



# **19<sup>th</sup> Meeting of the Southern African and Islands Hydrographic Commission**

## **Malawi National Report**

SAIHC 19, 28 - 31th August, 2023 Mauritius



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## BACKGROUND



International  
Hydrographic  
Organization

- The first hydrographic charts of Lake Malawi were produced in 1950s
  - ✓ 12 large scale charts were printed
  - ✓ 4 Small Scale Charts covering the whole of the lake were printed
- Lake Pilot or Sailing Directions were publicized
- Notices to Mariners were published time to time in Government Gazette



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## BACKGROUND CONT...



International  
Hydrographic  
Organization

- These were insufficient for modern needs because;
  - ✓ The survey were incomplete, only selected parts of the lake were surveyed
  - ✓ Data shown on the charts is insufficient to meet requirement of fisheries, geologist and coastal engineers
  - ✓ All charts need to be revised and metricated
  - ✓ There was no national triangulation in the 1950s



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# **CHARTING OF LAKE MALAWI**



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Organization

- The needs for modern hydrographic information led to the formation of hydrographic project of Lake Malawi “Charting of Lake Malawi” in 1989.
- This was a capacity building period where by;
  - ✓ 70 tone vessel was built ( with assistance from French Government);
  - ✓ Furuno and Atlas Deso 22 Echosounder was fixed on the vessel;
  - ✓ Syledis beacon equipment was used for positioning;
  - ✓ Few Hydrographic surveys were conducted; for construction work of harbour at Chipoka, monitoring of siltation on Lake Malombe and shire River;



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# CHARTING OF LAKE MALAWI CONT...



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- The project truly resuscitated through bilateral cooperation (Malawi and Iceland) in 2001;
- Objectives of this project;
  - ✓ To survey Lake Malawi, Lesser lakes and Rivers for production of charts for safety ;
  - ✓ To revise Pilot book or Sailing Directions;
  - ✓ Publicize notices to Mariners for safety of navigation



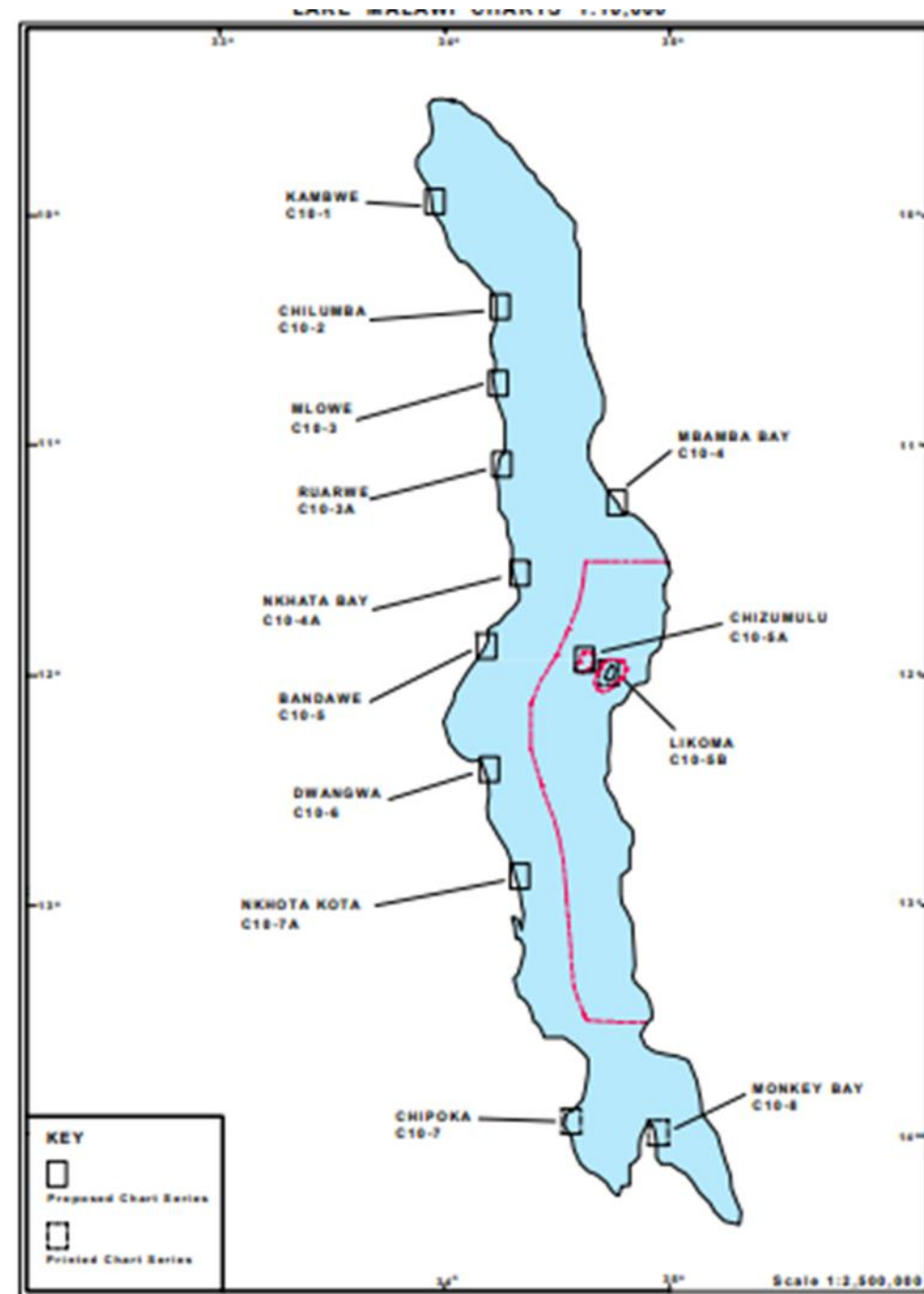
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## CHARTING OF LAKE MALAWI CONT...

- Chart coverage;
- 13 large scale charts (1:10,000) to be surveyed and produced ;





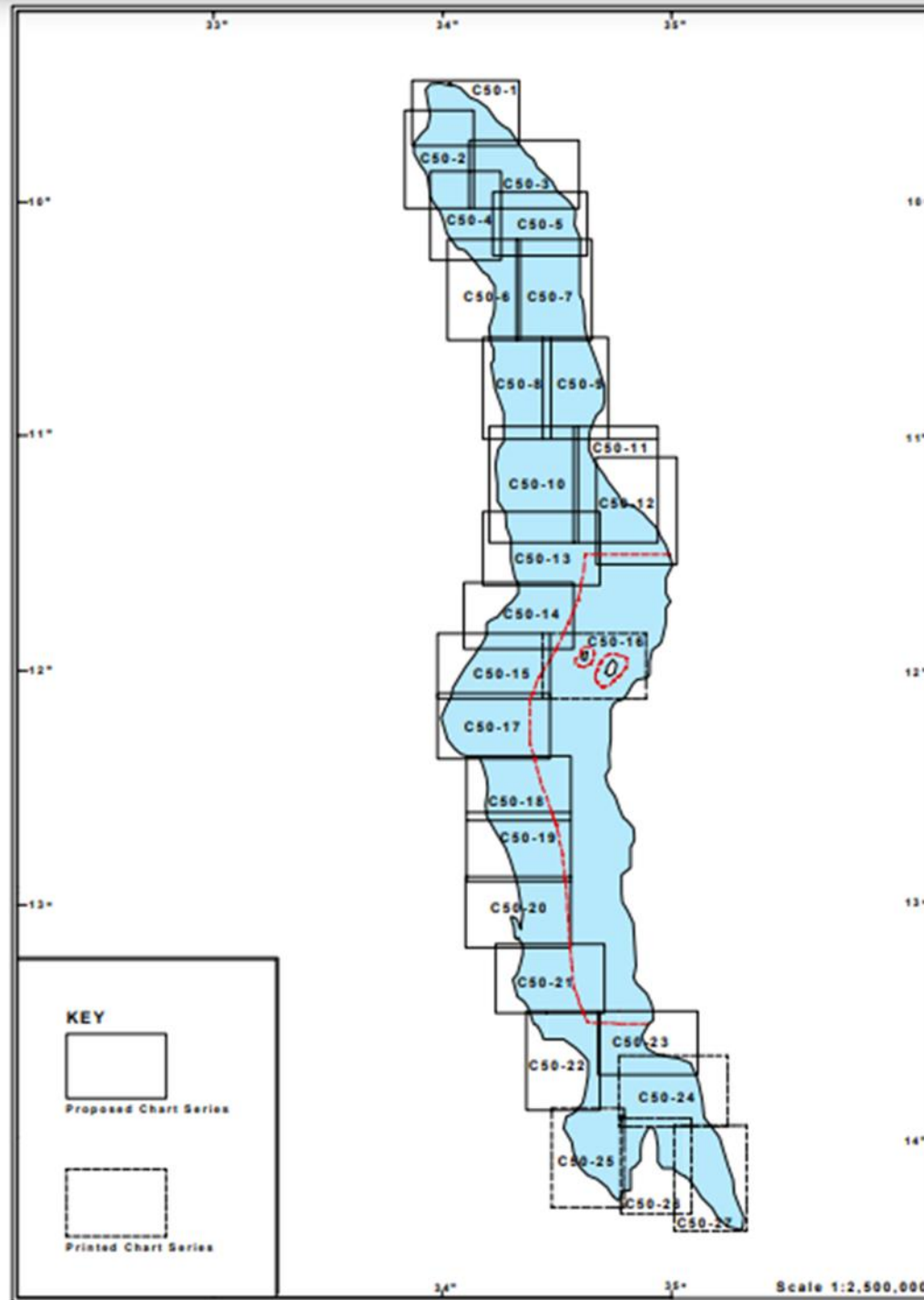
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## CHARTING OF LAKE MALAWI CONT...

- Chart coverage;
- 27 Medium scale charts (1:50,000) to be surveyed and produced ;





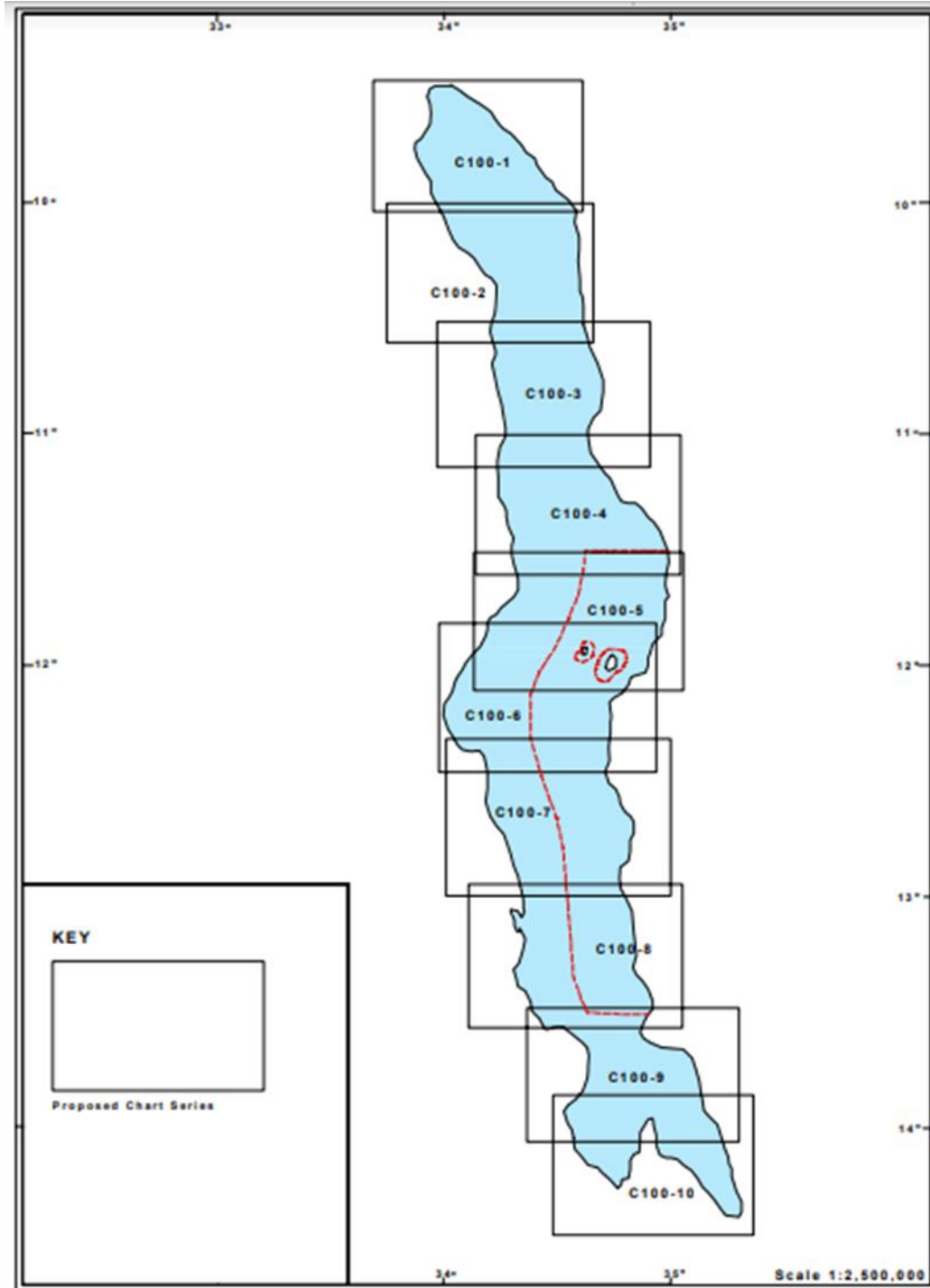
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## CHARTING OF LAKE MALAWI CONT...

- Chart coverage;
- 13 Small scale charts (1:100,000) to be surveyed and produced;







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# CHARTING OF LAKE MALAWI CONT...

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- Achievements

- ✓ Capacity building;

- Racal DGPS was purchase for positioning
- Automated Tide Gauge and SVP was procured
- Hypack Max Software for data acquisition and processing was procured
- CARIS GIS software for chart production was procured
- Two staff got trained in hydrography CAT B in Italy and Netherlands
- One nautical cartographer got on job training in Iceland



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## CHARTING OF LAKE MALAWI CONT...

- Achievements
- Charts Production;
- 6 charts produced and printed
- 40% of the lake survey data acquired





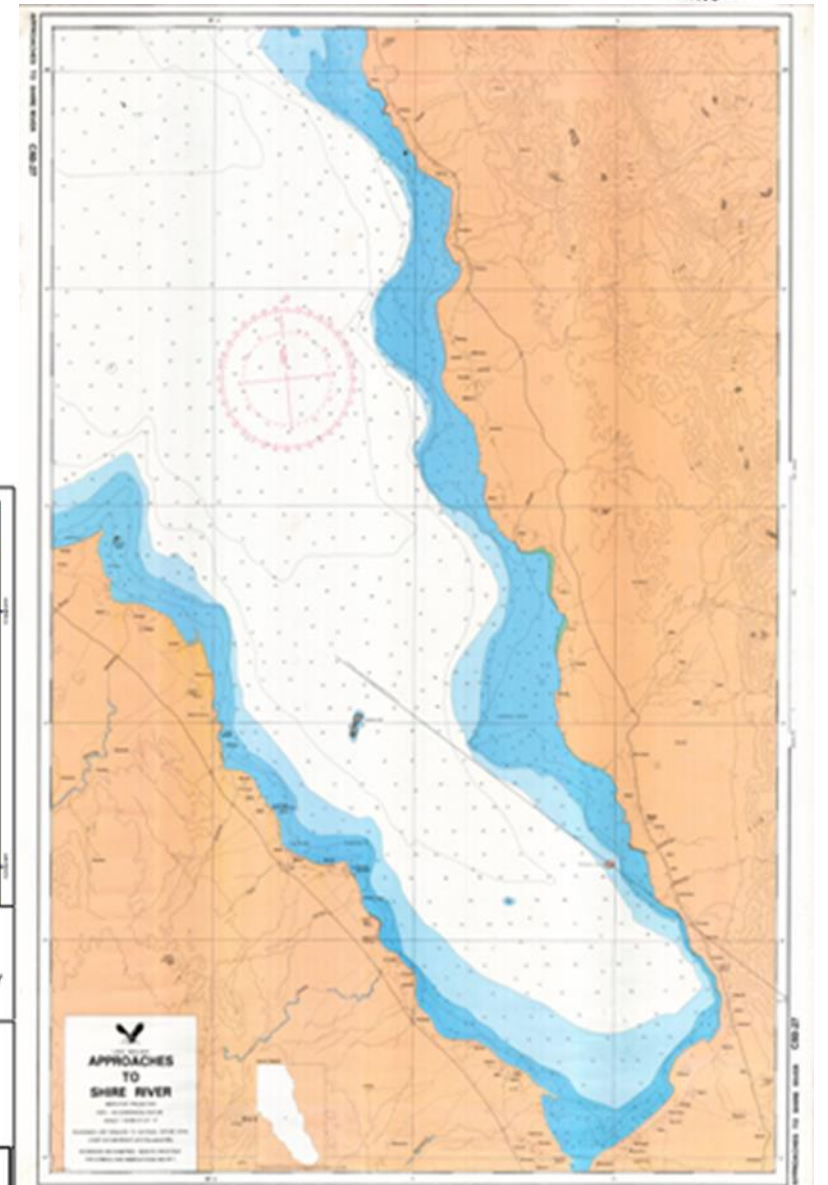
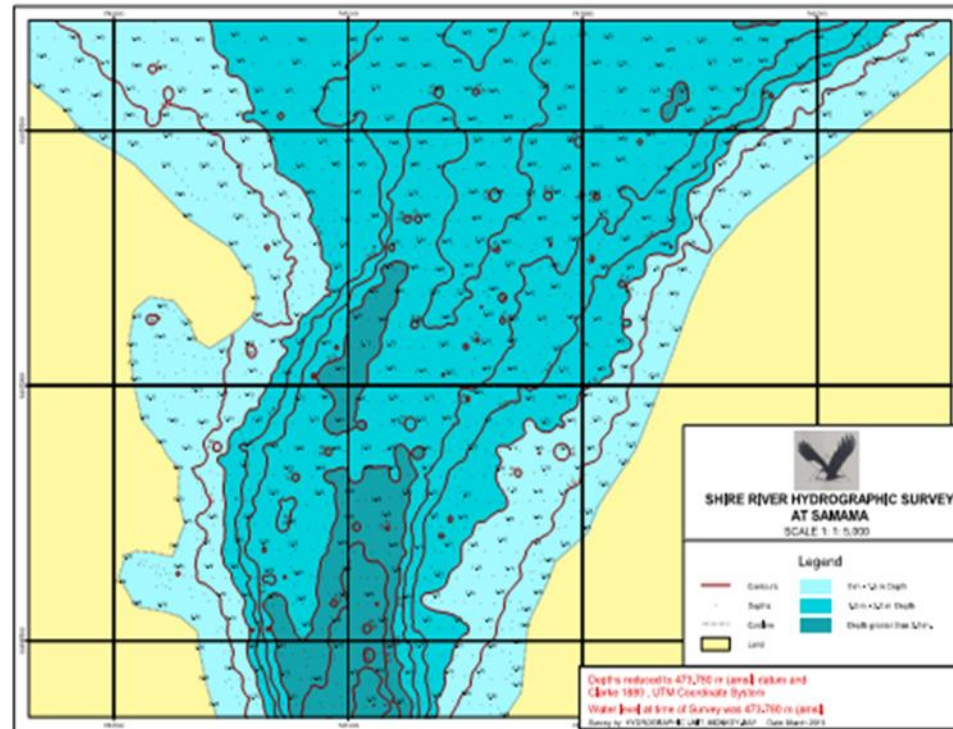
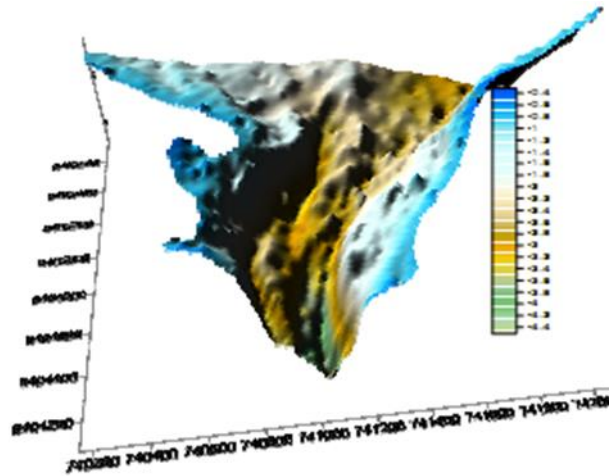
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International Hydrographic Organization

# CHARTING OF LAKE MALAWI CONT...

- Achievements
  - Charts Production;
    - Chart C50-27 Revised





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# CHALLENGES



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- Break down of RV Timba Engines in 2006
- Government funding prioritized maintenance of the vessel than operation;
- Long period of idle, some equipment like echosounder developed problem and now is not functioning;
- All software become outdated.
  
- Pilot book( Sailing Direction) was not revised;
- Short lived of the project;
- Luck of expertism and training;
  
- Capacity building;
- No formal training in Hydrography since 2002;
- No formal training in nautical cartography



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## **NEW DEVELOPMENTS SINCE LAST YEAR**



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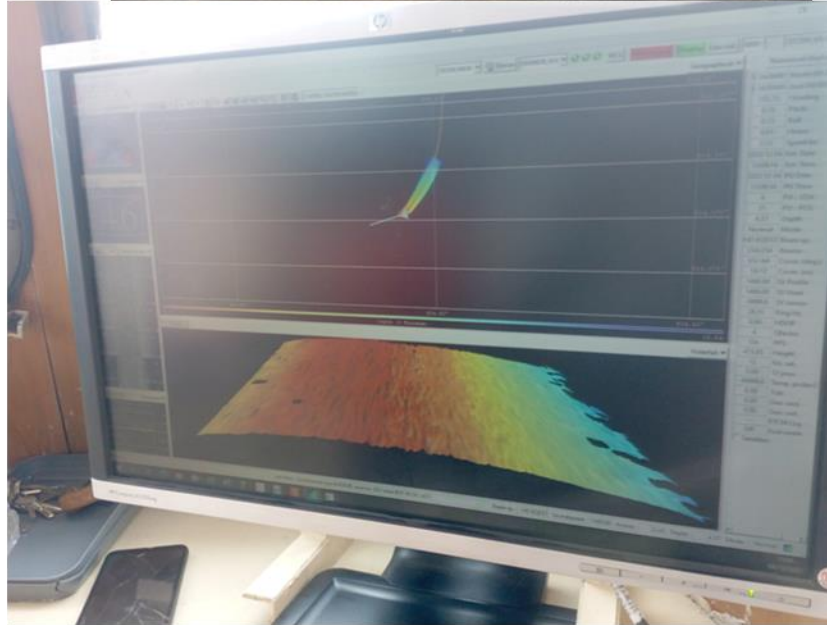
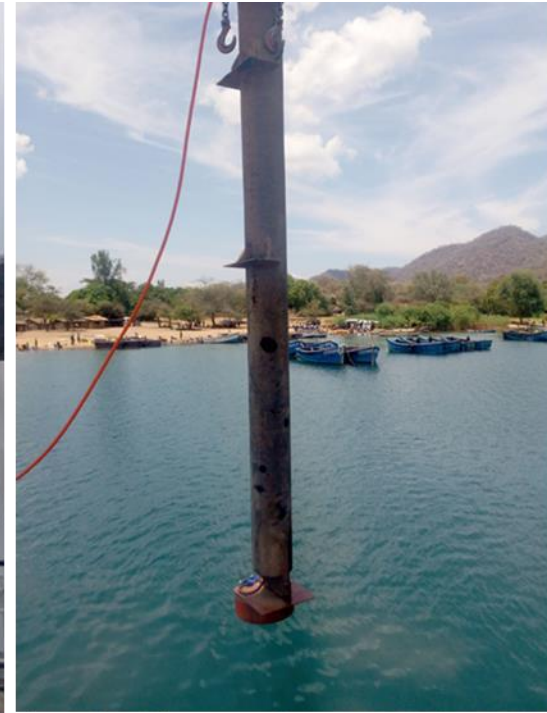
- Engaged with National Water Resources to conduct hydrographic survey in Lake Malawi and Shire River.
  - To produce base map for siltation/scouring analysis and modeling.
- Engaged with EGENCO Malawi to install two water gauges on Lake Malawi
- Malawi hosted the first ever African Great Lakes and River Sub-working group
  - This was an eye opener to government officials on matters concerning hydrography
- The signing of MOU between UNKHO and Survey Department is at an advanced stage



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# KONGSBERG SYSTEM INSTALLATION





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## FUTURE PLANS



- To conduct hydrographic surveys at Chipoka Secondary City.
  - To produce berthymetic sheet
- To finalise survey and printing of 1:10000 Nkhatabay sheet
- Recently survey department has been approached by Syracuse University in USA to;
  - a. To conduct high resolution survey to map lake floor of Lake Malawi
  - b. To conduct Seismic Survey to map sediments and faults up to 200 meters below lake bed
- The data will be used to determine the position, rates of motion and faults below Lake Malawi to understand earthquake hazards to communities in the rift valley eg; 2009 Karonga earthquake in Malawi



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# CONCLUSION/WAY FORWARD



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Organization

- Malawi Government (MG) has managed to bring life back to RV. Timber
- MG has managed to purchase Single beam echosounder for coastal surveys and Rivers
  - With proper training, and having enough funding from government and other stake holders we are prepared to;
  - Chart the remaining 60% of the Lake Malawi, lesser lakes and major rivers;
  - Revise the Pilot book/ sailing directions ;
  - Constantly Revising the Charts;
  - Monitor currents and deposition of sediments;
  - Assist in promulgation of notices to mariners.
- With proper equipment and training, through seismic surveys and bottom sampling ,we are ready to assist the country in exploration and exploitation of Marine Resources;
  - Precious minerals;
  - Gas;
  - Oil.
- With proper coordination with other stake holder will assist in monitoring and protection of marine environmental and harbour.





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**THANKS FOR YOUR ATTENTION**