



A Study of Fauna Assemblages of islands selected from Shatt AL-Arab River

Ayat H. Ali*; Usama Q. Khaleefa* and Rasha Abd. Al_Ali**

*Department of Geology, College of Sciences, University of Basrah, Iraq.

** College of Marine Science, University of Basrah, Basrah, Iraq.

** corresponding author = ayathassan003@gmail.com

Abstract

The study area consists of three islands: Muhammadiya Island and Sinbad Island, north of the city of Basra, and Al-Salihiya Island, located on the east side of the Shatt al-Arab, which has tributaries on both sides of the canal. Four stations each were taken from Salhiya and Sinbad Islands, and five stations were taken from Mohammedia Island. Through our study of the fauna found in the study area, 11 species were identified. Foraminifera were identified as six genera, five subfamilies, five family, 4 super family and the most prominent of which was *Elphidium advenum*. Mollusca was found in the study area and was represented by (Gastropoda, pelecypoda), where the Gastropoda person in the study area consisted of 10 superfamilies, 15 families, 3 subfamilies, 17 genera, and 18 species. The most prominent of these is *Bellamya bengalensis*. As for the pelecypoda, there are eight superfamilies, 11 families, 3 Subfamily, 12 genus, and 12 species, the most prominent of which is *Umbonium vestiarium*. The results showed that Gastroboda had a low incidence on the islands of Salhiya and Mohammedia but was abundant on the island of Sendbad. The conch species on Sinbad Island are diverse, indicating nutrient availability and suitable conditions for survival. These species are *Umbonium vestiarium*, *Turriteia* sp, *Ancilla ampla*, *Alvania lacteal*, *Alvania rykelii*, *Melina* sp., *Vivparous dubiosus*, and *polinices* sp. Foraminifera were present in varying numbers on all islands, and one of the most important genera in the study area was Ammonia. One of the most important species found in the study area was *E. excavatum*, which refers to lagoonal environments and estuarine areas with salinities above 15‰ and is also present in swamps.

Keywords: Shatt al-Arab River, fauna, island

Introduction

The Shatt Al-Arab River is characterized by the presence of many islands and subsidiary irrigation channels on both sides of the river. The Shatt Al-Arab River forms the southern and southeastern parts of the Mesopotamia Basin. There are several

islands in this area, some of which are located on the Iraqi side and others on the Iranian side of the river. This study aimed to examine the knowledge of fauna and the environment in which they live. This can be used to determine the environments in which these faunae lived and, thus, to understand ancient environments. The presence of these

aggregates is dependent on foraminifera and molluscs, and their percentages vary on each island. This variation may be due to differences in aquatic environments, salinity, and sediment structure in the study area, and due to lack of nutrient content due to oxygen and nutrient deficiencies leading to stunted growth in some species. Each group is represented by a taxonomic study that identifies the species and genera belonging to these groups. AL-Jaberi and Mahdi (2020) studied the fauna in the Karmat Ali deposits and mentioned that foraminifers, ostracods, molluscs, and radiolarians were the most common fossils in the study area. Hudson et al. (1957) investigated ostracods and molluscs up to the Al-Hammar formation near Basra.

Materials and Methods:

In this study, 26 surface samples were collected, distributed over the study area, 8 samples each from Sinbad Island and Al-Salihiya Island, and 10 samples from Al-Muhammadiyah Island, with two depths, one of which is 35 cm and the other 100 cm. In the laboratory, 50 g of the original dry sample was washed with distilled water in a wet sieve with a (0.063 mm) sieve, and the remainder on the sieve was dried in a drying oven at 100 °C. Fauna in the sediment were picked out with special brushes under a microscope, then fixed under a special microscope, and examined with a binocular microscope to determine their species. Diagnosis of animals based on the newly approved classification for identifying foraminifera established by Keen and Coan (1974), Moore (1969) for Mollusca Loeblich and Tappan (1988) and for ostracods by Pires (1969) Classification.

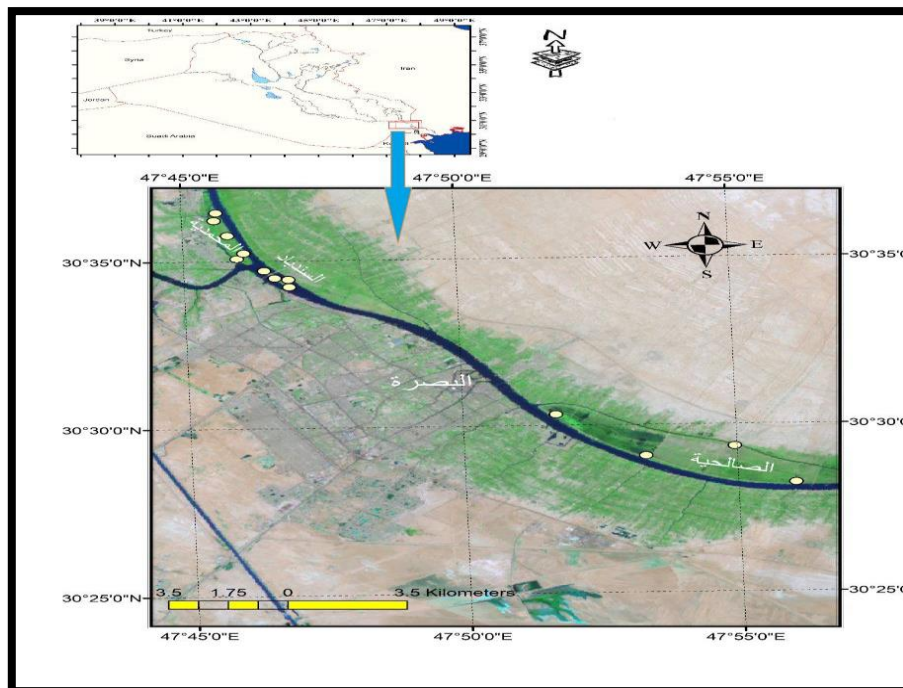


Fig.1: location map of the studied area

Results:

The purpose of paleontology is to identify the most important assemblages of fauna in the study area. The fauna is based on two main groups (Foraminifera and Mollusca).

1.Foramnifera:

In this study, the basic classification according to Loeblich and Tappan (1988) was used (Table.1). The classification depends on the shell shape, number of coils, chambers, and shape of the apparatus. The most important species in these studies were:

**Ammonia*

Ammonia beccarii , *A. tepida*

This species is found in brackish and marine environments with temperate at (15–30 °C). and are found in shallow areas.

** Buccella frigida, Lobaluta lobulata.*

These species reflect lagoon environments. It is found on Sendbad Island. (pl.2).

**Elphidium*

E.advenum , *E.incertum* , *E.excavatum* , *E.lessonii* , *E.poeyanum*.

The Genus *Elphidium* are found in shallow areas not exceeding 20m (Javaux & scott, 2003). and found in saline environments of up to 30% up to 50 m. (pl.1)

**Triloculina*

T.rotunda , *T.laevigata* , *T.trigonul*

These species are indicative of low-energy marine waters and shallow marine environment (Kumar et al., 2011), and these species were found only on Sinbad Island and in large numbers, but on the Salhia and Muhammadiyah islands, none of these species appeared (Pl.3)

Table.1 Classification of the foraminifera in the study area according to (Loeblich & Tappan, 1988)

Sub order	Super family	Family	Sub family	Genus	Species
Rotallina	Rotoliacea	Elphidiidae	Elphidiinae	<i>Elphidium</i>	<i>E.advenum</i>
					<i>E.excavatum</i>
					<i>E.lessonii</i>
					<i>E.incertum</i>
	Rotollacea	Rotaliidae	Rotaliinae	<i>Ammonia</i>	<i>Ammonia beccarii</i>
					<i>Ammonia tepida</i>
	Discorbacea	Discorbiidae	Discorbiidae	<i>Buccella</i>	<i>Buccella frigida</i>
Miliolina	Milioloidea	Hauerimidae	Miliolinellinae	<i>Triloculina</i>	<i>Triloculina rotuna</i>
					<i>Triloculina trigonula</i>
		Spiroloculinidae	Hauerininae	<i>Quinqueloculina</i>	<i>Quinqueloculina lamarckiana</i>
				<i>Spiroloculina</i>	<i>Spiroloculina laevigata</i>

2. Gastropoda:

According to the study by Keen and Coan (1974) (Table.2). Gastropods are classified as a type of mollusc. Taxonomically, the shape of the shell, number of coils, type of aperture, and other characteristics of the shell are used.

**Gyraulus convexiusculus*

It is the most common type on the island of Sinbad and is less common and present on the island of Salhia, followed by the Muhammadiyah island. It is found in freshwater, especially in the root areas of plants, lakes, and marshes. (Pl.5, Figs.11).

**Cerithidea fluviatilis* (Potiez et Michaud)

This type is found in abundance in Sinbad and in a very small way in the islands of Salhia and Muhammadiyah, and it is found in marine and brackish environments. (Pl.6, Figs.24).

**Bellamya bengalensis* (Lamarck, 1822)

It is a marine species found in brackish and fresh water. It has a large size and is found in the muddy bottoms of ponds and marshes for calm fresh water and during floods or increased water in ponds and marshes, where the shells are transported to the edges of the marsh areas. (Pl.5, Figs.1).

**Lymnaea* sp

It is found in the waters of lakes, and some floating species move and are deposited along the coast. (Pl.5, Figs.1).

**Nuceola* sp

It is one of the most common species in the study area and is found on all islands. It lives in marine environments. (Pl.5 , Figs.7)

**Turbonilla* sp

is the most widespread species in the study area and is found in various shapes and colors on each island. This species is found in marine and coastal environments. (Pl.5, Figs.6).

**Scaliola* sp

is a marine species that was found on Sendbad Island. (Pl.5, Figs.3).

**Ethminolia degregorii* (Caramagna, 1888)

is a marine species that was found on Sendbad Island. (Pl.5, Figs.4).

**Calliostoma coppingeri* (E.A. Smith, 1880)

is a marine species that was found on Sendbad Island. (Pl.5 , Figs.5).

** Odostomia serenei* (Saurin, 1959)

is a marine species. This species was found on Sendbad Island (Pl.6, Figs.20).

*In Sendbad Island, there were many and varied marine species of Gastropod, indicating the availability of nutrients and a suitable environment for living.

Umbonium vestiarius, *Turritea* sp., *Ancilla ampla*, *Alvania lactea*, *Alvania rykelii*, *Melina* sp., *Viviparus dubiosus*, *polinices* sp..

Table.2 Classification of the Gastropod in the study area according to (Keen and Coan, 1974)

Super family	Family	Sub family	Genus	Species
Viviparoidea	Viviparidae		<i>Filopaludina</i>	<i>Bellamya bengalensis</i>
Muricoidea	Muricidae	Ocenebrinae	<i>Nucella</i>	<i>Nucella</i> sp
Lymnaeidea	Lymnaeidae		<i>Lymnaea</i>	<i>Lymnaea</i> sp
Naticidea	Naticidae	Polinicinae	<i>Polinices</i>	<i>Polinices mamilla</i>
	Planorbidae		<i>Gyraulus</i>	<i>Gyraulus convexiusculus</i>
Epitoniidea	Epitoniidae		<i>Epitonium</i>	<i>Epitonium apiclaum</i>
	Pyramidellidae		<i>Odostomia</i>	<i>Odostomia serenei</i>
Pyramidelloidea		Turbonillinae	<i>Turbonilla</i>	<i>Turbonilla</i> sp
Olivoidea	Ancillariidae		<i>Ancilla</i>	<i>Ancilla ampla</i>
Cyclophoroidea	Aciculidae		<i>Acicula</i>	<i>Acicula niera</i>
Cerithioidea	Potamididae		<i>Cerithidea</i>	<i>Cerithidea fluviatilis</i>
	Neritidae		<i>Theodoxus</i>	<i>Theodoxus jordani</i>
	Rissoidea		<i>Alvania</i>	<i>Alvania lactea</i>
				<i>Alvania rykelii</i>
Trochidea	Trochidae		<i>Umbonium</i>	<i>Umbonium vestiarius</i>
			<i>Ethminolia</i>	<i>Ethminolia degregorii</i>
	Calliostomatidae		<i>Calliostoma</i>	<i>Calliostoma coppingeri</i>
	Scaliolidae		<i>Scaliola</i>	<i>Scaliola</i> sp

3. Pelecypoda:

This study is based on the system of Moor (1969) classification for Pelecypoda (Table.3). Identification is based mainly on the shape of the shells and ornamentation on the surface. This species was found sendbad island

**Corcula flaminallis* (Muller)

It is a large, diverse, and very thick group found in lakes, marshes, and streams of the Tigris River (Plaziat & Yonis, 2005). Corbicula is found in river channels and is buried in layers consisting of sand and mud. It is abundant in the muddy bottoms of many lakes and marsh channels. (Pl.8 , Figs.14)

**Carbula Subquadrata* (Melvill,1907)

It is abundant in sandy silt deposits and is slightly saline in marine waters. (Pl.7 , Figs.4)

**Crassostrea iridescens* (Hanley, 1854)

is a marine species found in abundance in the study area on Sendbad Island (Pl.7, Figs.6).

* *Carditella pallid* (Smith, 1881)

is a marine species (Pl.7, Figs.3).

* *Ostrea sp* , *Nucula sp* , *Cuna sp* , *Thracia nitida* , *Corbicula fluminalis* , *Lucina sp* , *Pecten sp* , *Kellia sp* , *Corbicula sp* , *Vulsella vulsella* , *Calyptrea chinensis* , *Striarca lactea* , *Spondylus sp* , *Codakia orbicularis* , *Asaphia vilascens* .

Table.3 Classification of the pelecypoda in the study area according to (Moore, 1969)

Super family	Family	Sub family	Genus	Species
Pterioidea	Vulsellidae		<i>Vulsella</i>	<i>Vulsella Vulsella</i>
Calyptraeoidea	Calyptraeidae		<i>Calyptrea</i>	<i>Calyptrea chinensis</i>
Thracioidea	Thraciidae		<i>Thracia</i>	<i>Thracia nitida</i>
Arcoidea	Noetiidae		<i>Striarca</i>	<i>Striarca lactea</i>
Cyrenoidea	Cyrenidae		<i>Corbicula</i>	<i>Corbicula fluminalis</i>
Myoidea	Corbulidae	Corbulinae	<i>Corbula</i>	<i>Corbula subquadrata</i>
	Lucinidae		<i>Codakia</i>	<i>Codakia orbicularis</i>
	Condylocardiidae	Conditellinae	<i>Carditella</i>	<i>Carditella pallid</i>
Nuculoidea	Nuculidae		<i>Nucula</i>	<i>Nucula sp</i>
	Pectinidae		<i>Pecten</i>	<i>Pecten maximus</i>
Ostreoidea	Ostreoidae	Crassostreinae	<i>Crassostrea</i>	<i>Crassostrea iridescens</i>
			<i>Ostrea</i>	<i>Ostrea sp</i>



1. *Elphidium lessonii* , 40x.

3. *Elphidium poeyanum* , 40x.

3. *Elphidium incertum* , 40x.

4. *Elphidium excavatum* , 40x.

5. *Elphidium advenum* , 40x.



Plate 2. Foraminifera

6. *Buccella frigida* ,40x.

7. *Lobaluta lobulata* , 40x.

8. *Ammonia beccarii* , 40X

9. *Ammonia tepida* ,40X

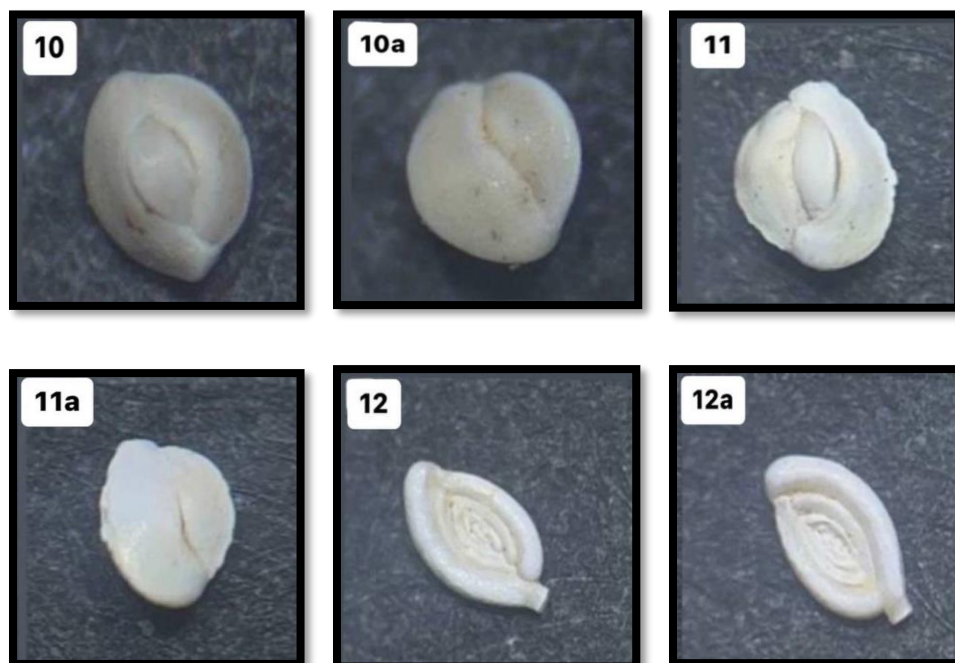


Plate 3. Foraminifera

10. *Triloculina trigonula* , 40X

11. *Triloculina rotunda* ,40x.

12. *Spirocolina laevigata* , 40x.

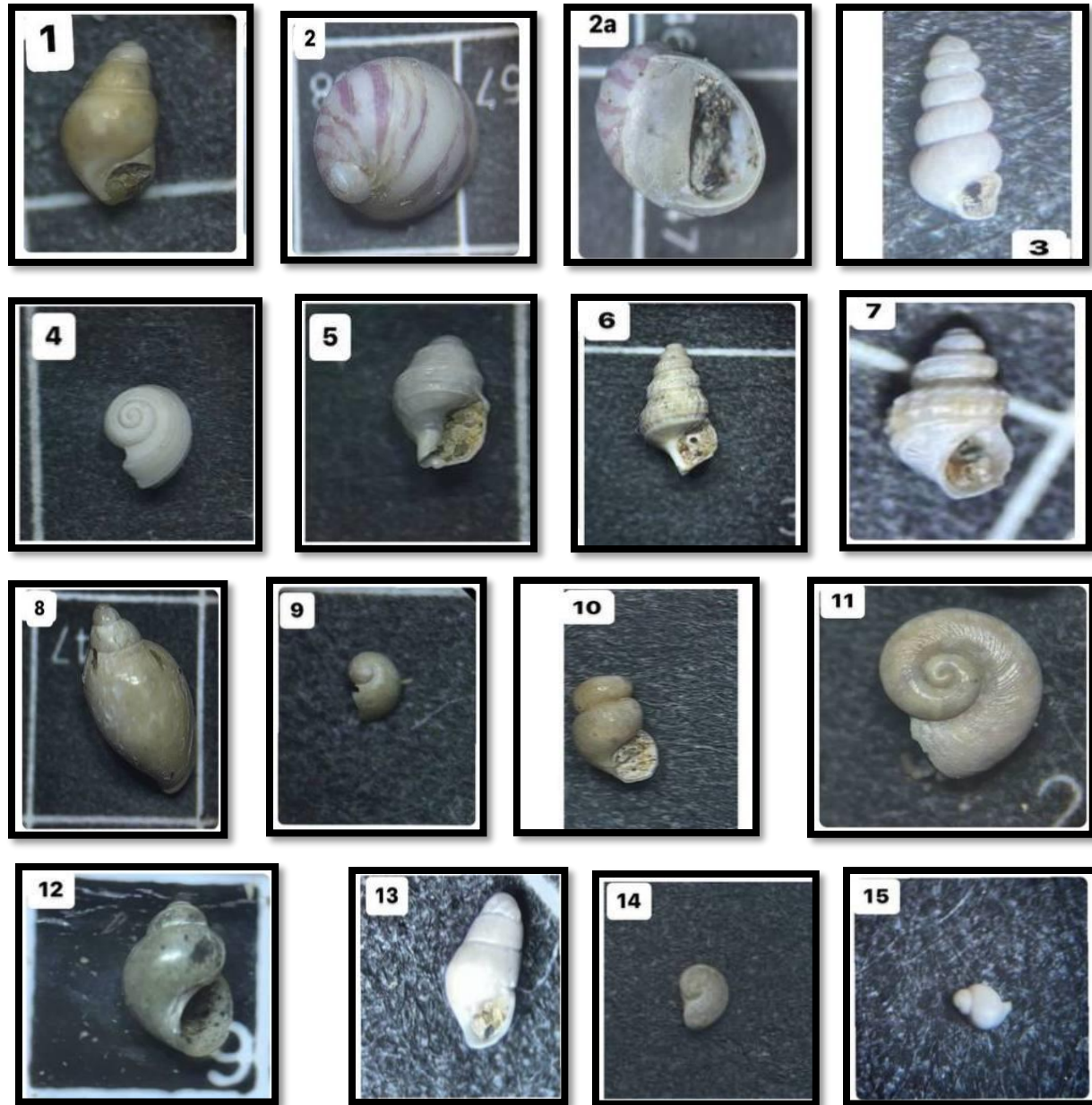


Plate 5. Gastropoda

1. *Bellamya bengalensis* , 40X
2. *Theodoxus* sp , 20X
3. *Scaliola* sp , 40X
4. *Ethminolia degregorii* , 40X
5. *Calliostoma coppingeri* , 40X
6. *Turbonilla* sp , 40X
7. *Nucella* sp , 40X

8. *Polinices* sp , 40X
9. *Lymnaea* sp , 40X
10. *Melina* sp , 40X
11. *Gyraulus convexiusculus* , 20X
12. *Viviparus dubiosus* , 40X
13. *Acicula* sp , 40X
14. *Planorbis* sp , 40X
15. *Umbonium* sp, 40X

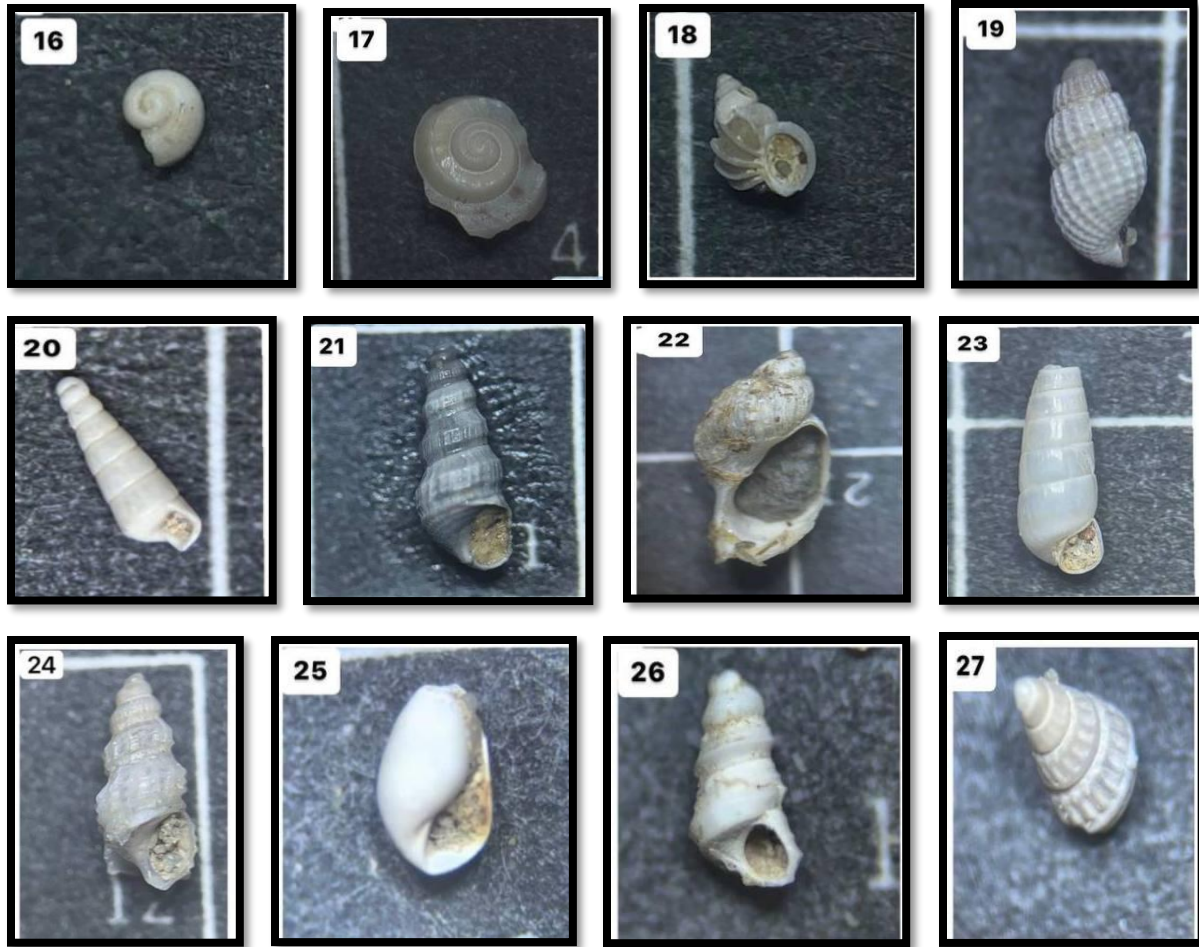


Plate 6. Gastropoda

- 16. *Umboonium* sp , 40X
- 17. *umboonium vestiarius* , 40X
- 18. *Epitonium apiclaum* , 40X
- 19. *Alvania rykelii* , 40X
- 20. *Odostomia serenei* , 40X
- 21. *Turbonilla* sp , 40X
- 22. *Lymnacea* sp , 20X
- 23. *Acicula* sp , 20X
- 24. *Cerithidea fluviatillis* , 40X
- 25. *Ancilla ampla* , 40X
- 26. *Turritella* sp , 40X
- 27. *Avania lacteal* , 40X

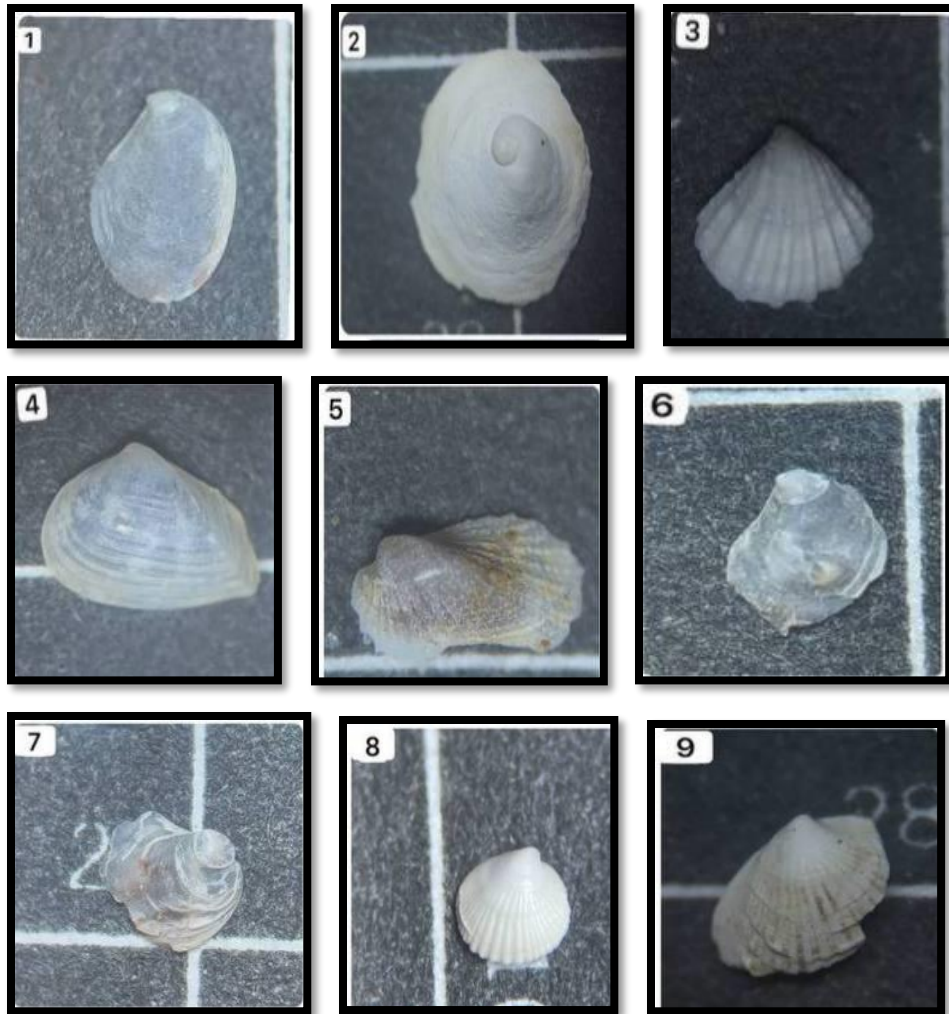


Plate 7. Pelecepoda

1. *Vulsella vulsella* , 40X
2. *Calyptrea chinensis* , 20X
3. *Caditella pallid* , 40X
4. *Corbula subquadrata* , 40X
5. *Striarca lacteal* , 40X
6. *Crassotrea iridescens* , 40X
7. *Spondylus* sp , 20X
8. *Codakia orbicularis* , 40X
9. *Asaphia voilascens* , 40X

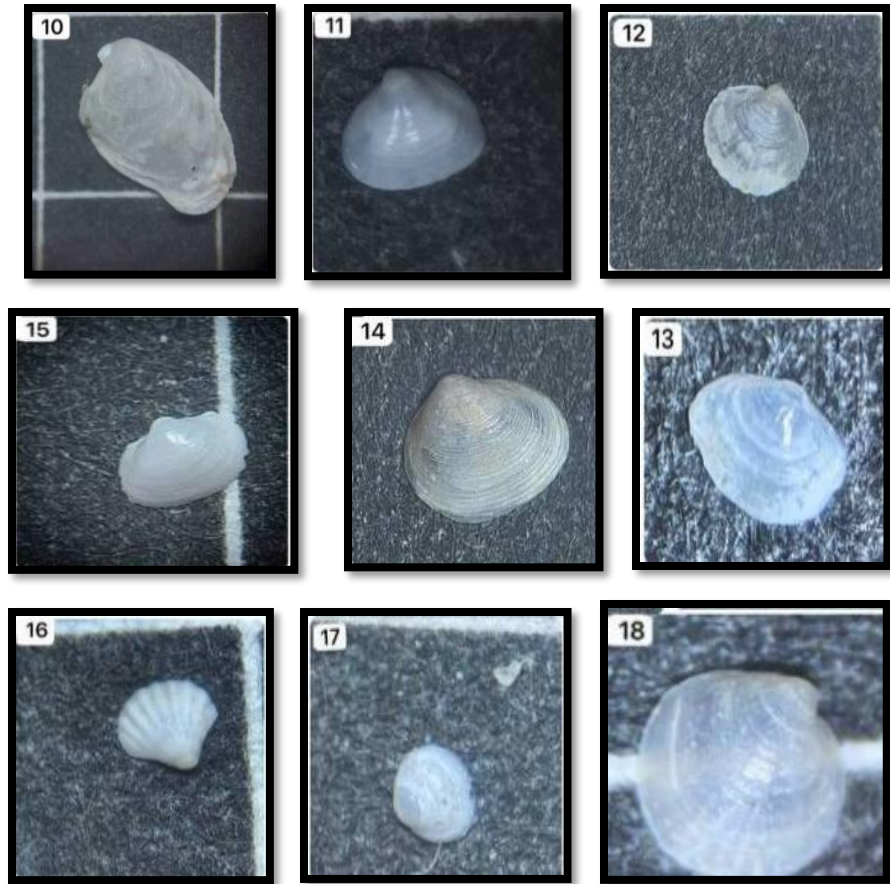


Plate 8. pelecypoda

- 10. *Ostrea* sp , 20X
- 11. *Nucula* sp , 40X
- 12. *Cuna* sp , 40X
- 13. *Thracia nitida* , 40X
- 14. *Corbicula fluminalis* , 40X
- 15. *Lucina* sp , 40X
- 16. *Pecten* sp , 40X
- 17. *Kellia* sp , 40X
- 18. *Corbicula* sp , 40X

Discussion:

In this study, 26 surface samples were collected, distributed over the study area, 8 samples each from Sinbad Island and Al-Salihiya Island, and 10 samples from Al-Muhammadiyah Island, with two depths, one of which is 35 cm and the other 100 cm. Through our study of the fauna found in the study area, 11 species of foraminifera were identified, 6 genus, 5 subfamily, 5 family, 4 superfamily, and 2 suborder represented by (Rotallina, Miliolina) according to (Loblich&Tappan, 1988). The Rotallina was the most abundant with a calcareous wall, as it has 7 species, the suborder Miliolina, which has a calcareous wall, and is represented by 4 species. There are many factors that control the process of spreading foraminifera in the study area, such as hydrostatic pressure, the amount of penetrating light, changes in the supply of nutrients, oxygen, temperature, and salinity (Murray, 1973; Hooper, 1968). The most widespread species on the island of Muhammadiyah are *Buccella frigida* and *Ammonia tepida*. In addition, *Ammonia beccarii* and *Elphidium lessanii* were found, but in very rare proportions, and the fauna found on the island of Muhammadiyah also suffered from dwarfism. In Salhia Island, *Ammonia beccarii* and *Ammonia tepida* are the most widespread, and *Elphidium lessonii* and *Buccella frigida* have been recorded in low numbers. As for Sinbad Island, *Ammonia beccarii*, *Ammonia tepida*, *Spiroloculina laevigata*, *Triloculina rotunda*, *T. laevigata*, *T. trigonul*, *Quinqueloculina lamarckiana*, *E. advenum*. It was now 0 char wide and had different sizes. *Ammonia beccarii* is a good indicator of mixed environments, that is, its ability to live in environments with low and high salinity (Phleger and Parker, 1951). *Elphidium* lives in salty environments with varying temperatures, as it is found in

brackish and continental environments, such as marshes, flats above the tide, and lagoons, and its association with *Ammonia beccarii* indicates periods of drought (Phleger and Lankford, 1957). Miliolidae species are abundant in sandy sediments, and the presence of this species in the study area, which is mostly alluvial, may be due to the movement of waves or the small percentage of sand. The identified species are the first species recorded in the region because the current study represents the first study conducted in the region on the classification of Foraminifera

Mollusca was found in the study area and was represented by (Gastropod, Peleceopoda), where the Gastropod person in the study area consisted of 18 species, 17 genera, 3 subfamilies, 15 families, and 10 superfamilies. As for the Peleceopoda, there were 12 species, 12 genera, 3 subfamilies, 11 families, and 8 superfamilies. The most common fauna on Sinbad Island were *Gyraulus convexiusculus*, *Polinices mamilla*, *Lymnaea sp.*, and *Nucella sp.*. The presence of these species provides evidence of a mixed environment, while the rest of the existing species are less widespread and are *Bellamyia bengalensis*, *Epitonium apiclaum*, *odostomia serenei*, *Turbonilla sp*, *Ancilla*, *certhidea fluvi*, *theodoxu jordani*, *Alvani lactea*, *Alvani rykelii*, *umbonium vestiarium*, *Ethminolia degreorii*, *calliostoma coppingeri*, *scaliola sp*.

These marine species are widespread in Sinbad Island because they are affected by marine water areas in addition to tides and waves. The circular movement of waves and strong currents in the region helped transport these marine species, indicating that the region was affected by the marine environment (Aqrawi 1994).

As for peleceopoda, 12 species, 12 genus, 3 subfamilies, 11 families and 8 superfamilies were recorded. It recorded only on the

Sinbad Island, and I found all types separately and at different depths. And there was a complete disappearance of the pelecypoda in the Salihiya and Muhammadiyah islands. These are the species that were recorded on Sinbad Island: *Vulsella Vulsella*, *Calyptraea chinensis*, *Thracia nitida*, *Striarca lactea*, *Corbicula fluminalis*, *Corbula subquadrata*, *Codakia orbicularis*, *Carditella pallid*, *Nucula sp*, *Pecten maximus*, *Crassostrea iridescens*, *Ostrea sp*.

Conclusion

This work document moderate benthic diversity in the Shatt al-Arab delta, comprising 15 foraminiferal taxa within the classes Tubothalamea and Globothalamea and 12 gastropod and bivalve species following Bouchet *et al.* (2017). we recommend year-round monitoring, expanded molecular assessments, and targeted evaluations of upstream damming and pollution impacts to guide effective conservation and management.

Acknowledgement

We acknowledge the staff of Geology department for their supports, which greatly improved the clarity and rigor of this manuscript.

References

- Ahmed, M. M. (1973). Systematic study on Mollusca from Arabian Gulf and Shatt Al-Arab (75 pp.). Center for Arab Gulf Studies, University of Basrah.
- Al-Ali, R. A. (2007). Study of recent faunal assemblages and their ecology in northwestern part of Arabian Gulf and southern Mesopotamia (Doctoral dissertation, University of Basrah).
- Al-Humaidan, Z. A. (2017). Sedimentological, mineralogical and fauna study of marine sediments NW of the Arabian Gulf, southern Iraq (Master's thesis, University of Basrah).
- Al-Khuzaei, R. A. (1998). Spreading of living and fossil Foraminifera as an indicator of pollution, Northwest of the Arabian Gulf (Master's thesis, University of Basrah). [In Arabic].
- Al-Zamel, A. Z., & Cherif, O. H. (1998). Subtidal foraminiferal assemblages of the western part of the Shatt Al-Arab delta, Kuwait, Arabian Gulf. Cushman Foundation for Foraminiferal Research Special Publication, 28(4), 1–12.
- Benson, R. H. (1972). The Bradleya problem, with descriptions of two new psychrospheric ostracode genera, *Agrenocythere* and *Poseidonamicus* (Ostracoda: Crustacea). Smithsonian Contributions to Paleobiology, (12), 1–138.
<https://repository.si.edu/handle/10088/1879>
- Boltovskoy, E., & Wright, R. (1976). Recent Foraminifera. Springer Netherlands.
- Carbonel, P., Colin, J. P., Danielopol, D. L., Löffler, H., & Neustrueva, I. (1988). Paleoecology of limnic ostracodes: A review of some major topics. Palaeogeography, Palaeoclimatology, Palaeoecology, 62(1–4), 413–461.
- Darmoian, S. A., & Al-Rubaei, K. (1989). Estuarine benthonic Foraminifera from Iraq, the Arabian Gulf. Journal of Geological Society of Iraq, 22(2), 56–76.
- De Deckker, P. (1979). The Middle Pleistocene ostracod fauna of the West Runton Freshwater Bed, Norfolk. Palaeontology, 22, 293–316.
- Emerson, W. K. (1962). A classification of the Scaphopoda mollusks. Journal of Paleontology, 36, 461–482.
- Javaux, E. J., & Scott, D. B. (2003). Illustration of modern benthic

- foraminifera from Bermuda and remarks on distribution in other subtropical/tropical areas. *Palaeontologia Electronica*, 6(4), 1–29.
- Jones, A. M., & Baxter, J. (1987). Molluscs: Caudofoveata, Solenogastres, Polyplacophora and Scaphopoda. E. J. Brill/Dr. W. Backhuys.
- Karanovic, I. (2012). Recent freshwater ostracods of the world: Crustacea, Ostracoda, Podocopida. Springer.
- Keen, A. M., & Coan, E. V. (1974). Marine Mollusca genera of western North America (2nd ed.). Stanford University Press.
- Khalaf, S. K., & Elewi, A. H. (1989). On some recent Ostracoda from Khor Al-Zubair, southern Iraq. *Marina Mesopotamica*, 4(1), 97–105.
- Loeblich, A. R., Jr., & Tappan, H. (1988). Foraminiferal genera and their classification. Springer.
- Moore, R. C., Lalicker, C. G., & Fischer, A. G. (1952). Invertebrate fossils. McGraw-Hill.
- Morkhoven, F. P. C. M. van. (1963). Post-Paleozoic Ostracoda: Their morphology, taxonomy and economic use. Elsevier Publishing Co.
- Sedkhan, M. T. (2009). Sedimentological, hydrographical and mineralogical study of Karun River area confluence with Shatt Al-Arab River and adjacent areas (Master's thesis, University of Basrah)

دراسة التجمعات الحيوانية لجزر مختارة من شط العرب

آيات حسن علي*؛ أوسامة قاسم. خليفة* ورشا عبدالستار العلي**
 * قسم علم الارض، كلية العلوم، جامعة البصرة ، العراق.
 ** كلية علوم البحار، جامعة البصرة، البصرة ، العراق.

المستخلص

تكونت منطقة الدراسة من ثلاث جزر وهي جزيرة المحمدية التي تبعد 15 كم شمال مركز مدينة البصرة، وجزيرة السندباد شمال مدينة البصرة والتي تقع مقابل ملتقى كرامة علي. وجزيرة الصالحية التي تقع على الجانب الشرقي من قناة شط العرب. تم أخذ أربعة مواقع من كل من الصالحية وجزيرة السندباد وخمسة مواقع من جزيرة المحمدية. تم غسل خمسين جراماً من العينة المجففة الخام باستخدام منخل (0.063 مم) في غربال رطب بالماء المقطر وتجفيف الجزء المتبقي من المنخل في فرن التجفيف عند درجة حرارة 100 مئوية. يتم التقاط الحيوانات الموجودة في الرواسب تحت المجهر بفريشة خاصة ثم فرزها وتصنيفها حسب الأنواع والجنينات. أشارت النتائج إلى أن وجود الكاستروبودا منخفض في جزيرتي الصالحية والمحمدية، ولكن في جزيرة السندباد وجد بكثرة، وفي جزيرة السندباد كان هناك العديد من الأنواع البحرية من Gastropod، مما يدل على توافر العناصر الغذائية والبيئة مناسبة للعيش، وهذه الأنواع هي: *Umbonium*، *Melina sp.*، *Alvania rykelii*، *Alvania lacteal*، *Ancilla ampla*، *Turriteia sp.*، *vestiarium*، *polinices sp.*، *Vivparous dubiosus*. أما المنخربات فتوجد بأعداد مختلفة في جميع الجزر، ومن أهم الأجناس في منطقة الدراسة الأمونيا، وتعتبر هذه الأنواع من أهم الأنواع الدالة على البيئة المالحة عند درجات حرارة (15-30 درجة مئوية). على أعماق لا تزيد عن 50 م. توجد في المناطق الضحلة، وتوجد أيضاً في البيئات ذات الملوحة (40-41 درجة مئوية). في منطقة الدراسة تم العثور على (*Ammonia*) في جزيرة السندباد بأعداد كبيرة جداً، وكانت بكثرة وبأحجام وأشكال مختلفة، أما في جزيرة الصالحية فقد كانت بنسبه جيدة وتم العثور عليها. فقط في الأعماق (35-52، S2-100)، أما جزيرة المحمدية فقط فقد وجدت بأعداد قليلة جداً في أعماق متفرقة، وكانت صغيرة الحجم وعانت من التفرم الشديد. ظهرت في الموقع الأول على عمق متر واحد وبنسبة ضئيلة للغاية تكاد تكون معدومة. كما ظهر في الموقع الرابع (S2-100، M4-35، M4-100)، أما بالنسبة لجنس (*Elphidium*)، فهو موجود في البيئات المالحة حتى 30% وبعمق يصل إلى 50 م، وفي درجات حرارة متفاوتة نوعاً ما تصل إلى 30 متراً، ومن أهم الأنواع الموجودة في منطقة الدراسة (*E. excavatum*)، والتي تشير إلى بيئات البحيرات ومناطق مصبات الأنهار التي تزيد ملوحتها عن 15%، وتوجد أيضاً في المستنقعات والاهوار.