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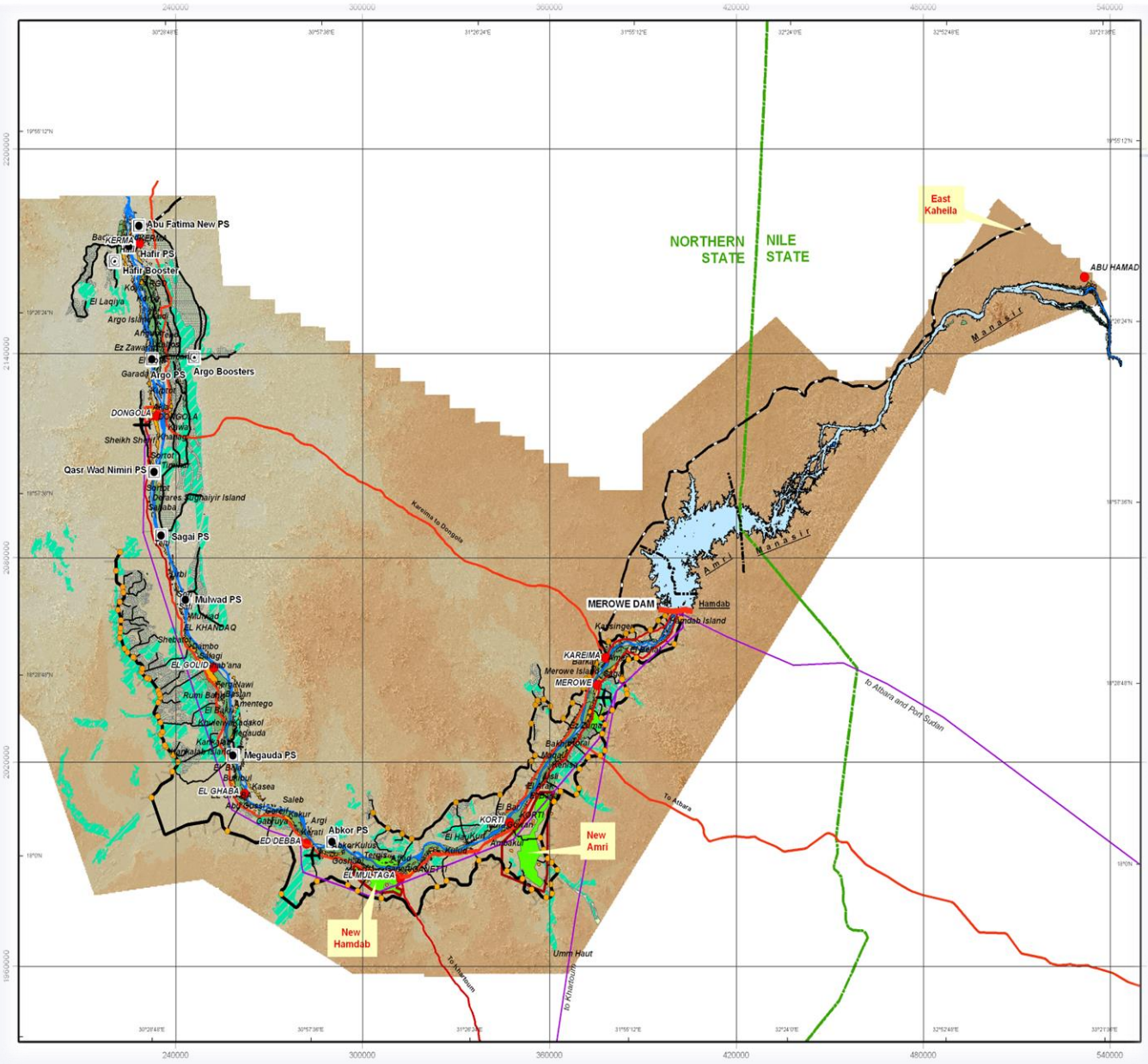
Temporal Assessment of Water Quality in Merowe Dam Site- NBDF7

Ahmed Hassan

The study area is located in the Merowe dam site The location of the dam far 350km from north Khartoum at forth cataract, between Latitudes [18°40′08″N ad longitudes32°03′01″E]



The purpose of the study is to assess the quality of water Upstream (US) and Downstream (DS) of the dam for the quality of water that due to many reasons such as:-

Variation of water properties in different sites. (Chemical, physical, bacterial, flora).

Part of monitoring (operation policy and environmental management plan (EMP).

Background:

Water quality

Is a term used to describe the physical, chemical and biological characteristics of a particular water for the intended use.

"Water quality" expresses the suitability of water to sustain various uses or processes

Water uses or processes

- Drinking
- Irrigation
- Recreation
- Domestic water supply
- Fisheries
- Industrial use
- Navigation
- Nature conservation

Suitability of water for various uses or processes	Water quality requirements
Navigation	no/ hardly
Irrigation	minimum
Recreation	minimum
Domestic water supply	minimum
Aquaculture	minimum
Ecosystem functioning	undisturbed

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Temperature (*in situ*)	**TSS** (Turbidity)	**Colour**	**Nitrate** (NO_3^-) **Nitrite** (NO_2^-)	***Chlorophyll-a***	**Heavy metals** **Organic micro-pollutants**
EC	**DO** (*in situ*)	**Ammonium** (NH_4^+)	**Ortho-phosphate** (PO_4^{3-}, HPO_4^{2-}) **Total-P**	***E-coli,*** etc.	**Medicines** **Endocrine disruptors**
Odour	**BOD & COD**	**pH**	**Major ions** (Ca^{2+}, Na^+, Cl^-, SO_4^{2-}..)	**Sulphide, fluoride, arsenic, …**	**Hydrological parameters**

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METHODOLOGY

Introduction

This presents methods that were used to collect various information and data related to the specific objectives and other methods which assisted in accomplishment of the study. Different methods and material or equipment were used to obtain primary and secondary data in assessment of water quality.

Data collection

Water sample from Merowe dam site (US&DS) were collected, the collection of water samples were taken from many locations, i.e Up, Ds, regularly .

METHODOLOGY cont..

Water Sample Collection Procedures

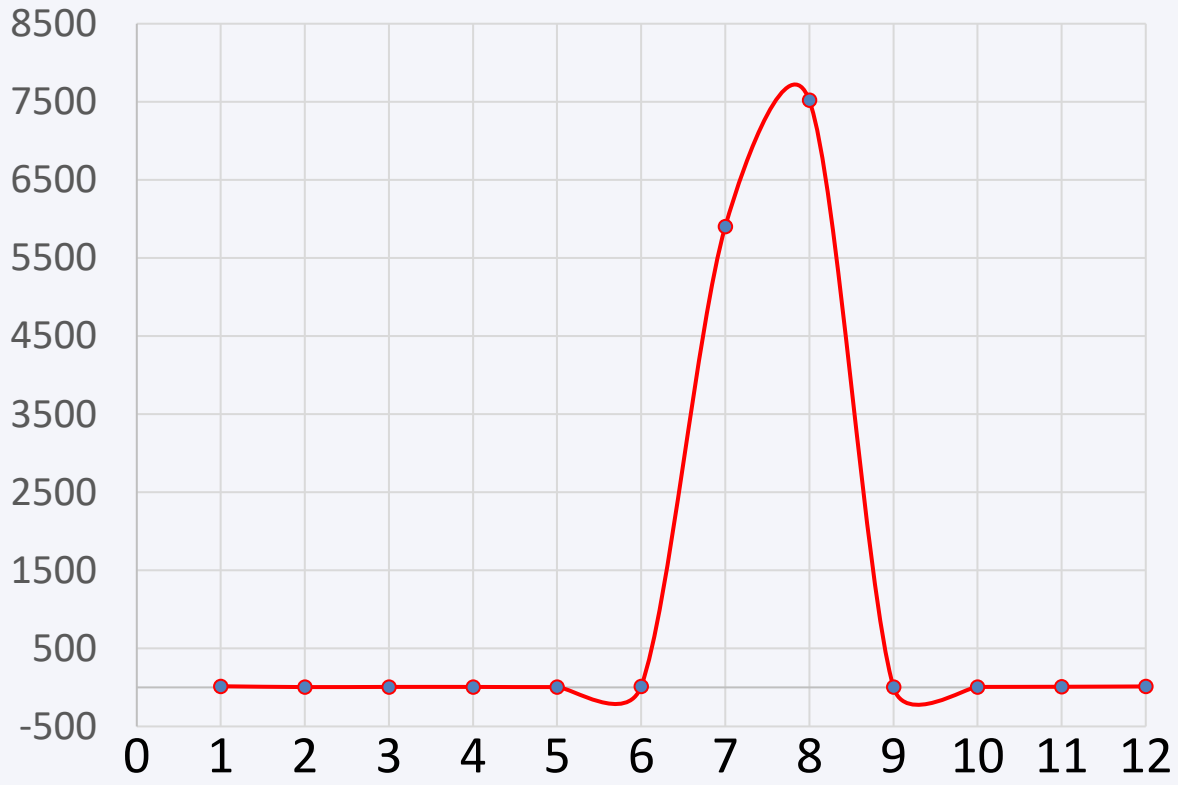
The following were the procedures followed during collection of water samples

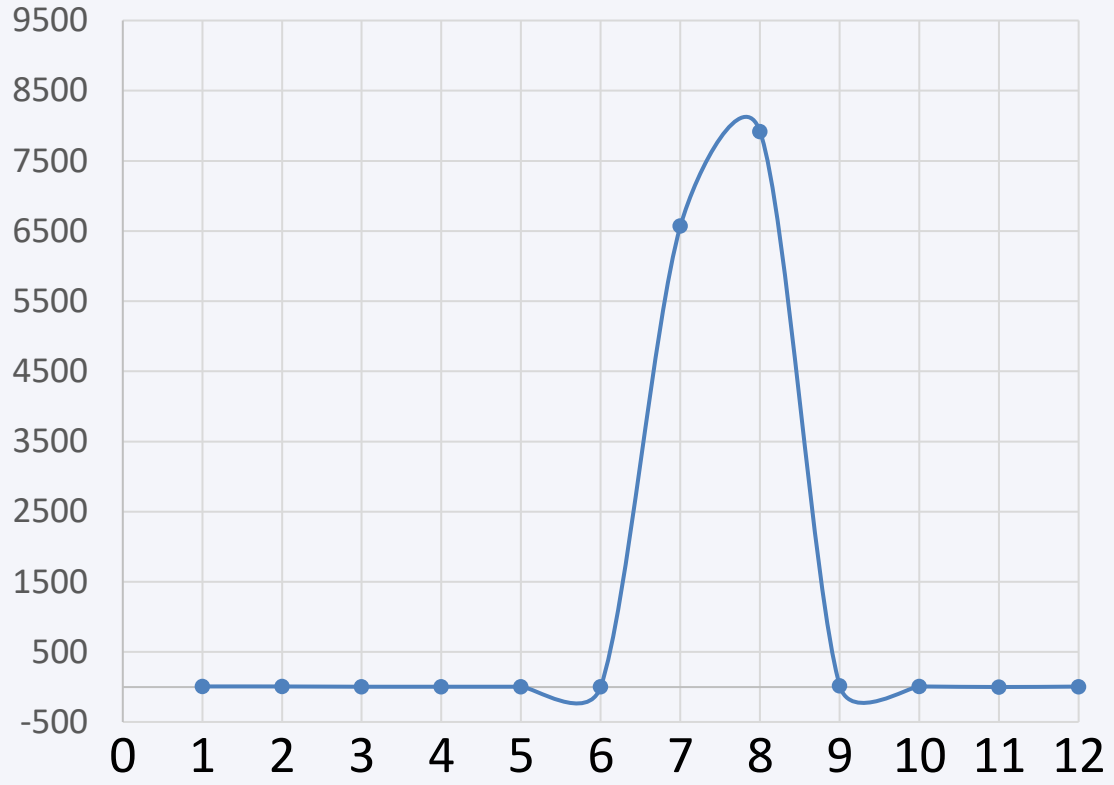
- The specific location of taking water sample were located by using coordinates by using GPS
- The water sample were taken by using plastic sample containers where three sample were taken from each location
- Water samples were filled in the bottle containers of one litre each and total of nine container were filled with water making nine litres in total.

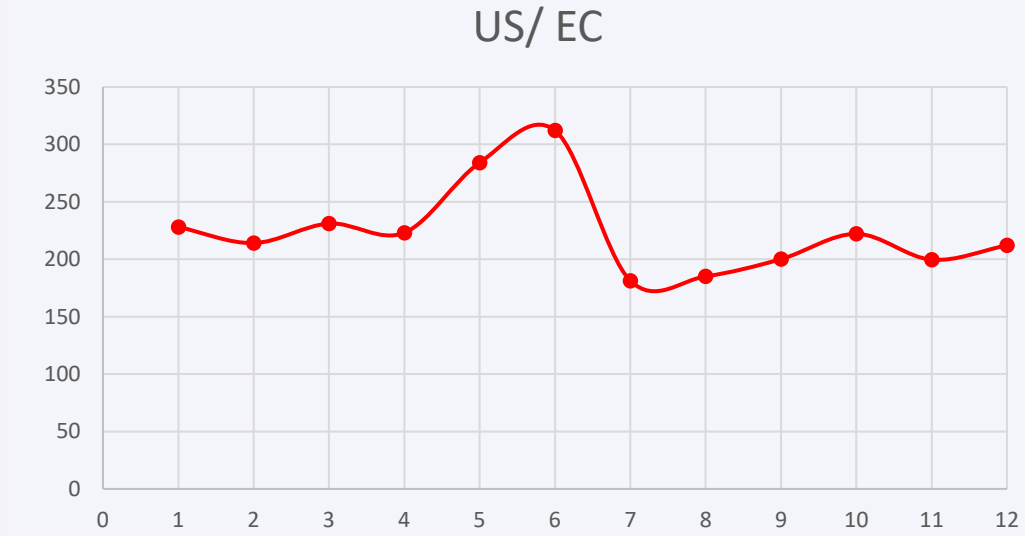
METHODOLOGY cont..

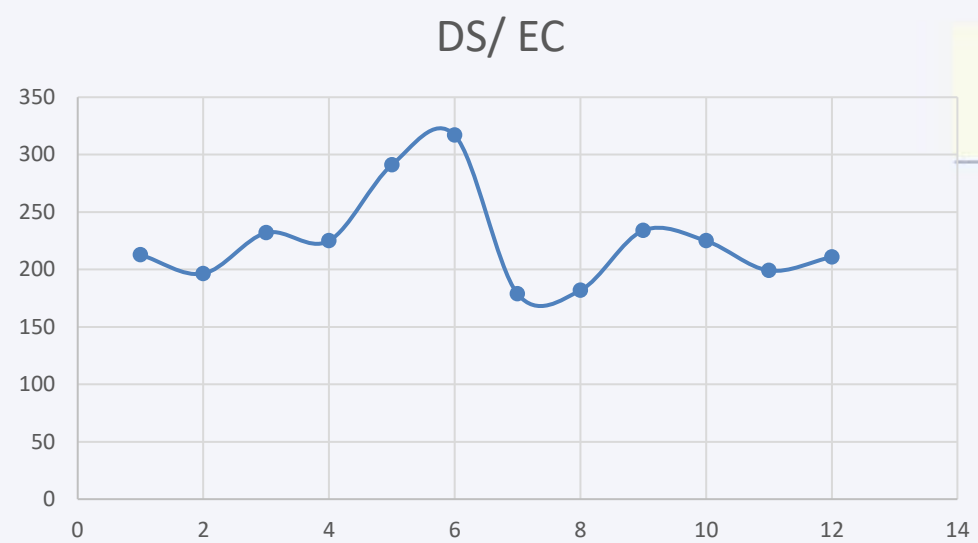
- After collection of water sample, the containers were labeled by using using stickers and marker pen, Also the label showing the location where sample were taken, date and time of sampling.
- After reaching to the laboratory the sample for bacterial were stored in the incubator at 4^{o}

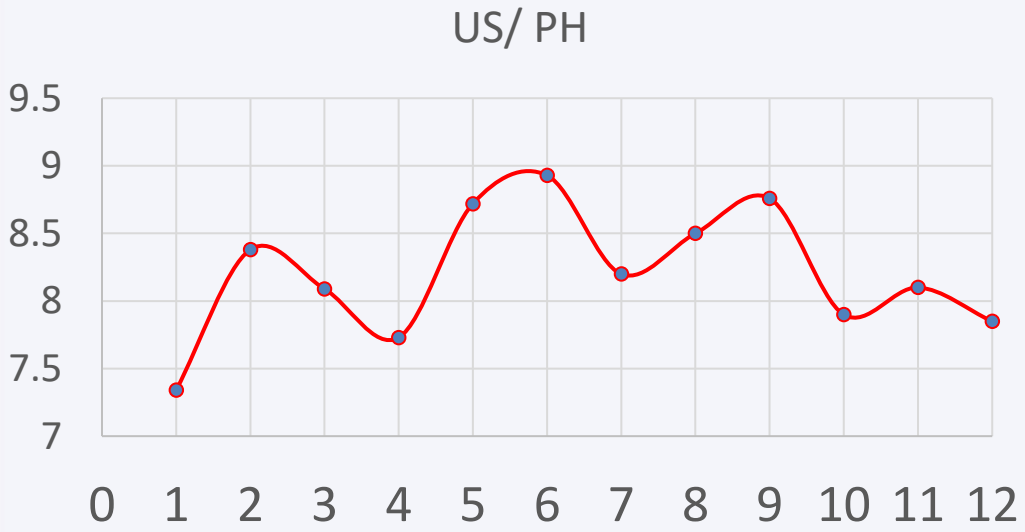
Result and Discussion

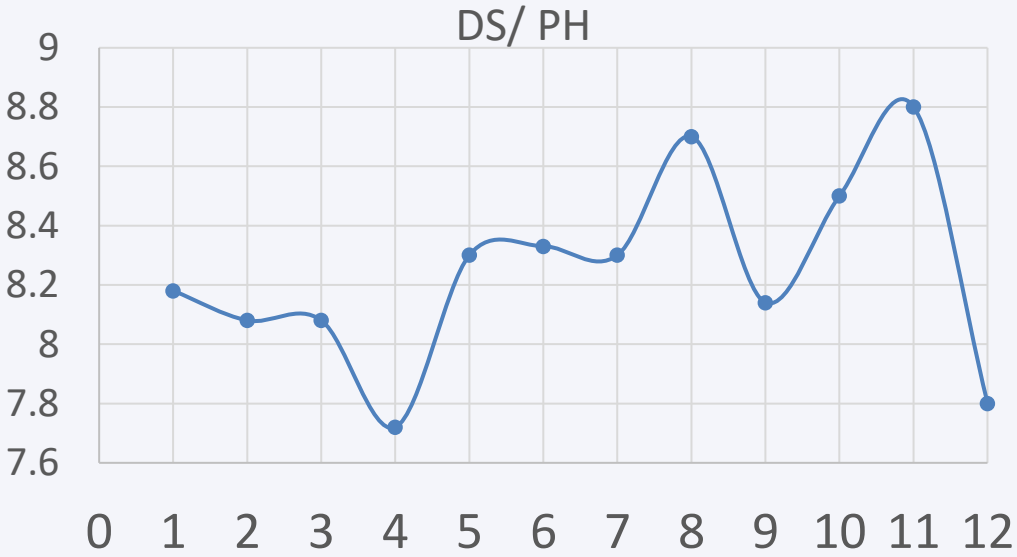












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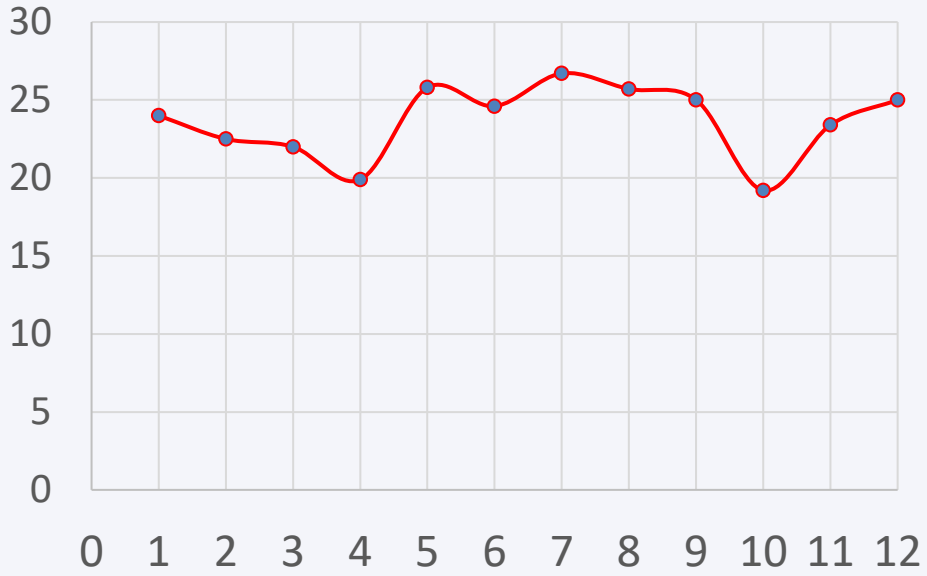
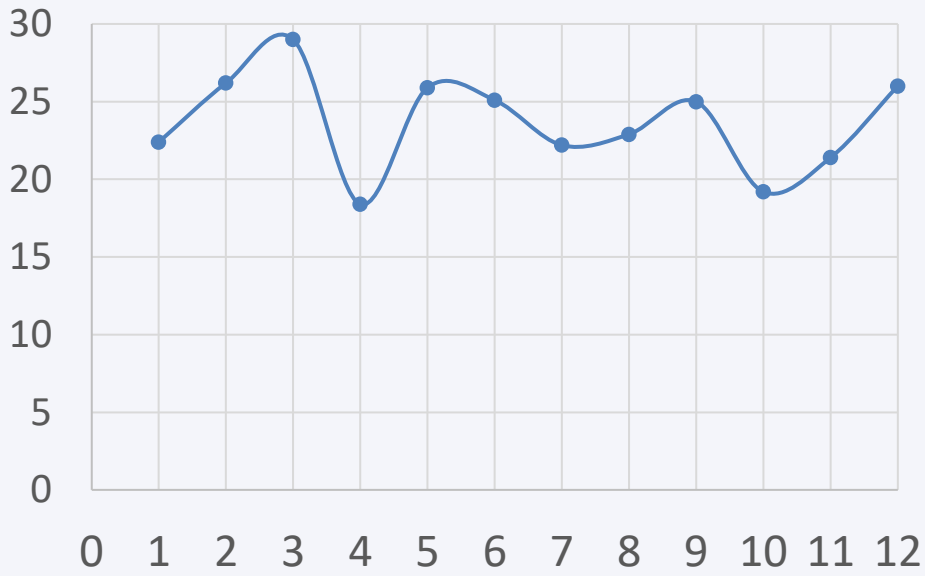
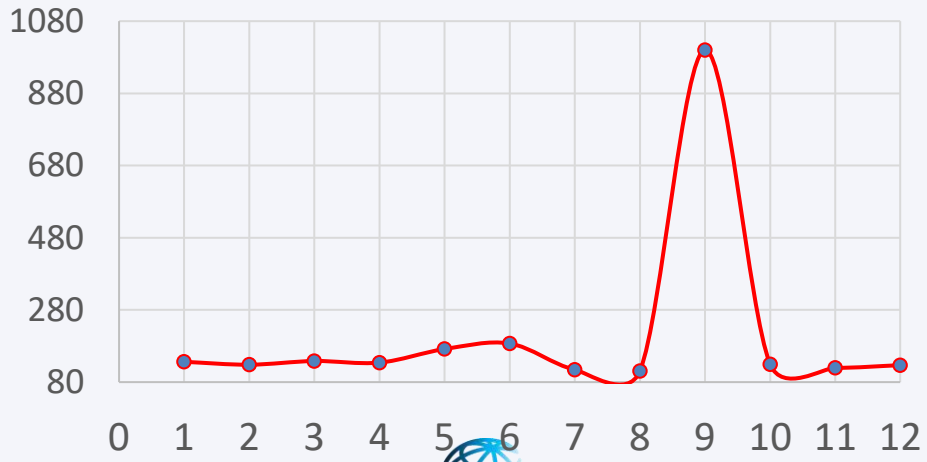
US/ T C



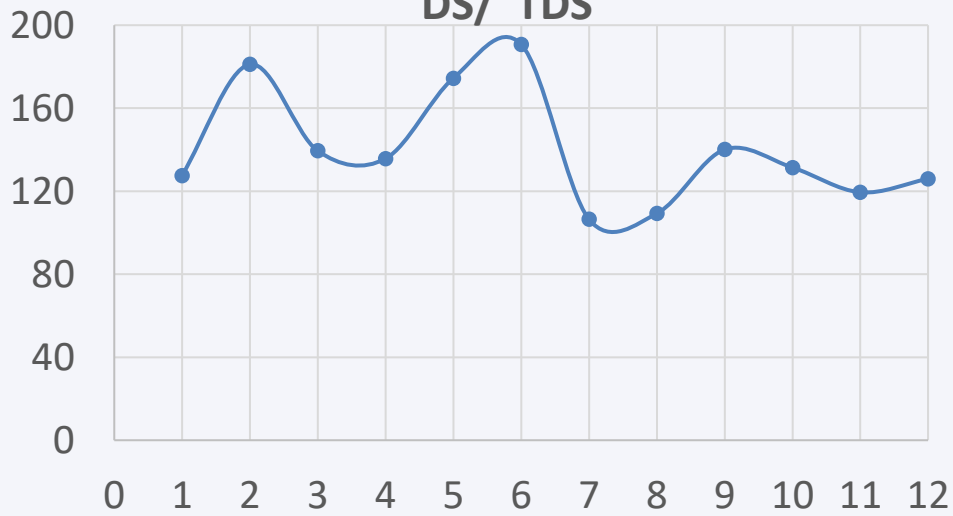
DS/ T C



US/ TDS



DS/ TDS



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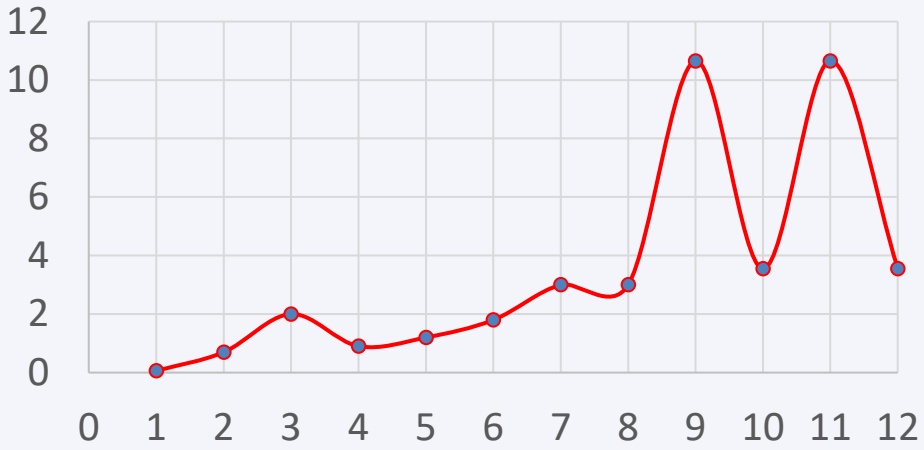
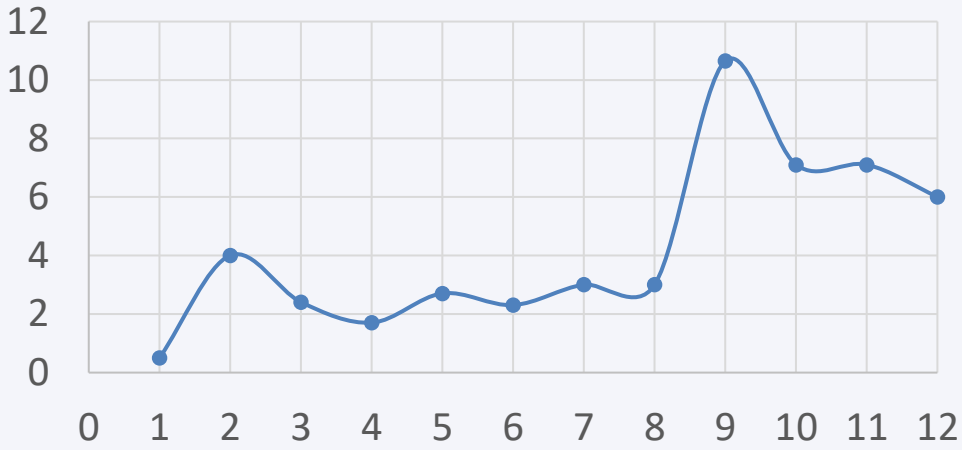
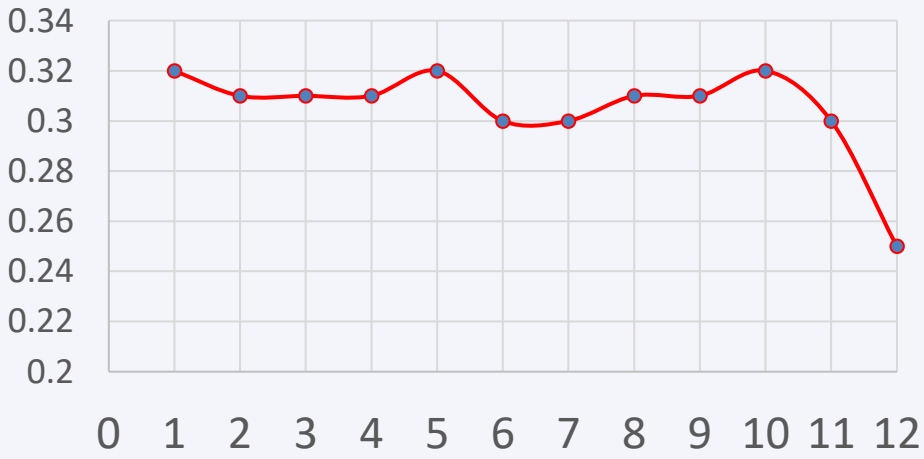
US/ Chloride



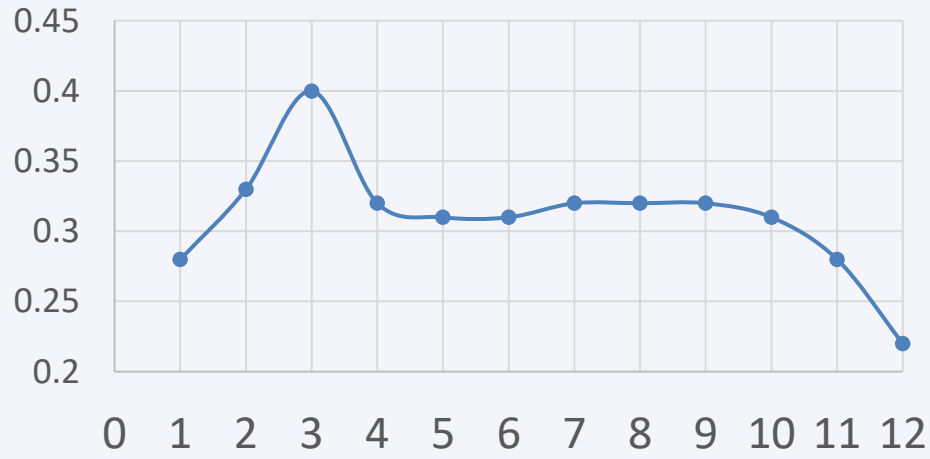
DS/ Chloride



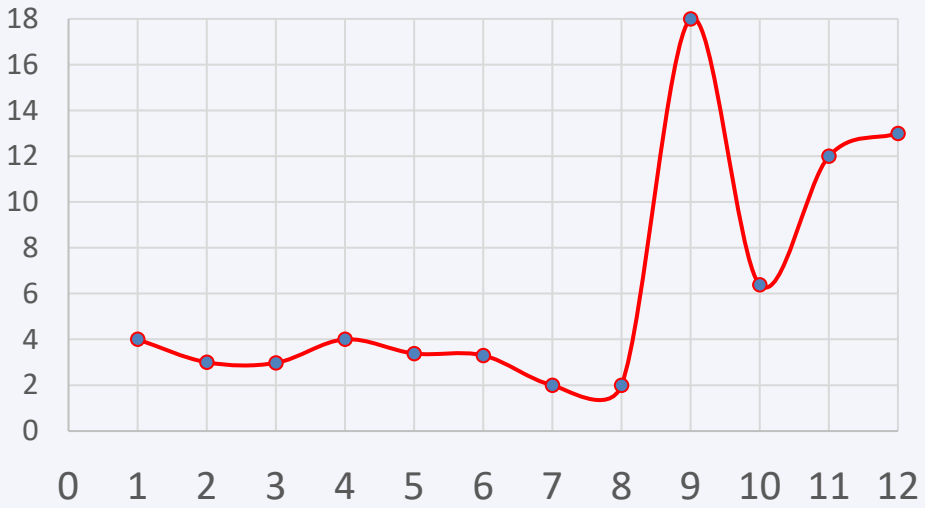
US/ Fluoride



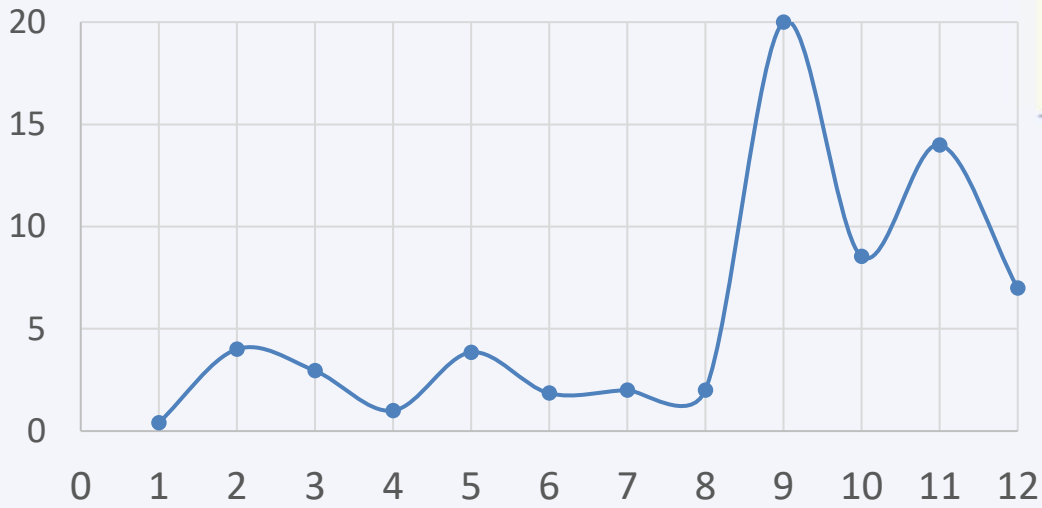
DS/ Fluoride



US/ SO4



DS/ SO4



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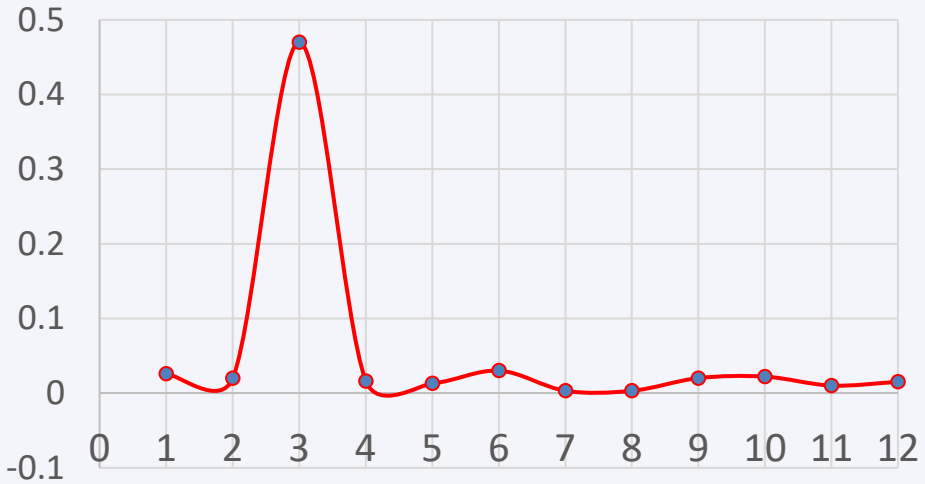
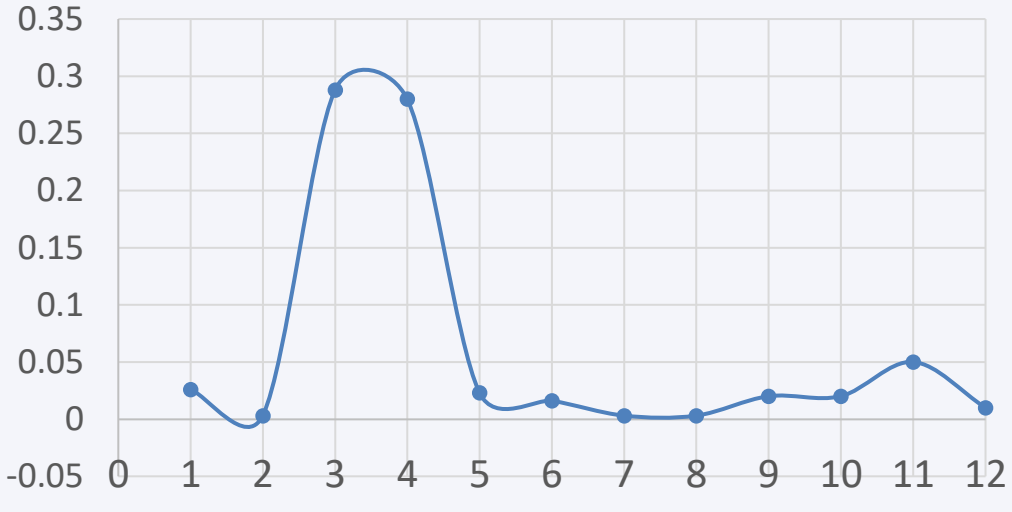
US/ No2



DS/ NO2



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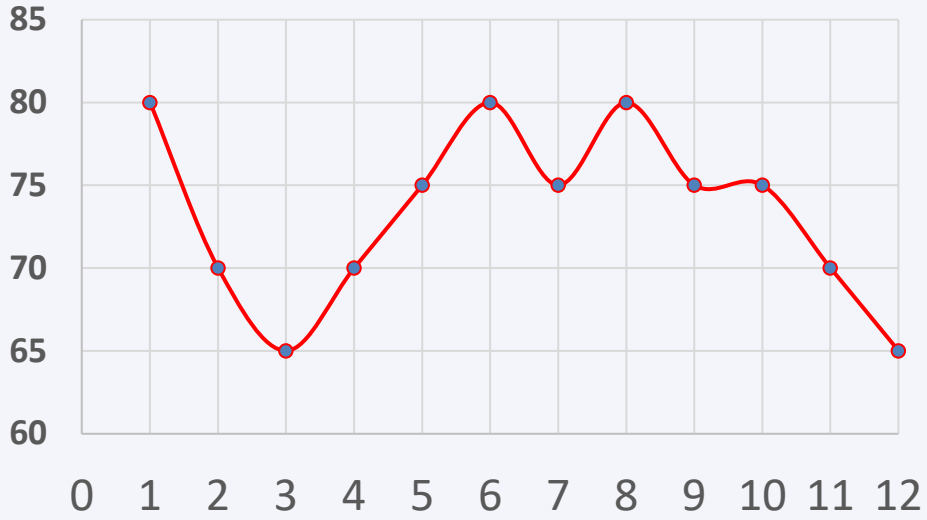
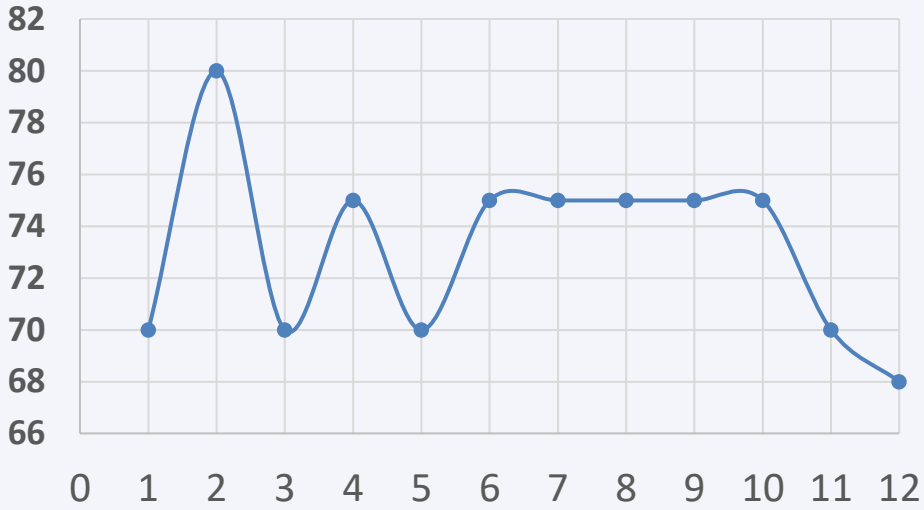
US/ TP



DS/ TP



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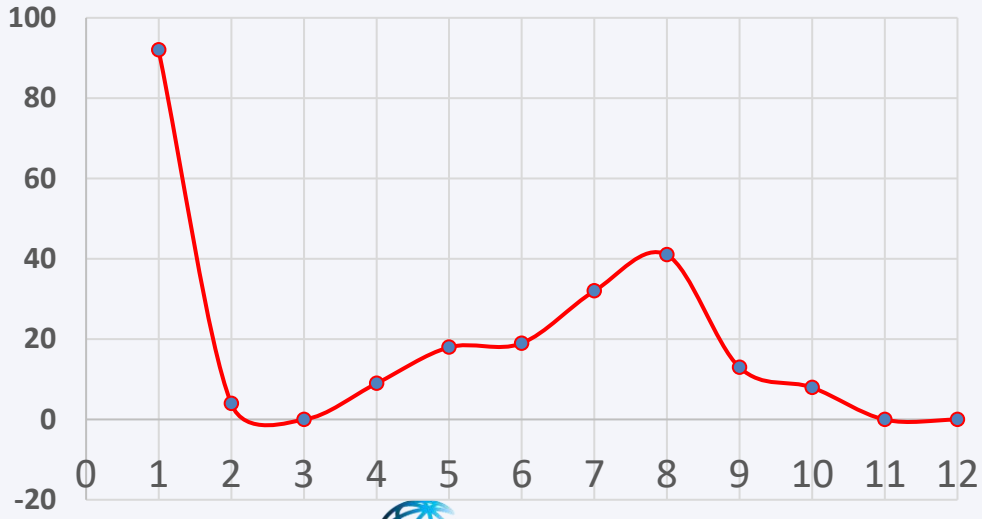
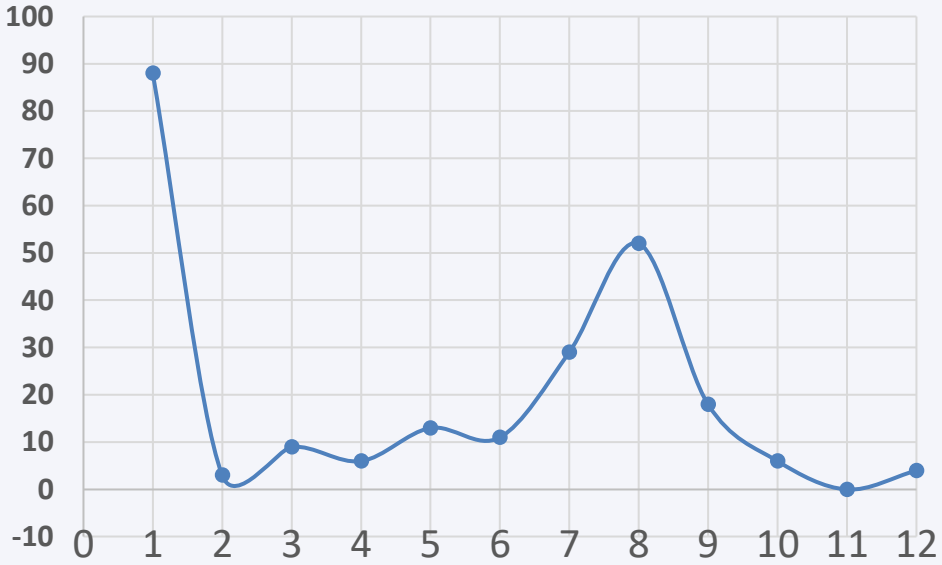
US/ Faecal coliform



DS/ Faecal coliform



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Water Quality Index

WQI OF Up Stream = 94.3813116

WQI OF Down Stream = 87.3943099

Water quality classification based on WQI value:

Water Quality Index Level	Water Quality Status
< 50	Excellent
50-100	Good
100-200	Poor
200-300	Very poor
> 300	Unsuitable

CONCLUSION AND RECOMMENDATIONS

5.1. CONCLUSION

- The findings obtained from this assessment have shown that water from Merowe dam site is reliable for domestic purpose.
- Physical parameters within the WHO standard and Sudanese standard


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THANK YOU!