



**A PRESENTATION
ON
SEA-LEVEL RISE AND COASTAL
SUBMERGENCE ALONG THE SOUTH
–EAST COAST OF NIGERIA**

BY

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OUTLINE

- INTRODUCTION
- STUDY AREA & TECHNIQUES
- RESULTS/DISCUSSION
- SUMMARY
- CONCLUSION



INTRODUCTION

Coastal submergence and shoreline retreat are global problems which can be attributed to sea-level rise and climate change. These constitute a serious threat to shoreline management in the Niger Delta.

This study is therefore aimed at analyzing shoreline recession as a result of sea level rise and also examines the impact on the strand coast, south eastern Nigeria.



STUDY AREA & TECHNIQUES

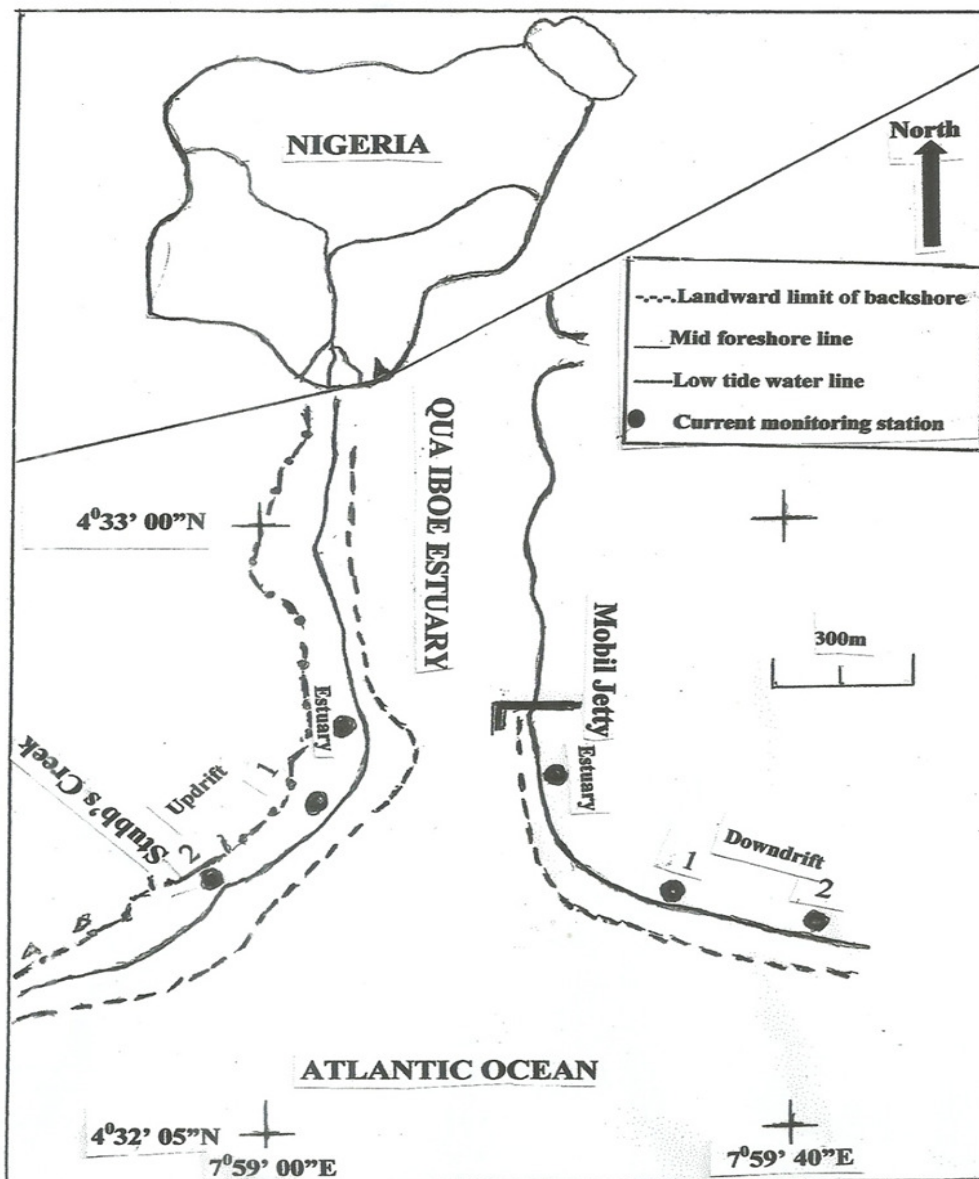


Fig. 1 Location map of the study area showing current monitoring/beach profile stations (Surveyed and produced by Saviour Udo-Akuaibit, October,2013).

- Period Sept.28-October 6, 2013
- Shoreline Mapping with GPS and camera.
- Wave breaker parameters
- Beach profile surveys



The 2002 And 2013 Editions Of The Shoreline Maps Of The Study Area

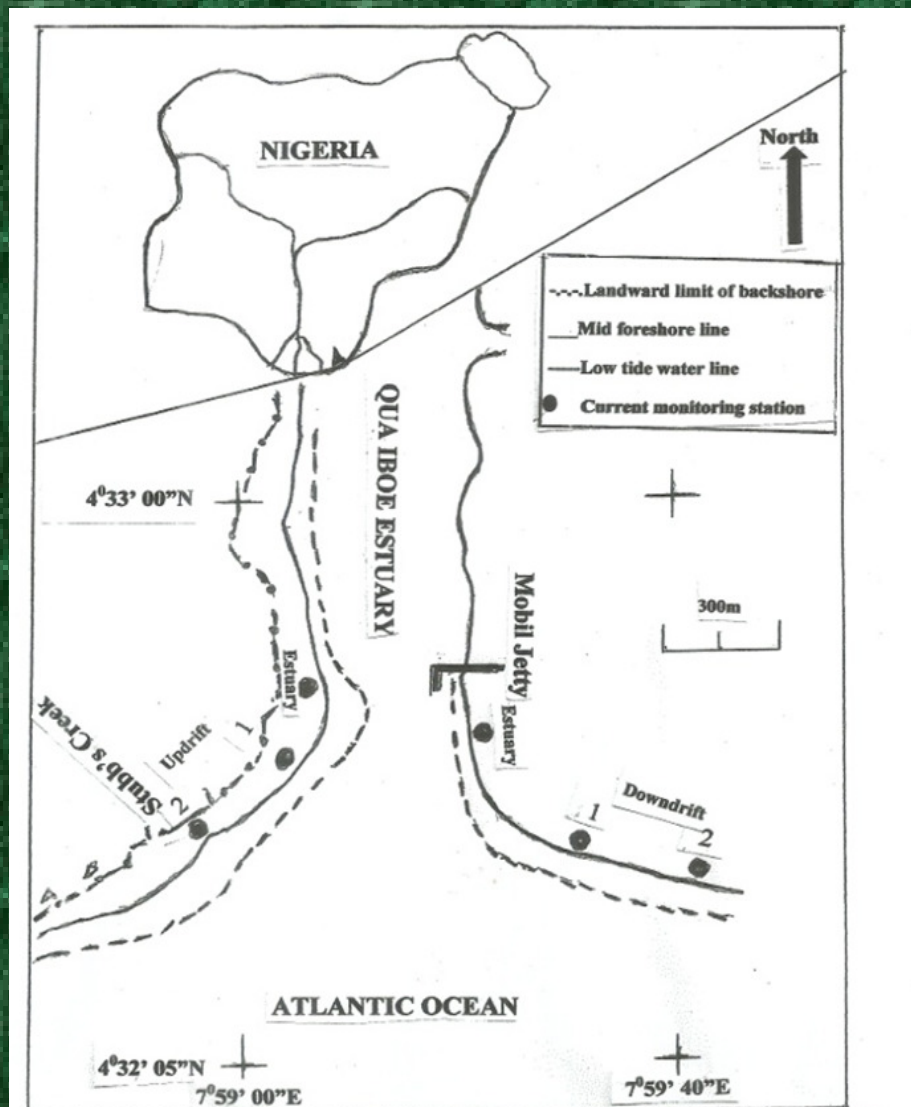


Fig. 2 Location map of the study area showing current monitoring/beach profile stations (Surveyed and produced by Saviour Udo-Akuaibit, October,2013).

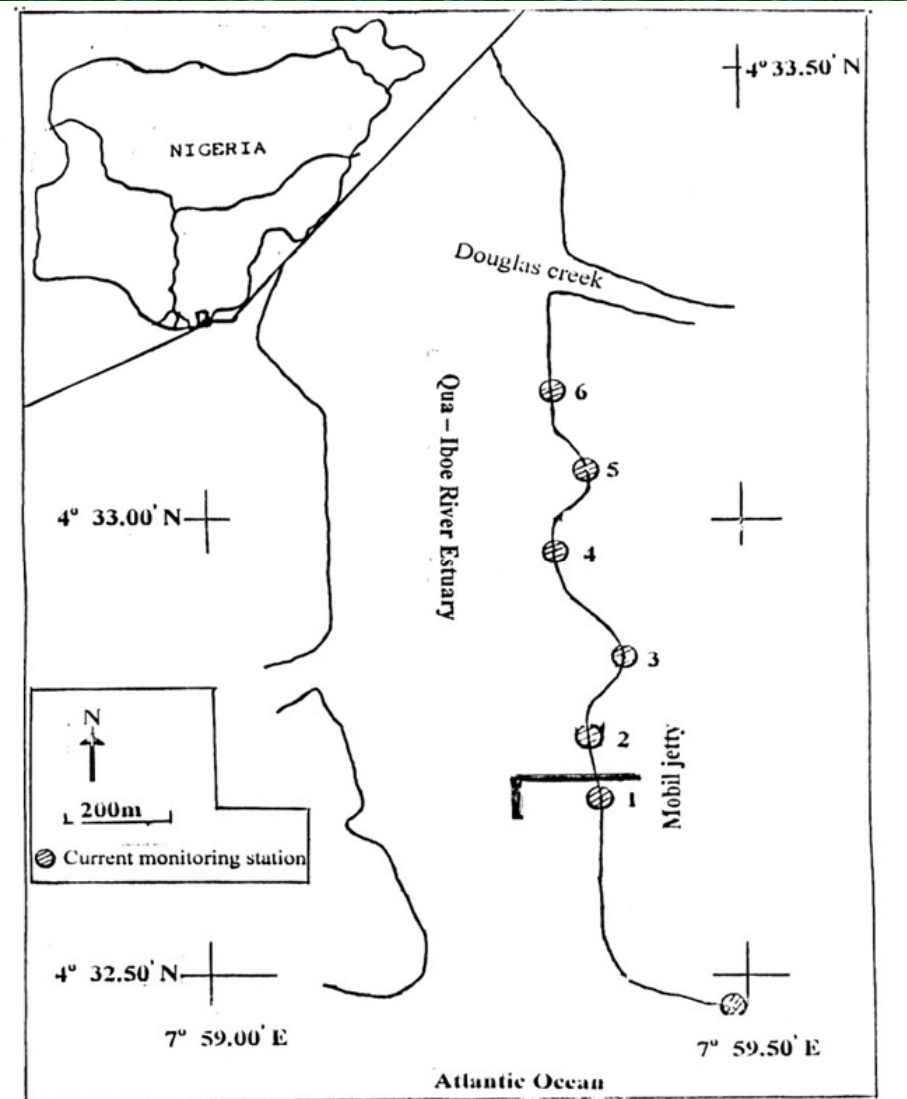


Fig. 3 Location map of the study in 2002 - Qua-Iboe estuarine shoreline (After Udo, 2002)



STUDY AREA



Plate 1: Aerial photo of Qua-Iboe Estuary in 2002

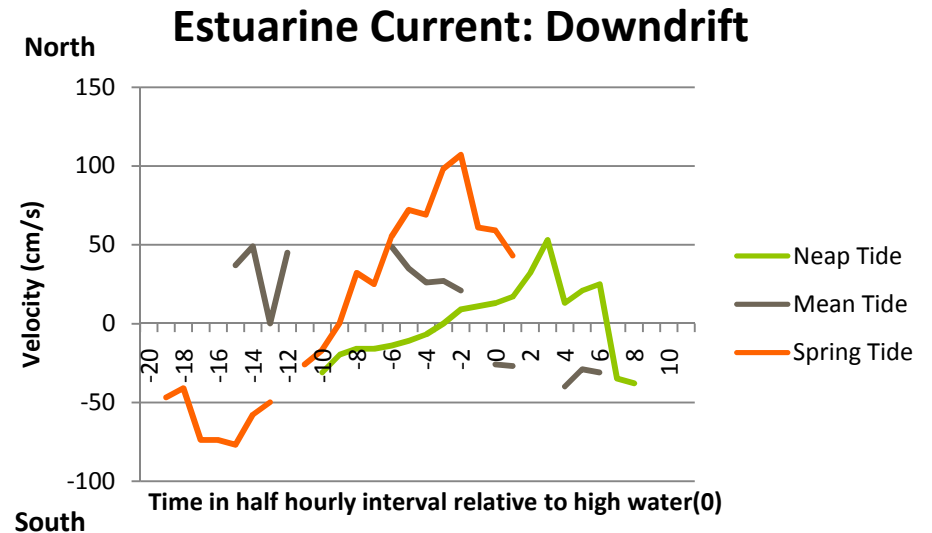
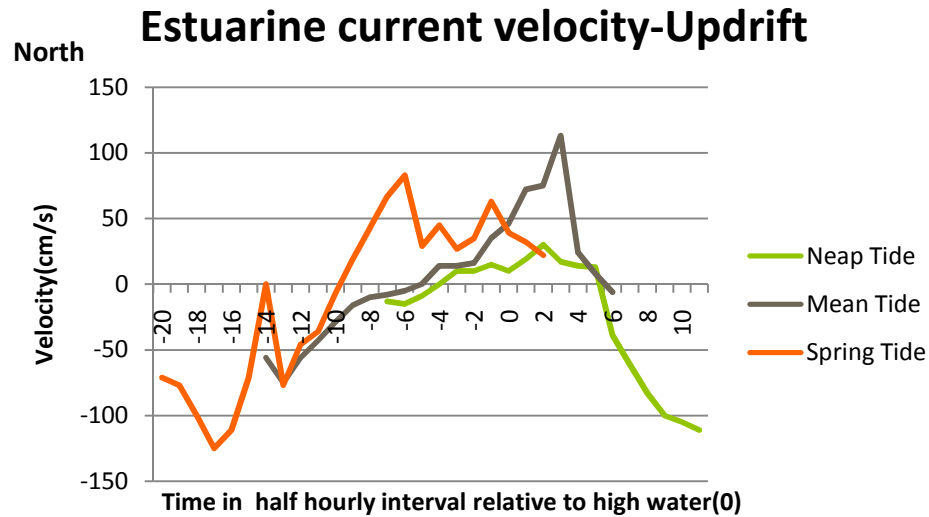




Plate 2: Aerial photo of Qua-Iboe estuary showing areas of severe erosion in 2002



RESULT-ESTUARY: Current Velocities



South

Fig.4.Estuarine current velocity-Updrift

Average Flow Velocity:Estuary-Updrift

South

Fig.5.Estuarine current velocity:downdrift

Average Flow Velocity: Estuary-Downdrift

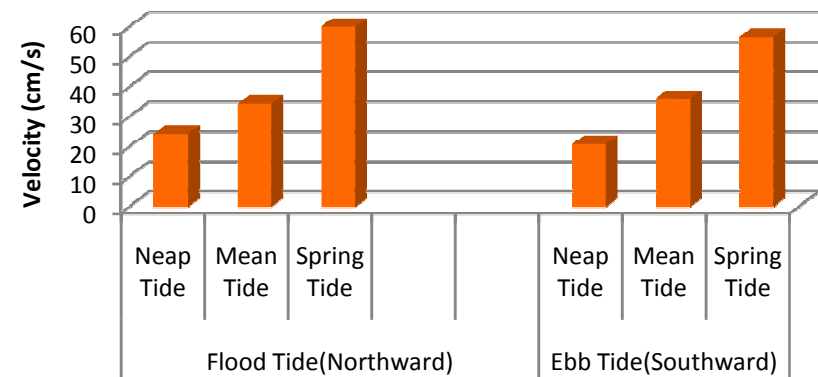
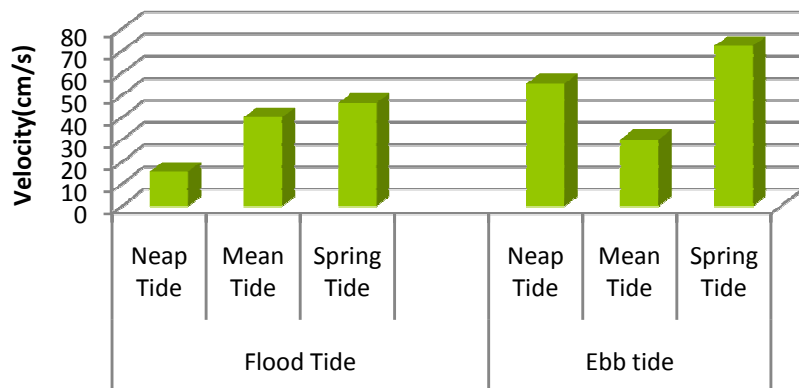


Fig.6.Average Flow Velocity:Estuary updrift

Fig.7 Average Flow Velocity: Estuary Downdrift



RESULT-SURF ZONE: Longshore Current

Fig. 8: Longshore current velocity:Updrift station 1

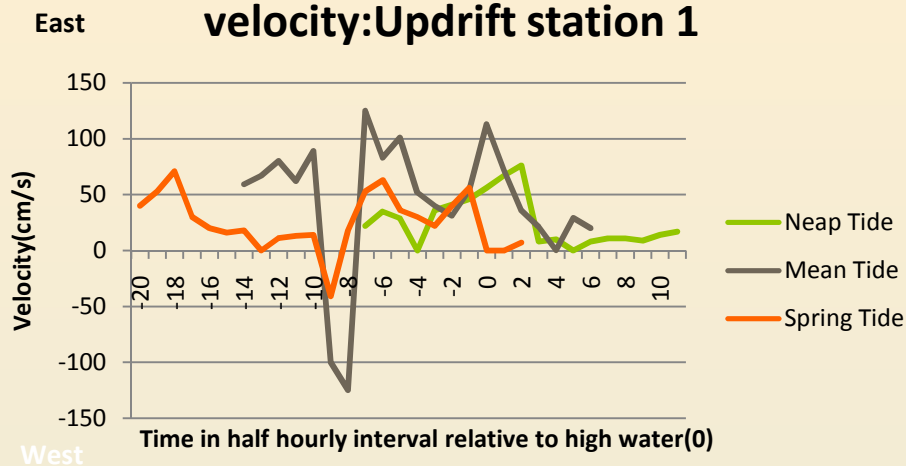


Fig. 9: Longshore current velocity:Downdrift station 1

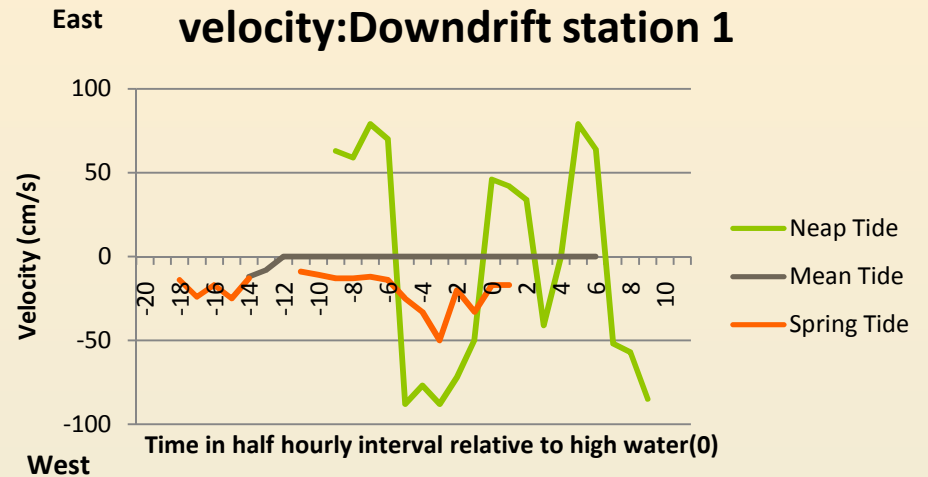


Fig.10: Average Longshore Current Velocity: Updrift-Station 1

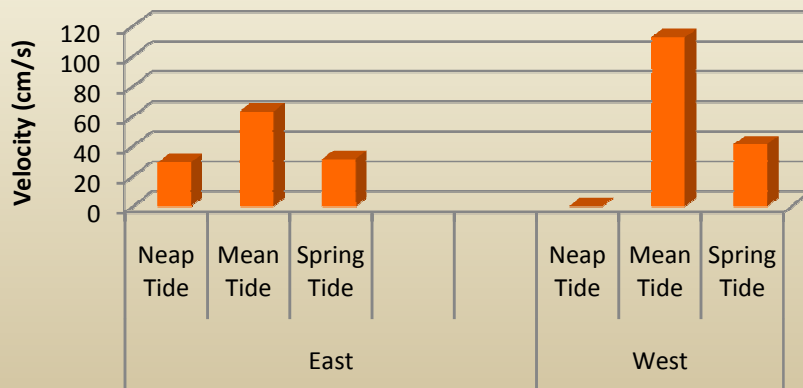
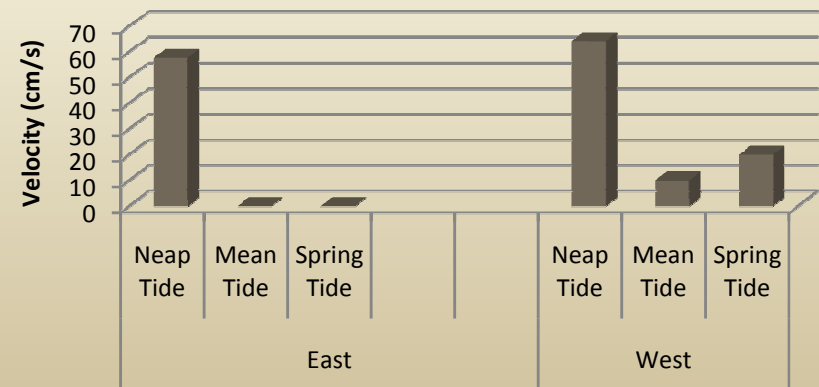


Fig. 11: Average Longshore Current Velocity:Downdrift Station 1



RESULT-SURF ZONE: UPDRIFT.ST.2

-WAVE PARAMETER



Fig 12: Wave Breaker height:Updrift

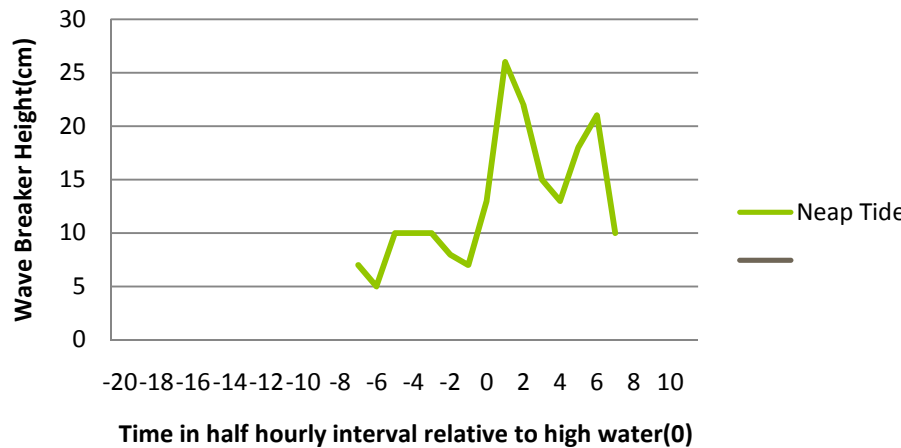


Fig 13: Wave Breaker Height: Downdrift

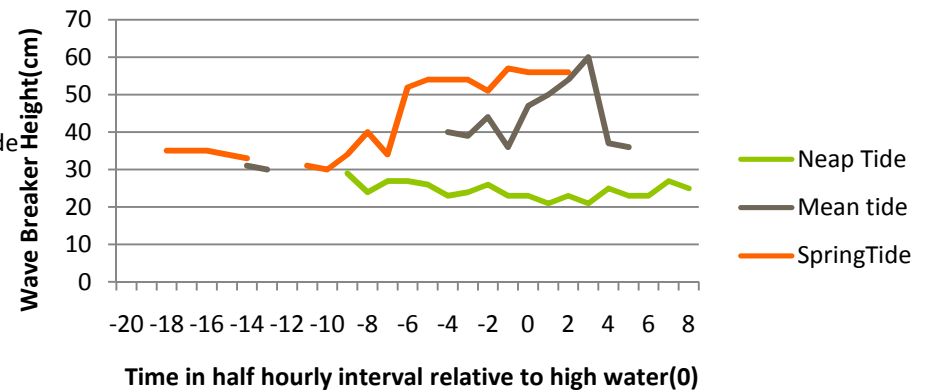


Plate 3.Wave breaker Height -Updrift

Plate 4: Wave breaker Height- Downdrift.

RESULT-UPDRIFT: BEACH PROFILE



Beach Profile:Updrift -Station 1

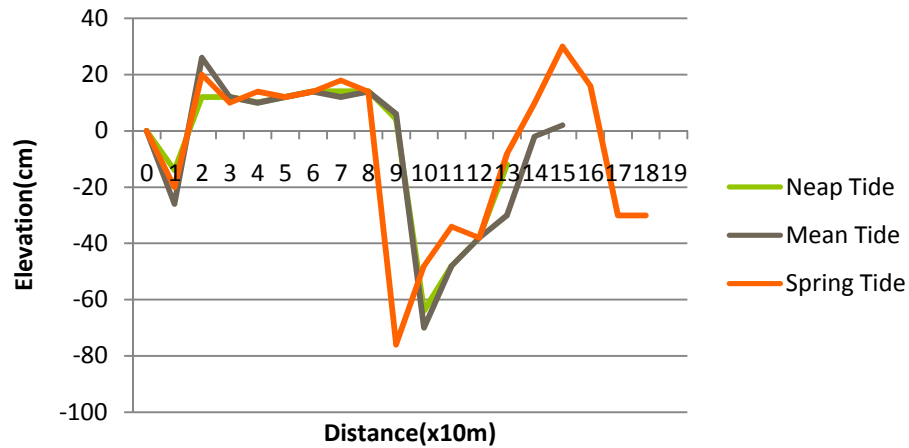


Fig.14. Beach Profile: Updrift-Station 1

Beach Profile:Updrift-Station 2

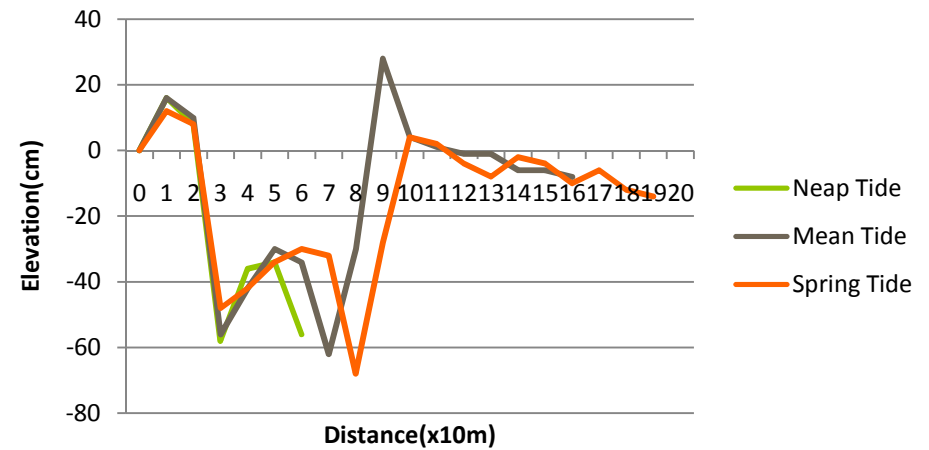


Fig.15. Beach Profile: Updrift Station 2



Plate 5: Backshore - Updrift Station 1



Plate 6: Foreshore –Updrift Station 2

RESULT-DOWNDRIFT: BEACH PROFILE



Beach Profile:Downdrift-Station 1

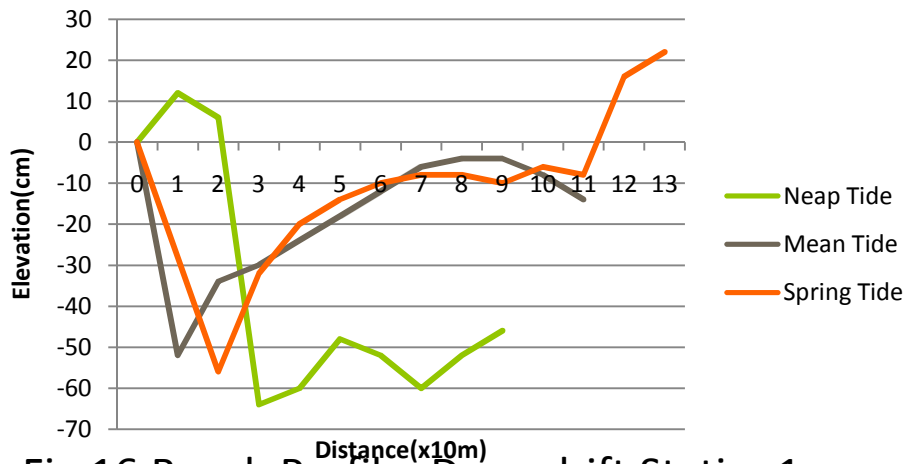


Fig.16. Beach Profile: Downdrift Station 1

Beach Profile:Downdrift-Station 2

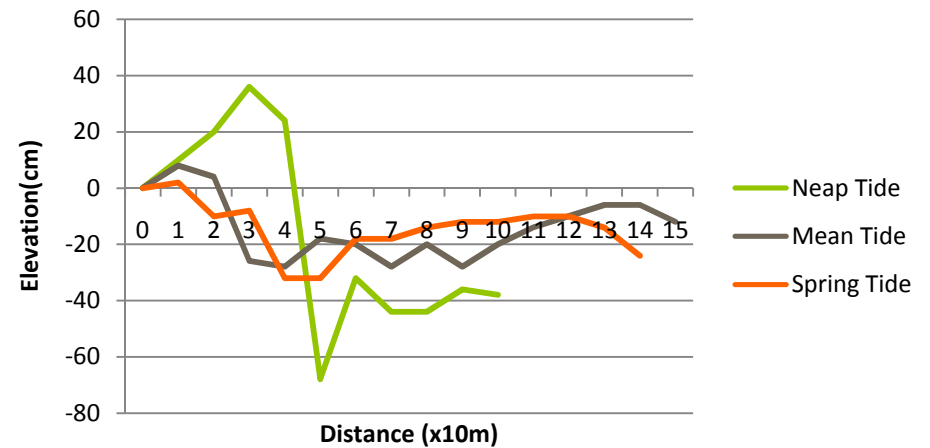


Fig17. Beach Profile: Downdrift-Station 2



Plate 7: Foreshore- Downdrift Station 1



Plate 8: Foreshore- Downdrift Station 2

HYDRODYNAMICS-EBB PHASE

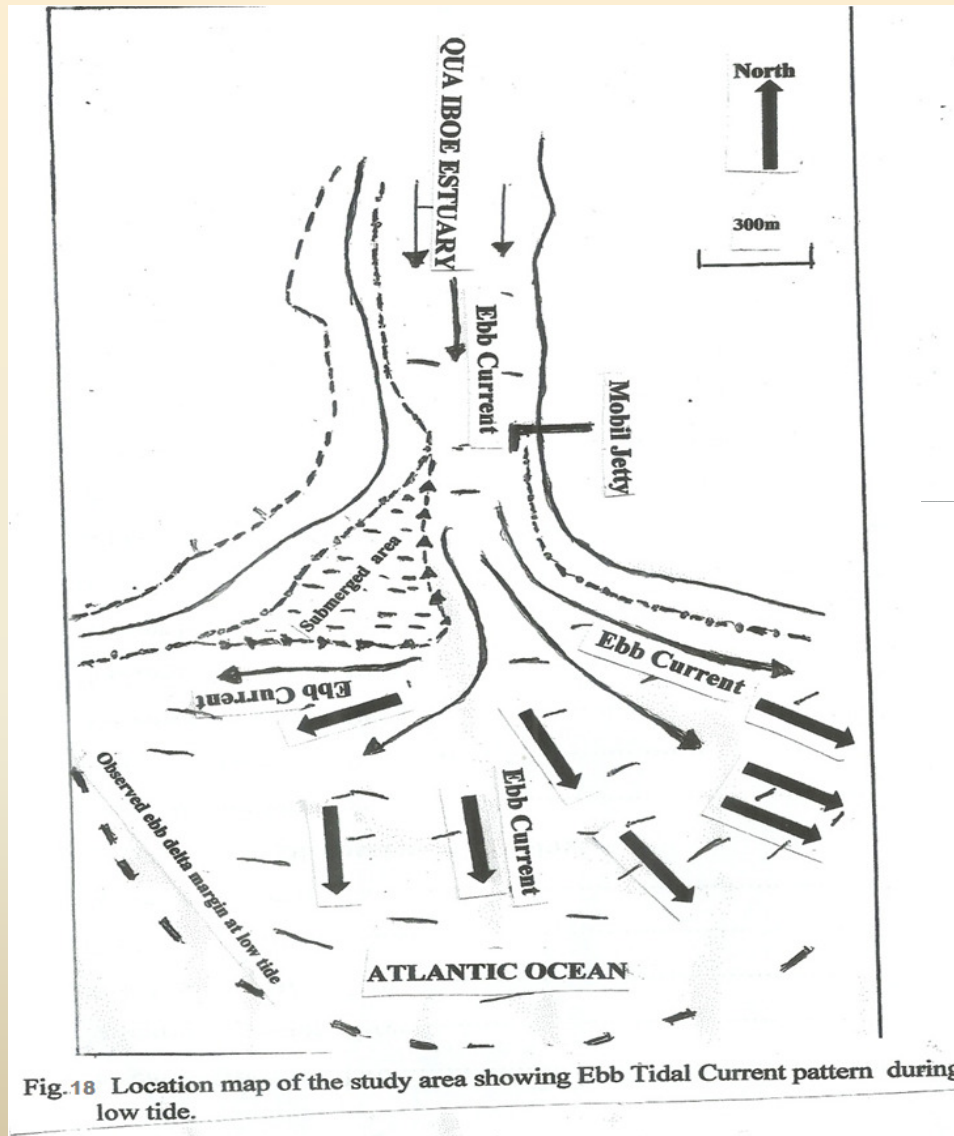


Plate 9. Offshore sand bar –Updrift.



SHORELINE MANAGEMENT ISSUES



Plate 10 Stubb's Creek sealed-up with sediment during storm surge in



Plate 11: Foreshore trough at updrift beach



Plate 12: Eroded backshore at updrift beach



Plate 13 shoreline retreat due to storm surge event at the updrift



SHORELINE MANAGEMENT ISSUES



Plate 14: Former Itak Abasi primary School damaged by storm surge in 2011



Plate 15: Former Itak Abasi Health Centre damaged by storm surge in 2011



Plate 16: Ibeno beach resort



Plate 17: sediment accretion at downdrift beach

SUMMARY

This presentation has :

- Noted shoreline retreat and coastal submergence around Qua-Iboe Estuary as impact of sea-level rise and climate change in Nigeria.
- Considered integrated coastal zone management approach as essential in managing the shoreline retreat through intervention projects by both public and private sectors.
- Considered regular beach nourishment as a proactive measure to prevent shoreline retreat



CONCLUSION

- *In conclusion, the coastal submergence and shoreline retreat along the south east coast of Nigeria which is attributed to sea-level rise related storm surge can be considered as a signature of climate change in Nigeria. Therefore, more attentions should be given and concerted effort made by the government and private sectors to reduce any anthropogenic activity which accelerate climate change and sea-level rise.*



CONTRIBUTION TO KNOWLEDGE

- The production of a recent shoreline map of the study area as a basis for assessment of sea-level rise along the strand coast of Akwa Ibom State, South-eastern Nigeria.

THANK YOU
FOR
LISTENING

