



**The harbor of Khufu at Wadi al-Jarf**  
**Central department of underwater archaeology**  
**Mission report**  
**The third season April 2019**





### **Topography and surveying: -**

The team work of the Sorbonne University

Since 2016 a joint team of the central department of underwater archaeology, the University Paris-Sorbonne and the French Institute (IFAO) in Cairo worked at Wadi el Jarf for the purpose of conducting archaeological surveys and underwater excavations at the old harbor.

The work continued for two seasons (2016-2017) and has yielded a map of the site and the sondages on the outer pier for excavate any artifacts or shipwrecks to complete the study of the harbor and indeed the first results were found some small wood pieces and pottery sherds but the mission has not completed the work in the season of 2018 and it resumed for the third season in 2019 from 18\4\2019 to 28\4\2019.

### **Action plan: -**

**The plan for this season was focused on the following steps: -**

- 1- Archaeological survey in the north and the North West of the old harbor and in the south and south east of the inner harbor from within the coral barrier using light equipment (mask-fins-snorkels.)
- 2- An archaeological survey in the north western region neighboring the coral barrier in the open water and extension of more than 3 km north of the harbor site outside the coral barrier and by using diving equipment.
- 3- **The excavations: -**

Sondages were located in the area between the southern side and the northern side of the barrier specifically in the north eastern corner where there a number of stone anchors as well as a sandy bottom extending from north to south and from east to west whether there are archaeological evidences inside the harbor (wood-pottery-anchors) and linking it to the existing anchors in the harbor and the excavation site.

## **Surveys inside and outside the coral barrier: -**

### **1- Survey within the coral barrier**

The first day in 19\4\2019 before the arrival of the equipment, light equipment was used in the north of the harbor directly and towards the current and the sandy bottom.



Anchors was found (its location was fixed before) as well as a survey in the far east by a distance of 1 km and in the direction of north east also has resulted in the survey in this part of the presence of soft coral reefs in different places as well as a solid coral reef intermittent for large parts and most of the bottom is sandy and depths ranging from 1.5 to 2 m.

Due to the extreme tide at some other time, a survey was conducted in the northeast to the harbor site by using light equipment and also walking on feet in some sites which have no depths. A survey was conducted up to the boundary of the coral barrier from the inside and for a distance of approximately 1 km in the north and north east and return to the harbor site.

Noted, the bottom formation was sandy in large areas with flat rock blocks.

Walking along the barrier from the inside and using the mask and fins in places that have deep depths ranged between 50 cm to 1.5 m and the bottom is sandy and the majority of the side is a dead coral reef and there is no archaeological evidence in these sites according to the survey.

## **2- The underwater survey outside the coral barrier to the north of the old harbor site:**

A survey of the northern and north western regions was carried out more than 3 km outside the coral barrier; the survey was conducted using diving equipment and rubber boat (zodiac).



The first diving was outside the barrier at a depth of about 6 m with the current direction and the survey along the coral coast and move away about 50 m from the coral barrier in the eastern direction and there is a team continued the survey along the barrier to the south slightly and the other team made the survey to the coral barrier to the harbor and it was found that

most of the bottom is sandy with a soft and solid coral reef with no existence of any archaeological evidence.

More than 35 hours of diving took place in depths ranging from 8 m to 2m.



## **Second: - the underwater excavations.**

The excavation site was located in the northeastern corner of the pier, a sandy area with a depth of 50 cm and the top of the docks about 2 m depth.



This site was chosen as the basis of extending the sondages to be conducted in the coming seasons. A rope was put in the location with a length of about 30 m from the east to the west and another rope with a length of 15 m from the north to the south where there are many anchors deployed on the site and a sondage has been identified in the east.



To the south of the main line at 7 m from the point p11 with dimensions 3m x 3m and a hydro lift was used in the excavation where it was installed on the zodiac and moved by the team work to identify the wanted location.



Beside the underwater excavations a hand Fanning survey was carried out to reveal under the surface of the sandy bottom to the north and to the west of the main line there was an orange colored pottery sherd was found.



### **The first sondage (the eastern sondage): -**

It was located to the south from the Base line, the excavation was by layers, the first layer is a sandy layer followed by a light yellow sandy layer, this layer resulted in the presence of small fragments of wood and then the sedimentary layer which are known as the clay layer but they are gray sedimentary sand that contains some archaeological elements such as the pottery sherds



Where it is similar to excavations on the surface of earth and some fragments of wood and about 2 m to the west found the remains of a wide rope in the gray layer which was well preserved despite its deteriorating state so it was left in the same place and it was photographed.



The sondage was completed to reveal what is below the sedimentary sand layer and at a depth of 80 cm from the layer where we found the rope; the team reached a layer of broken coral reefs that found a whole layer of the same type of reefs.



In this layer nothing was found except those dead reefs, the area of this sondage was about 3m x 3m south of the main line between p11-p12.

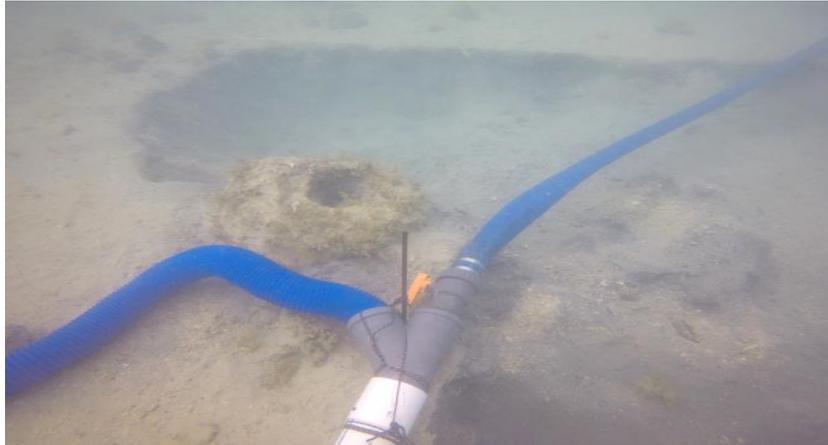
Hydro lift has been used to pull the sand out of sondages.

**The second sondage (the western sondage): -**

It is located in the west and far end of the Base line near the stone anchor.

This sondage was divided into two parts north and south of the Base line.

The team began to work in the southern section neighboring to the stone anchor.



And fragile wooden remains were found below the sandy layer specify in the gray layer.



some blocks of stone with different sizes were also found which may belong to the old barrier where it was found in the sand during the excavation and thus the total area of the sondage is about 4m x 4m.



### **Third: - The topographic.**

Finally, the site was mapping and specifically for some topographic points of the Base line through which the archaeological finds location was found during the excavation of the above mentioned sondages in order to integrate this underwater map with the main map of the old harbor site.

Some points like P11- P12-P13 with a length of 27 m from east to west then point p14 to the south from point p13, as for p15 to p16 toward to north to south by 15m and far 7m to the west from point p11 and all points were raised using a total station according to the French mission and locate the cord , the pottery sherds site and the coral reefs site in the eastern sondage and also the stone anchor location in the western sondage.

### **Four: - results.**

The central department of underwater archaeology worked for a week on the underwater archaeological site of the ancient harbor. The target of this season focused on an archaeological survey inside and outside the coral barrier in the north and north west of the harbor as well as the survey inside the barrier, then the excavations in the site which was located in the corner of the north barrier which is characterized by the presence of a sandy bottom and the drilling resulted in the presence of wooden remains, fragments or small pieces mixed with sand and some of black and orange pottery sherds but the most important discovery of this season is the exhausted twisted rope which may have a stretch to an anchor or other.

Working hours exceeded more than 80 hours for the team underwater.

**These preliminary excavations in preparation for the work of the next seasons on the site** to conduct a careful study of the barrier below the surface of the water and doing regular excavations within the inner barrier basin to discovery the remains of shipwrecks or archaeological finds to complete the study of the maritime harbor.