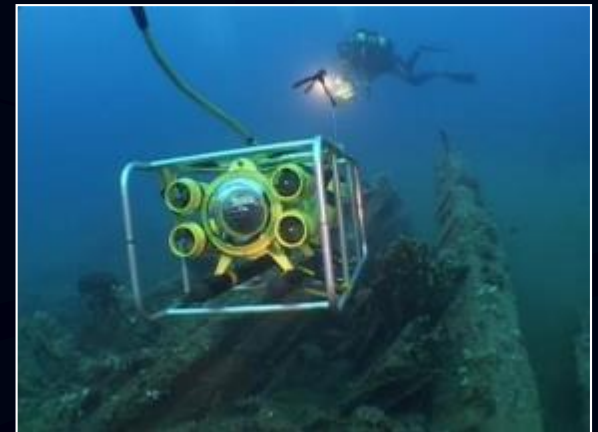
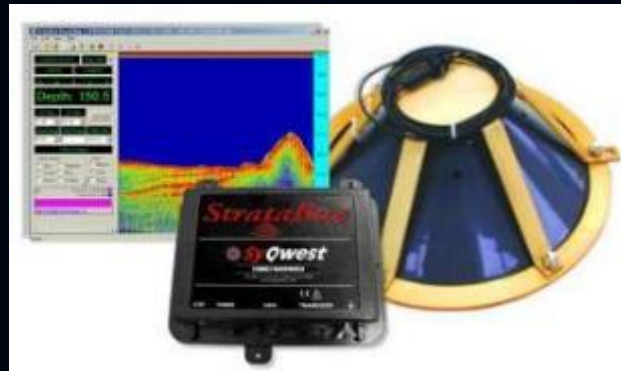
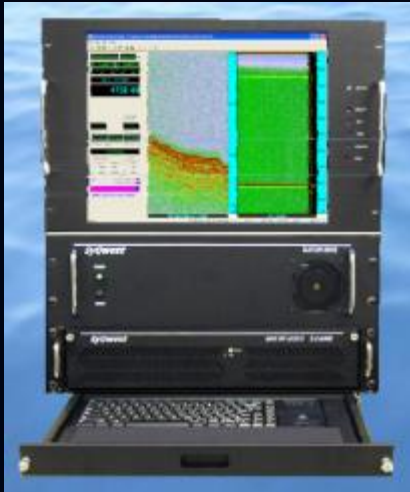


Subbottom Profiler

ROV SeaLion

SyQwest Bathy 2010

SyQwest Stratabox



Shipwreck Inventory Project of Turkey (SHIPT)

- The Turkish Ministry of Development
- The Turkish Ministry of Culture and Tourism
- Scientific & Technological Research Council of Turkey (TUBITAK)
- Dokuz Eylül University, Institute of Marine Science and Technology (IMST)



Thanks