Journal of Association of Arab Universities for Tourism and Hospitality (JAAUTH)

journal homepage: http://jaauth.journals.ekb.eg/

Motivations and Attitudes of Egyptian Divers in Underwater Cultural Heritage Sites

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ARTICLE INFO

Keywords:

Underwater Cultural Heritage; Shipwrecks; Submerged Ruins; UCH divers; Recreational Scuba Diving.

(JAAUTH) Vol.22, No.2, (2022), pp.334 -347.

Abstract

Egypt is bordered to the east by the Red Sea and to the north by the Mediterranean Sea in addition to the Nile and many lakes. This unique location implies the richness of its underwater cultural heritage (UCH). Divers increasingly visit UCH sites; therefore, this attitude requires achieving a balance between heritage preservation and tourism activities at these sites to ensure high quality diving experiences while protecting UCH. Data including 155 divers has been obtained by using a self-completed questionnaire. This questionnaire was available in an electronic web-based format and hard copy. The survey was divided into four main sections. These sections are socio-demographic characteristics which include three items, dive experience which include three items, motivations for diving in UCH sites which involve 10 items and attitudes to management controls to protect UCH sites containing nine items. Closed questions have been used for socio-demographic and dive experience questions. Five point Likert scale has been used to rate the relative importance of motivations for UCH diving and divers' attitudes. Statistical package for social sciences (SPSS program V 24) software has been used to analyze survey data. Comprehensive understanding of behaviors, motivations and characteristics of the diver of UCH sites is an integral part of effective management. The majority of divers support management controls in order to protect UCH. Therefore, management strategies including management controls need to be addressed in the light of divers' motivations and attitudes for the purpose of increasing divers' awareness of the importance of UCH sites and stimilating appropriate behavior when visiting these sites.

1. Introduction

Egypt is bordered to the east by the Red Sea and to the north by the Mediterranean Sea (Agrawala et al., 2004), in addition to the River Nile and many lakes. This unique location has led to rich UCH (Shaikhon, 2021). Despite this unique location, the Department for Underwater Antiquities (DUA) has not been established in Egypt until 1996. It is noteworthy

that there are many discoveries that led to the existence of this organization concerning the remains of the submerged lighthouse of Alexandria at the foot of Qaitbay Citadel and the part of the royal quarter in the eastern port in 1994 and 1996. Alexandria has been chosen to be headquarters of the DUA under the supervision of Egyptology sector in the Supreme Council for Antiquities. Since 1996, the DUA has supervised several archaeological surveys and studied different sites in the Mediterranean Sea, the Red Sea, the River Nile, Nelson's Island, Lake Mareotis and Lake Qarun. These discoveries date back to ancient Egypt, Hellenistic, Roman, Byzantine and Islamic periods (Abd El Maguid, 2012).

Recreational scuba diving has been developed since the mid-1940s (Edney et al., 2021a). Diving industry has exponentially grown into a multi-billion dollar industry (Albayrak et al., 2019; Lucrezi et al., 2016). Accordingly, diving tourism has recently become an important part of the global tourism industry. Behaviors involving physical contact by divers or using their equipment with UCH negatively impact cultural heritage values of underwater sites. Understanding the behavior of divers at UCH sites leads to achieve a balance between the requirements for cultural heritage protection and the provision of high-quality wreck diving experiences (Edney et al., 2021a).

1.1.Research Importance

Diving in UCH sites offers more diverse and challenging diving experiences that skilled and experienced divers seek, so UCH has become an important recreational and tourism resource. The extensive use of UCH sites by divers might negatively affect the values of their cultural heritage. In other words, the more the number of divers visiting the UCH sites, the more the negative effects on these sites have appeared. These negative impacts can be realized obviously in those sites that have received multiple visits.

In order to achieve an effective management of UCH sites, the study aims to demonstrate the characteristics and motivations of divers who use these sites and reveal their attitudes towards various management controls to achieve a balance between protecting UCH sites and gaining professional diving experiences.

1.2.Objectives

The research objectives are as follows:

1. Studying UCH in Egypt.
2. Investigating impacts of recreational scuba diving on UCH Sites.
3. Analyzing motivations and behaviors of UCH divers.
4. Setting recommendations to Egyptian divers in order to achieve a balance between heritage preservation and tourism.

1.3.Study Questions

1- What are the motivations of divers for diving in UCH sites?

2- Are there statistical differences in these motivations according to gender?

3- What are divers' attitudes towards management controls over UCH sites?

4- Is there statistical relationship between motivations for diving in UCH sites and divers' attitudes towards management controls over these sites?

5- Are there statistical differences in divers' attitudes to management controls over UCH sites according to certification level?

2. Literature Review

2.1.The Forms and Importance of UCH

The United Nations Educational, Scientific and Cultural Organization (UNESCO) 2001 convention on the protection of (UCH) have declared that UCH includes all traces of human existence having archeological, cultural or historical character which have been totally or partially under water, continuously or periodically, for at least 100 years (Varinlioglu, 2016; Khakzad, 2014; Linde et al., 2012; Egede, 2011) as mentioned below:

1- Artifacts, buildings, structures human remains and sites, together with their natural and archaeological context.

2- Aircraft, vessels, other vehicles or any part thereof, their cargo or other contents, together with their natural and archaeological context.

3- Objects of prehistoric character (Leary et al., 2021; Alvaro, 2014).

UCH sites are highly remarkable in order to understand the development of human civilization. Historic shipwrecks and sunken cities provide vital information to reveal past cultural exchanges, trade, and local life. Moreover, these sites have cultural, social, aesthetic and environmental significance. Besides, it provides an opportunity for sustainable development and cultural enrichment for a tourist destination. In addition, it is an attractive and interesting form to wreck divers because of the atmosphere of mystery that surrounds it, its underwater location and the stories it symbolizes (UNESCO Secretariat, 2001).

2.2.UCH Sites in Egypt

Archaeological research has revealed the presence of many submerged archaeological sites, whether or not they have been archaeological remains, sunken cities, or ancient shipwrecks. This clearly represents that Egypt is rich in UCH.

2.3.The Red Sea

In the Red Sea, there are several shipwreck sites that provide astonishing and unique diving experiences that attract divers. Shipwrecks are tangible remains of events of cultural and social significance. Stories associated with shipwreck events have caught divers' interest. Shipwrecks represent an important component of underwater cultural heritage. Technological advances, including scuba global positioning systems, remote sensing and remotely operated vehicles have increased access to shipwreck sites. Shipwrecks are underwater museums that reflect characteristics, culture and behavioral patterns of individuals on board. Shipwrecks may have historical values as a result of the ship's participation in historical events (Edney, 2006).

Shipwrecks are often associated with the death of on-board passengers. Therefore, these shipwrecks are memorials associated with war and referred to as war graves (Firth, 2018). Seeing a shipwreck at the bottom of the sea informs divers about the history of the ship and the events that have led to its damage. Diversity and abundance of marine life attached to the wrecks, the presence of the ship's cargo and personal belongings of on –board passengers attract the attention of divers to the wrecks (Edney, 2006). The most important shipwrecks in the Red Sea include:

2.3.1. S.S. Thistlegorm

S.S. Thistlegorm was a ship in the British Merchant Navy. It was built in 1940 and sank in 1941 during World War II after a German air attack. It is located in the north of the Red Sea in the Strait of Gubal (Grignard, 2013) where it is one of the best diving regions in the world. A large wreck is located at a height of 30 meters. One dive is not enough to explore the wreck. It carries a shipment of war materials such as rifles, motor bikes, train carriages,

trucks, lorries, aircraft spares, airfield equipment, the remains of shattered vehicles, armored vehicles and boxes of ammunition. S.S. Thistlegorm is an underwater museum that attracts thousands of divers every year (Brown et al., 2020).

3.2.2. S.S. Carnatic

S.S. Carnatic was a British merchant ship. It was a steamer and a sailing ship built in 1863 by the Samuda Brothers for the Peninsular and Oriental Steam Navigation Company. It sank in 1869 in the Strait of Gubal (Harrison, 2007) on the north side of Abu Nuhas Reef. It is classified as the most beautiful wrecks in the region. It has been decorated, with nearly 150 years of coral growth, in brilliant and attractive colors (Collings, 2010).

3.2.3. Giannis D

Giannis was built in 1969 by Kuryshima Dock Company of Imabari. Japan as a general cargo vessel, its name was Shoyo Maru. In 1975, it was sold and renamed Markos. In 1980, it was sold again to Dumarc Shipping and Trading Corporation, Piraeus, Greece and renamed Giannis D (Jones, 2012). It sank in 1983 (Hanauer, 1988) on its way with a cargo of wood from Croatia to Saudi Arabia. Giannis D is located in the Strait of Gubal north of Abu Nuhas Reef (Bourbeillon, 2020).

There are several shipwrecks in the Red Sea such as Eltor Elarsh, M.V. Sarah, Salem Express, M.V. Kimon M and S.S. Ulysses (Collings, 2010).

2.4.Alexandria

In 1908, a French engineer Malaval, director of harbors and lighthouses of Alexandria, discovered a submerged port installation at Dekhela located in west of Alexandria (Abd El Maguid, 2012). In 1910, Gaston Jondet discovered ancient harbor structures located in west of Pharos Island while studying the possibility of expanding the western port of Alexandria. In 1933, in Abu Qir, east of Alexandria, an underwater archaeological site was discovered when a British pilot noticed from his plane a number of submerged ruins lying under water in the Gulf. Prince Omar Towson, a member of the Royal Archaeological Society in Alexandria, searched the region where the marble head of Alexander the Great was found. It is now displayed in the Greco-Roman museum in Alexandria (Ruppe and Barstad, 2002).

During 1933 and 1942, Towson undertook a number of exploratory missions that uncovered several archaeological remains and discovered the sites of the city of Herakleion and the city of Menouthis (Abd El Maguid, 2012). In 1961, Kamel Abu El- Saadat, a sports diver and spear fisherman, discovered the most important sites of Alexandria. He noticed stone ruins at the foot of Qaitbay Citadel, east of ancient Cape Lochias. Then Abu El-Saadat drew maps of these discoveries and handed them to the Greco-Roman Museum. These maps locate Antirhodos Island, the archaeological remains around Cape Lochias, the city of Menouthis, the city of Herakleion and shipwrecks of Napoleon's fleet (Ruppe and Barstad, 2002). Abu El-Saadat continued to discover more underwater archaeological remains until 1980_S.

In 1986, the French Navy, in cooperation with the Egyptian Navy, discovered the wrecks of Napoleon's fleet in Abu Qir Bay, L'orient, the flagship ship of Napoleon's fleet, Le Guerrier, L'Artemise and La Serieuse. Le Patriote shipwreck was also located at a depth of 4 meters near the Agami, west of Alexandria, within a research ship that accompanied Napoleon's expedition (Abd El Maguid, 2012).

In 1994, a team of archaeologists at the Centre d'Etudes Alexandrines (CEA), in cooperation with the Egyptian Supreme Council of Antiquities (SCA), began an extensive survey of the Pharos site, and more than 3,000 artifacts of ancient Egypt columns, obelisks, lintels, papyri form and sphinxes were documented. In addition, the survey involved a huge

collection of Greco-Roman columns, bases, capitals and statues in granite, diorite, marble, quartzite and basalt. The site also contains blocks that belonged to the lighthouse and the remains of some buildings located on the island of Pharos, such as the Temple of Isis Pharia. Moreover, in Alexandria, several shipwreck sites have been discovered such as Qaitbay 1, Qaitbay 1 East, Qaitbay 2 and Qaitbay 3. These sites contain several artifacts such as stamped rhodian, broken lambogliall, stone and iron anchors and Cretan amphorae (Ruppe and Barstad, 2002).

2.5.Northwest

In 1996 and 1998, the Institute of Nautical Archaeology, in Egypt (INA), in cooperation with the Supreme Council of Antiquities (SCA), conducted surveys of shipwrecks on a region of 200 km between Sidi Abd El-Rahman and Umm El-Rakhm. Some sites contain archaeological evidence, such as Roman tombs and the temple-fortress of Ramses II in Umm al-Rakhm (Ruppe and Barstad, 2002).

2.6.Managing the Negative Impacts of Recreational Scuba Diving on UCH Sites

Divers increasingly visit underwater wreck sites. This attitude requires achieving a balance between heritage preservation and tourism activities in these sites. Achieving this balance leads to ensure high quality diving experiences while protecting the UCH. Wreck diving offers more diverse and challenging experiences that professional divers seek. It offers the opportunity to see archaeological wreck sites, historic shipwrecks, artifacts and marine life. The use of wreck sites by divers reduces the values of their cultural heritage due to the negative impacts of recreational scuba diving on these sites (Edney et al., 2021b). Negative impacts associated with recreational scuba diving include the removal of artifacts as souvenirs , direct contact with wrecks and protective marine growth by divers and their equipment, exhaled air bubbles reaching the wrecks and boat anchor and mooring damage (Edney, 2006).

Wreck divers are looking for certain types of experiences such as seeing historically important shipwrecks, artifacts, a large variety of marine life, and enjoying the peace and quiet of the underwater environment. Wreck divers are often older and more experienced. They have higher levels of certification since wreck diving is considered more challenging than normal diving. Wreck divers require higher levels of experience, training, and skills in order to safely participate in this activity. Management controls such as permits, special certification, penalties and the use of underwater guides are crucial tools that can be used at underwater wreck sites to confirm that cultural heritage values are not compromised and to prevent illegal behavior. These controls require all divers to be accompanied by licensed diving guides when diving on the wrecks. A comprehensive understanding of characteristics, motivations and behaviors of UCH divers is an integral part of effective management for the protection of UCH (Edney and Howard, 2013).

3. Methodology

Data from 155 divers has been obtained using a self-completed questionnaire available in an electronic web-based format and a hard copy. The survey has been divided into four main sections. Firstly, socio-demographic characteristics contain three items. Secondly, dive experience includes three items. Thirdly, motivations for diving in underwater cultural heritage sites involve 10 items. Finally, attitudes to management controls to protect underwater cultural heritage sites include nine items. Closed questions with checklists have been used for socio-demographic and dive experience questions, and five point Likert scale has been used to rate the relative importance of motivations for UCH diving and diver attitudes (Edney, 2011). Statistical package for social sciences (SPSS program V 24) software has been used to analyze survey data. Data analysis has included several statistical

techniques. These techniques are frequencies table, bar chart, descriptive statistics, Pearson correlation coefficient, independent sample t –test and ANOVA test.

4. Results and Discussion

A) Socio-demographic Profile

Gender

This question aims to show the distribution of sample according to the gender.

Table 1

The distribution of sample according to the gender

Attribute	Frequency	Percent
Male	149	96.1
Female	6	3.9
Total	155	100.0

Data tabulated in Table 1 shows that 96.1% are male divers, while 3.9% are female divers. This result clearly implies what has been stated by Edney et al. (2021b) that UCH divers were mostly male.

Age

This question clarifies the distribution of sample according to age.

Table 2

The distribution of sample according to age

Attribute	Frequency	Percent
15-29	31	20.0
30-49	114	73.5
50-69	10	6.5
Total	155	100.0

The result in Table 2 shows that people at the age of 15-29 represent 20%. People at the age of 30-49 represent 73.5%. Finally, people aging 50-69 are 6.5%. This result agrees with Professional Association of Diving Instructors (PADI) which has confirmed that the minimum age for diving in UCH sites is 15 years (PADI, 2007). In addition, Edney and Howard (2013) have stated that UCH divers tend to be older.

Level of education

The question aims to find out the distribution of sample according to level of education.

Table 3

The distribution of sample according to level of education

Attribute	Frequency	Percent
High school	13	8.4
Bachelor	102	65.8
Post graduate	40	25.8
Total	155	100.0

As clearly shown in Table 3, the majority of divers, showing 65.8%, are Bachelor holders, while 8.4% of divers go to high school. The rest of the sample (25.8%) are post graduates. Edney et al. (2021b) have confirmed that UCH divers have high levels of education.

B) Diving Experience

Diving Years

This question clarifies the distribution of sample according to diving years.

Table 4
The distribution of sample according to diving years

Attribute	Frequency	Percent
Less than 10	101	65.2
10-20	32	20.6
21-30	16	10.3
More than 30	6	3.9
Total	155	100.0

Table 4 indicates that the majority of divers, showing 65.2%, have been diving for less than 10 years, while 3.9% have been diving for more than 30 years. This result is not consistent with Edney and Howard (2013), who have stated that UCH divers are the most experienced divers. The majority of divers in accordance with the years of diving are less than ten years.

The highest level of certificate

This question aims to demonstrate the distribution of sample according to the highest level of obtained certificates.

Table 5
The distribution of sample according to the highest level of certificate

Attribute	Frequency	Percent
Advanced open water diver	44	28.4
Adventure diver	4	2.6
Rescue diver	20	12.9
Master scuba diver	7	4.5
Dive master	27	17.4
Assistant instructor	4	2.6
Open water scuba instructor	27	17.4
Master scuba diver trainer	11	7.1
Master instructor	7	4.5
Course director	4	2.6
Total	155	100.0

Data tabulated in Table 5 shows that 28% of divers are certified as advanced open water divers, while 2.6% have adventure diver certificate. Data also reveals that 12.9% have rescue diver certificate, besides divers who have master scuba diver and master instructor certificate represent 4.5% of the study population, surprisingly, divers who have the certificate of dive master and open water scuba instructor have the same percentage, 17.4% and assistant instructor certificate is gained by 2.6%, additionally, master scuba diver trainer certificate has been obtained by 7.1%. The rest of the divers who have course director certificate represent 2.6% of the total study sample. Edney et al. (2021b) have confirmed that UCH diving offers more diverse and challenging experiences that professional and skilled divers seek. The following figure 1 illustrates this result too.

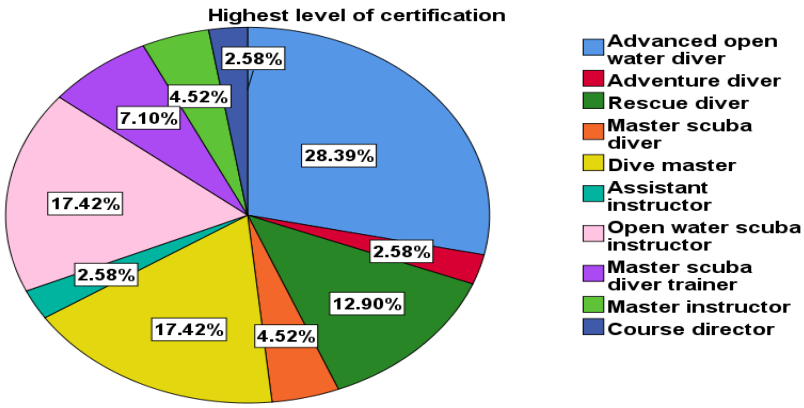

Fig.1. The distribution of sample according to the highest level of certificate

Number of dives

This question aims to demonstrate the distribution of sample according to the number of dives.

Table 6

The distribution of sample according to the number of dives

Attribute	Frequency	Percent
Less than 50	33	21.3
50-100	28	18.1
101-150	16	10.3
151-200	9	5.8
More than 200	69	44.5
Total	155	100.0

Table 6 shows that the percentage of divers whose dives are less than 50 is 21.3%. Divers whose dives are from 50 to100 represent 18.1%, while 101-150 dives represent 10.3% of the total study sample. The percentage of divers whose dives are from 151to 200 is 5.8%, the rest of the total sample (44.5%) represent divers whose dives are more than 200. This result is consistent with Edney and Howard (2013), who have emphasized that UCH divers need higher level of skills and experiences in order to participate safely in this activity. These results are illustrated in the following figure 2.

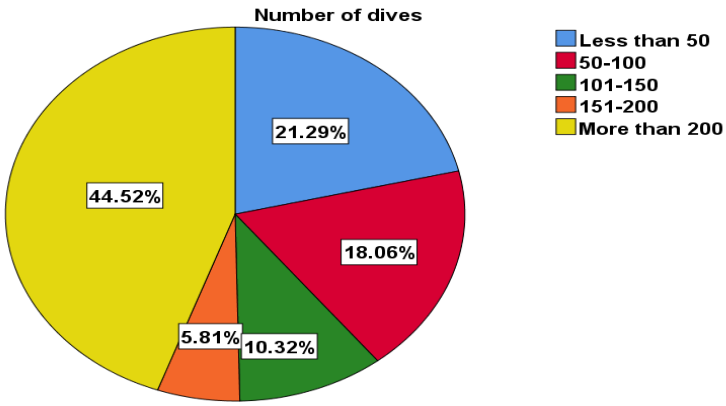

Fig.2. The distribution of sample according to the number of dives

C) Motivations for diving in UCH sites

The following table clarifies the distribution of sample according to motivations for diving in UCH sites.

Table 7
Motivations for diving in UCH sites

Attribute	Freq	Mean	S. D	Attitude
Seeing sunken ruins	155	4.64	0.623	Strongly Agree
Seeing historically significant shipwrecks	155	4.73	0.514	Strongly Agree
Seeing artifacts	155	4.31	0.857	Strongly Agree
Seeing marine life	155	4.43	0.904	Strongly Agree
Peace and tranquility of the underwater environment	155	4.39	0.907	Strongly Agree
Penetrating a wreck	155	3.70	1.265	Agree
Researching or learning more about shipwrecks or ruins	155	4.54	0.723	Strongly Agree
Photography	155	4.36	0.867	Strongly Agree
Observing the effects of time on UCH sites	155	4.21	0.947	Strongly Agree
Collecting artifacts	155	2.43	1.533	Neutral
Motivations for diving in UCH sites	155.00	4.17	0.50	Agree

Data tabulated in Table 7 shows that seeing sunken ruins, seeing historically significant shipwrecks, seeing artifacts, seeing marine life, peace and tranquility of the underwater environment, researching or learning more about shipwrecks or ruins, photography and observing the effects of time on UCH sites are highly considered with the population sample who strongly agreed to visit UCH sites for all these attributes. While penetrating a wreck comes in second place as it is agreed upon by the study sample to be a secondary motivation for their visit to UCH sites. Additionally, collecting artifacts is a neutral motivation for the study population to visit UCH sites. Finally, the illustrated attributes are agreed upon by the population sample to be motivations for diving in UCH sites.

D) Divers' attitudes to management controls over UCH sites

The following table shows the distribution of sample according to divers' attitudes towards management controls over UCH sites.

Table 8
Divers' attitudes towards management controls over UCH sites

Attribute	Freq	Mean	S. D	Attitude
Severe penalties should be imposed on some divers who take things from UCH sites	155	4.81	0.548	Strongly Agree
Divers should be required to have permissions to dive in some UCH sites	155	3.86	1.355	Agree
Only divers who have special certificates should be allowed to dive in UCH sites	155	3.85	1.363	Agree
An underwater guide should control what visitors do	155	4.52	0.784	Strongly Agree
Some accessible shipwrecks or ruins should be off-limits to divers	155	2.75	1.462	Neutral
A dive briefing is enough to control divers' behavior	155	3.79	0.998	Agree
Border guards should check divers' bags upon their return from UCH sites	155	3.74	1.320	Agree
Determining the daily number of divers at	155	3.85	1.293	Agree

UCH sites				
There should be no controls over what divers do on UCH sites	155	2.40	1.553	Disagree
Divers' attitudes towards management controls over UCH sites	155.0	3.7	0.6	Agree

Mean from 1 to 1.79 shows Strongly Disagree. Mean from 1.80 to 2.59 shows Disagree. Mean from 2.60 to 3.39 is Neutral. Mean from 3.40 to 4.19 refers to Agree. Mean from 4.20 to 5 shows Strongly Agree.

Table 8 shows that severe penalties should be imposed on some divers who take things from UCH sites, and an underwater guide should control what visitors do are strongly agreed upon by the study sample as main management controls over UCH sites. The attributes of divers should be required to have permits to dive some UCH sites, only divers who have special certification should be allowed to dive in UCH sites, a dive briefing is enough to control divers' behavior, border guards should check divers' bags upon their return from UCH sites and determining the daily number of divers at UCH sites are agreed upon by the study population as management controls over UCH sites. The attribute of some accessible shipwrecks or ruins should be off-limits to divers is 'neutral' choice for the population sample. The attribute of there should be no controls over what divers do on UCH sites is rejected by the study sample. The attributes of divers' attitudes towards management controls over UCH sites are agreed upon by the study population. This result is consistent with Edney et al. (2021b), who have stated that most divers support management controls to protect UCH.

Correlations analysis:

The following table shows correlations matrix between motivations for diving in UCH sites and divers' attitudes towards management controls over UCH sites.

Table 9

Correlations matrix between motivations for diving in UCH sites and divers' attitudes towards management controls over UCH sites

Correlations		
		Motivations for diving in UCH sites
Divers' attitudes to management controls over UCH sites	Pearson Correlation	.426**
	Sig. (2-tailed)	0.000
	Frequency	155
**. Correlation is significant at the 0.01 level (2-tailed).		

Table 9 shows that there is a significant positive medium relationship between motivations for diving in UCH sites and divers' attitudes towards management controls over UCH sites where Pearson Correlation is .426** (between 0.4-0.6) and Sig = 0.000, It is less than 0.05 = α

Independent sample t –test:

The following table shows whether or not there are significant differences in motivations for diving in UCH sites according to gender

Table 10
Motivations for diving in UCH sites according to gender

Gender		N	Mean	S. D	T	Sig. (2-tailed)
Motivations for diving in UCH sites	Male	149	41.71	5.078	-0.297	0.767
	female	6	42.33	3.502		

The data tabulated in Table 10 explains that there are no significant differences in motivations for diving in UCH sites, according to gender. The value of Sig =0.767 is more than 0.05 = α. This result is not consistent with Edney (2011) who has found that there are significant differences between genders due to motivations for diving in UCH sites.

ANOVA test:
The following table shows whether or not there are significant differences in divers' attitudes to management controls over UCH sites according to the highest level of certificate.

Table 11
Divers' attitudes to management controls over underwater cultural heritage (UCH) sites according to the highest level of certificate

ANOVA					
Divers' attitudes to management controls over UCH sites					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	329.781	9	36.642	1.077	0.383
Within Groups	4932.503	145	34.017		
Total	5262.284	154			

The data tabulated in Table 11 explains that there are no significant differences in divers' attitudes to management controls over UCH sites, according to the highest level of certificate. The value of Sig =0.383 is more than 0.05 = α. This result is consistent with Edney et al. (2021b) who have stressed the importance of achieving a balance between heritage preservation and tourism activities through management controls in order to protect the UCH sites.

5. Conclusion

This study highlighted that UCH divers are mostly males, middle-aged and well-educated since most of them hold a bachelor's degree. In addition, most divers have practiced diving for less than ten years, and few divers have practiced diving for more than 30 years. The highest level of diving certificate varied among divers. Most of them hold advanced open water diver certificate. Moreover, few of them hold a course director degree, which is the highest level of diving certificate. The study also demonstrated that the majority of divers have dived more than 200 times; therefore, they are experienced divers to dive in UCH sites.

Divers have agreed upon a number of motivations for diving in UCH sites. These motivations include seeing sunken ruins, seeing historically significant shipwrecks, seeing artifacts, seeing marine life, peace and tranquility of the underwater environment. Divers may negatively influence UCH sites since few divers have been motivated to collect artifacts. Consequently, few divers are involved in activities that threaten UCH sites. Unfortunately, they may not be aware of the consequences of disturbing or moving artifacts, yet the majority did not accept this attitude.

This study showed that some administrative controls, including penalties, permits, special certificates, diving guides, etc., can be acceptable to divers. However, few divers have agreed that there should be no controls over what divers do in UCH sites. Therefore, management

strategies including management controls need to be addressed in the light of divers' different motivations and attitudes for the purpose of increasing divers' awareness of the importance of UCH sites and stimulating appropriate behavior when visiting these sites.

6. Recommendations for Egyptian divers

1. Protect UCH for the sake of future generations in response to sustainability principles.
2. Protect wrecks and submerged ruins from damage in case visitors or divers want to take items, as souvenirs, from the wrecks. It is better to place (No Touch) sign.
3. Follow legal protection rules of UCH sites. Understand the applicable regulations before diving.
4. Seek permission to dive in UCH sites in order to avoid hazards.
5. Respect measures that protect UCH sites such as metal cages, sand layers and sonar buoys. These measures are placed over UCH sites to protect them.
6. Report any discoveries to the responsible national authorities.
7. When taking photos, avoid touching UCH sites. The camera is not a license to move or endanger artifacts.
8. Stay safe. Respect the appropriate safety and health requirements when diving in UCH sites. Pay attention to depth, time and currents and do not enter cavities without taking the highest safety precautions.
9. Be a role model for other divers and the local community when diving in submerged heritage sites and encourage other divers to follow the Code of Conduct.
10. Spread the awareness of the importance of preserving and protecting UCH sites.

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(JAAUTH)
الموقع الإلكتروني: http://jaauth.journals.ekb.eg/

دوافع ومواقف الغواصين المصريين في مواقع التراث الثقافي المغمور بالمياه

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معلومات المقالة

الكلمات المفتاحية

التراث الثقافي المغمور بالمياه؛ حطام السفن؛ الآثار المغمورة؛ غواصين التراث الثقافي المغمور بالمياه؛ الغوص الترفيهي.

(JAAUTH)
المجلد ٢٢، العدد ٢، (٢٠٢٢)، ص ٣٣٤-٣٤٧.

الملخص

مصر يحدها من الشرق البحر الأحمر ومن الشمال البحر الأبيض المتوسط بالإضافة إلى نهر النيل والعديد من البحيرات. الأمر الذي يعنى ثراء تراثها الثقافي المغمور بالمياه. زيادة الطلب من قبل الغواصين لزيارة مواقع التراث الثقافي المغمور بالمياه يتطلب تحقيق التوازن بين الحفاظ على التراث الثقافي المغمور بالمياه والسياحة في هذه المواقع لضمان تجارب غوص عالية الجودة. فهم خصائص ودوافع الغواصين وموقفهم من ضوابط الإدارة المختلفة لحماية مواقع التراث الثقافي المغمور بالمياه يساعد على تحقيق هذا التوازن. تم توزيع استمارة استبيان على ١٥٥ غواصاً لفهم تلك الدوافع والمواقف من ضوابط الإدارة المختلفة. تم تقسيم الاستبيان إلى أربعة أقسام رئيسية. هذه الأقسام هي خصائص اجتماعية وديموغرافية تشمل ثلاثة عناصر وتجربة الغوص والتي تشمل ثلاثة عناصر ودوافع الغوص في مواقع التراث الثقافي المغمور بالمياه والتي تتضمن عشر عناصر ومواقف الغواصين من ضوابط الإدارة لحماية مواقع التراث الثقافي المغمور بالمياه والتي تحتوي على تسعة عناصر. الفهم الشامل لسلوكيات ودوافع وخصائص غواص مواقع التراث الثقافي المغمور بالمياه يعد جزءاً لا يتجزأ من الإدارة الفعالة ومن أهم النتائج التي توصلت إليها الدراسة أن غالبية الغواصين يدعمون ضوابط الإدارة من أجل حماية التراث الثقافي المغمور بالمياه لذلك يجب أن تكون استراتيجيات الإدارة مصممة خصيصا لدوافع ومواقف الغواصين وأهمية تنفيذ هذه الضوابط جنباً إلى جنب مع زيادة وعى الغواصين بأهمية مواقع التراث الثقافي المغمور بالمياه والسلوك المناسب عند زيارة هذه المواقع.