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**Abstract:**

Sharma, the heart of the next NEOM project, is located on the Red Sea coast in Tabuk region northwest of Saudi Arabia, 130 km away from the city of Tabuk. The main objective of this study is to assess the physical properties of the soil and the water of Sharma coast by examining samples of water and soil using the tools provided with Globe program. The results of the physical and chemical analysis of the water samples confirmed that the water was not contaminated with nitrites or nitrates. In general, it is possible to deduct the water and soil properties of Sharma coast, the heart of the next NEOM project.



Figure # 1 Sharma Coast, the heart of NEOM project



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Study of the Physical Properties of the Heart of NEOM Project  
(Sharma Coast)

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## 1- Introduction

Sharma is located on the Red Sea coast in Tabuk region northwest of the Kingdom of Saudi Arabia. Figure 2 shows the geographical location of Sharma coast, 130 km away from the city of Tabuk, which is characterized by farms, palms, environmental diversity, various islands, coral agglomeration and the wonderful sands of its pristine coasts. Its climate is unique, as it is cooler than the surrounding areas; its temperature is about 10° C lower than the average temperature in all parts of the GCC. This phenomenon is due to the mountainous nature of the surrounding area, in addition to the wind currents coming from the Red Sea, and the fact that the coast is located in the north.

27°59'09.3"N 35°14'12.9"E

The main objective of this study is to assess the physical properties of the soil and water of Sharma coast by examining samples of water and soil and measuring the atmosphere.



Figure # 2 Geographical location of Sharma coast



## 2- Tools and Methods

Three sites were selected for this study, located within the Sharma coast region. Figure 3 shows the geography of the various sites under study in Sharma.

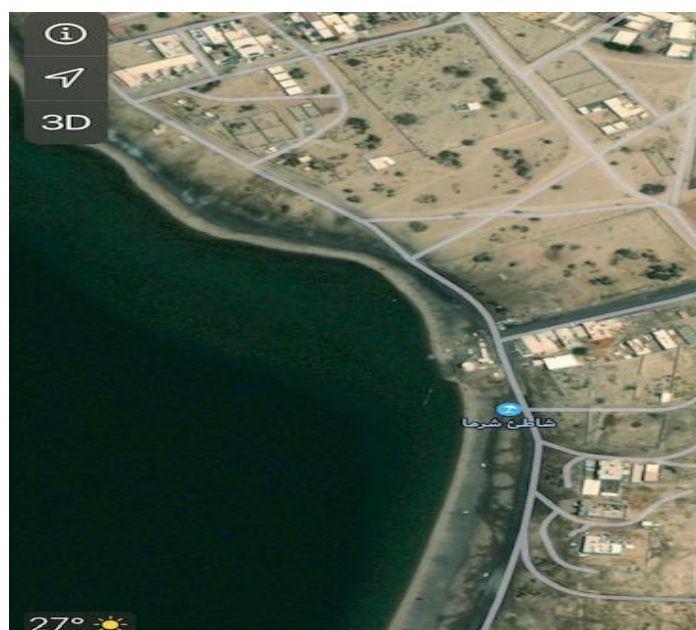


Figure # 3 Geography of the various sites under study in Sharma

The study area was surveyed during the year 2020. Soil samples were collected by stainless steel drill. The soil was excavated to a depth of 10-20 cm with a drill containing all layers. Seawater samples were collected in polyethylene containers (1.5 liter), and sample bottles were covered immediately. Also, tools from Globe Environmental Program were used to analyze water.

### 3- Results and Discussion

The physical and chemical properties of the salt water samples collected from the study area are shown in the following tables:

Conductivity of Standard ( $\mu\text{S}/\text{cm}$ )			Temperature of water sample being tested ( $^{\circ}\text{C}$ )				Measured With	
Sample3 ( $\mu\text{S}/\text{cm}$ )	Sample2 ( $\mu\text{S}/\text{cm}$ )	Sample1 ( $\mu\text{S}/\text{cm}$ )		Sample3 ( $^{\circ}\text{C}$ )	Sample2 ( $^{\circ}\text{C}$ )	Sample1 ( $^{\circ}\text{C}$ )	Probe	Alcohol-filled Thermometer
1000	1300	1100	25	21	24	25		√

Water pH							
القياسات						Measured With	
Sample3		Sample2		Sample1		pH Paper	pH Meter
pH	Conductivity	pH	Conductivity	pH	Conductivity		
7.53	1000	7.71	1300	7.60	1100		√

Observed reading 1

Salinity of Sample (ppt)	Temperature of water sample in 500ml tube ( $^{\circ}\text{C}$ )	Salinity of Sample (ppt)	Temperature of water sample in 500ml tube ( $^{\circ}\text{C}$ )	Salinity of Sample (ppt)	Temperature of water sample in 500ml tube ( $^{\circ}\text{C}$ )
2.4	21	3.2	24	3.4	25

The transparency of the water is 60. The samples contain 7 ml / liter of dissolved oxygen, which is the maximum value among all samples, and its salinity is high due to high evaporation. The chemical analysis of the water showed that it does not contain nitrites or nitrates.





The results of the soil analysis showed that all samples have a single granular structure, in addition to having a color degree close to each other. The amount of carbonate differs from one place to another.

Soil pH									Horizon Number
Sample3			Sample2			Sample1			
Soil pH	Measured With		Soil pH	Measured With		Soil pH	Measured With		
	pH Meter	pH Paper		pH Meter	pH Paper		pH Meter	pH Paper	
7.5	√		7.5	√		7.5	√		1

Soil temperature, C

Current	Maximum	Minimum
23.9°C	29°C	11°C





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## 4-GLOBE BADGES

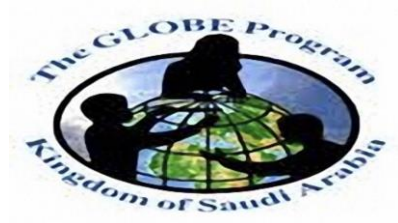
Collaboration between team members and assigning tasks As follows:

Ghala Attiyah Salim Al-Atwi	Nouf Suleiman Salama Al-Atwi	Hind Awwad Freej Al- Atwi
Search for information in the internet.	Water measurements of Sharma sea	Soil measurements of Sharma Beach



## **5-Acknowledgements**

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