

1. Malawi Hydrographic Office

The mandate of the Hydrographic office is to carry out surveys of Lake Malawi including the lesser lakes of Malombe, Chilwa and Chiuta as well as the Shire River.

Earnest surveys of Lake Malawi were started in the 1950s by the British Admiralty. After a lapse of about 30 years surveys were resuscitated beginning with French cooperation in 1989 and then in 1999 the cooperation with Iceland went on up to 2006. By this time the Malawi Hydrographic office became well established with an ability to carry out surveys throughout Malawi and wherever there was a requirement to carry out surveys be it in dams, rivers or smaller lakes and on ports of call on the coasts of Lake Malawi.

2. Hydrographic Surveys

40% of the total area of 24000km² of Lake Malawi has been surveyed. As of now there still remains a substantial amount of work to be done when the River Shire and the smaller lakes are put in consideration.

Hydrographic Survey Office reached a new level of achievement this year after completion of delimitation of marine time boundary between Malawi and Mozambique. A total maritime boundary of 284.88km and buffer zone of 42km and 33.5km around Likoma Island and Chizumulu Island respectively were delimited refer annex III. Successful completion of this excise made the African Union Boarder Programme to invite Malawi and Mozambique in Addis Ababa in Ethiopia to share the experience to Lake Tanganyika riparian states of Bulundu, Dr. Congo, Tanzania and Zambia.

To increase resilience to climate change in fisheries sector of southern Lake Malawi and Lake Malombe, we have been engaged to conduct Hydrographic Survey of Lake Malombe. And apart from producing bathymetric sheets for the Lake the office is also engaged in identification of bottom features of the Lake. Malombe

2.1. Problems

~~The ship RV Timba repairs are now complete and as of now the ship engines were tested and sailed a distance of about 30 nautical miles to the port of Chipoka. . What remains is for the ship to go through a seaworthiness inspection in order to acquire certificate of seaworthiness from the Marine Department. Due to the long length of idleness some accessories in the gallery and the crew cabins need replacement.~~

Hydrographic Survey vessel, RV. Timba which has been on repair for long period is now ready for the surveys of Lake Malawi. For her to be fully operational, ~~T~~there is ~~also~~ a need to acquire equipment such

as GPS and Echo-Sounder and update data acquisition and processing software among other requirements. The government currently has procured a single beam echosounder to be installed on the boat and it is hoped that all softwares will be sourced and updated accordingly.

The small launch the RV Timba II which is very useful for coastal and river surveys also requires a dedicated positioning and data acquisition equipment to function independently. This launch services surveys in mostly coastal and shoal areas.

The purchase of a side scan sonar would assist in achieving 100% bottom coverage to complement the traditional single beam echosounder especially in harbor and critical areas of concern.

3. New Charts & Updates

To date the following charts have been produced:

Chart No.	Series	Status
C10-8	1:10,000	Printed
C10-7	1:10,000	Printed
C50-24	1: 50,000	Printed
C50-25	1: 50,000	Printed
C50-26	1: 50,000	Printed
C50-27	1: 50,000	Printed
C10-6B	1:10,000	Ready, Printed on demand using CARIS Software
C50-1B	1: 50,000	Ready, Printed on demand using CARIS Software
C10-4A	1:10,000	Data acquired & validated
C10-2	1:10,000	Data acquired & validated
C100-5	1:100,000	Few profiles to be redone in the field
C100-2	1:100,000	50% of data acquired

And Chart Index is attached as Annex I.

Part of chart 50-27, (approaches to Shire River) has been reversed with an aim of identifying the sand bar at the mouth of the River refer annex IV.

Chart Index II takes into account new development. This takes care of large scale charts required in areas of significant fishing concerns and the sugar factories in Nkhotakota, Salima and Chikwawa districts in the lakeshore and river Shire areas.

ENCs and RNCs are not in production. In addition INT and pleasure Craft charts have not been produced as yet and it is hoped that once the project with Norway materializes will take care of some of these matters.

3.1. Problems Encountered

As far as chart printing is concerned the Departmental printing press has not been functional for some time now. We are currently relying on HP plotters but these have also developed faults which require looking into. There is a general trend that the plotters acquired in these years have not worked according to set out guarantee promised by the manufacturers and even the after service has not been there. We would want to learn from the hydrographic fraternity how they take care of chart production and printing matters.

4. New Publications & Updates

~~Surveys for the Nsanje port have been carried out by those involved in the Shire/Zambezi waterway project as part of the whole project hydrographic survey.~~ Hydrographic Survey Office is planned the revision of the Lake Malawi Sailing Directions ~~to will~~ be carried out later on this year concomitant with surveys for large scale surveys. The Hydrographic office works in close cooperation with the Marine Department in order to adequately chart the priority areas.

4.1. Problems encountered

With the RV Timba about to start survey operations this year it is hoped that preparation of the sailing pilot will resume and that the personnel will gain from the exposure that the training and experience to be acquired in this project. Currently this activity has been on the shelf for a long time.

5. Maritime Safety Information (MSI)

Nation/Area	INT Region	Local Warning	Coast Warning	Navarea Warning	Port Info	Master Plan
Malawi	H	Partial Lake Malawi pilot update	No	No		Marine Transport Sector

The transmission of safety information to Mariners is the responsibility of Marine Services Department. To this effect the Marine Services department is working on a Master Plan for the Marine Transport Sector. Currently there has been no update as concerns further achievements in the matter of the Master Plan.

IMO is supposed to carry out an audit scheme which includes safety of navigation and importance of charts. Currently, however the main items for communication are still VHF radios which have indeed compromised safety at critical times when ships need urgent rescue.

5.1. Problems Encountered

The Hydrographic Survey office still intends to work in close cooperation with Marine Department in order to develop reliable Maritime Safety Information.

6. C-55

As has been the case, charts are at scales 1:10000, 1:50000 and 1:100000. With the resources at hand the status of hydrography and nautical cartography may be ranked as fairly good. However with the lapse of time and the inactivity brought about when the survey vessel Timba was idle we have somewhat lagged behind. Still the revival of operations will enable resumption of production of charts and we look forward to this.

The C55 status therefore remains the same as during the IHOCBC Malawi Visit Report of 2008.

7. Capacity Building

It is obvious that personnel have been the major input into the achievements made to date and in order to avoid gaps capacity building needs to be a continuous exercise. Training is thus required in hydrography and nautical cartography.

The Government of Malawi has done its part in fulfilling its training obligations by training members at local Universities and occasionally at international training institutions such as the STC in Netherlands. In addition training has been funded by the IHOCBC mainly in South Africa. At an earlier stage training was

also provided by France at EPSHOM. In addition training was also provided by the IHO at Trieste in Italy. Currently comprehensive training is sought both at CAT A and B training in Hydrography.

Malawi and Mozambique have had multilateral agreements involving hydrographic surveys on Lake Malawi (Niassa) which also involved Iceland. The joint project of the lake boundary between Malawi and Mozambique benefited the two countries by having their officers trained in using CARIS Lots software which resulted in successfully delimiting maritime boundary of the lake. is now planned to commence from October 2016 after some delays brought about by some unforeseen circumstances. To this aim a bilateral meeting has already taken place in Malawi on the lake boundary work.

The Shire-Zambezi waterway project is a regional project facilitated by SADC for integrated transport system within the region. The cooperating partners Zambia, Mozambique and Malawi are committed to bringing the project to fruition in the spirit of integration and transport infrastructure development which has hitherto been done in isolated attempts. Malawi relies greatly on road transport which has made its transport costs to be some of the highest in the world and the coming in of such a project would bring benefits to Malawi and the neighbouring countries in the region.

8. Oceanographic Activities

The department of Water resources maintains a network of tide gauges throughout the western part of the Lake including gauges on Lake Malombe and the Shire River. Hydrographic office and department of water resources were engaged in hydrographic survey of Shire River and its main distributaries in order to come up with Lower Shire River flooding Model and zero water gauge reading.

The hydrographic office also maintains one automated pressure tide gauge at Monkey Bay, but additional automatic pressure tide gauges will need to be installed at Nkhota Kota, Nkhata Bay and Chilumba ports in order to complement and check the Water Resources department data. The commencement of operations should revive most of the planned installations. Other oceanographic equipment used by the hydrographic office includes a sound velocity profiler and a Grab corer.

GIZ Germany cooperation has delivered to the hydrographic office a winch and motor, a rubber dinghy, a hydrophore water pump, outboard engine and life rafts for the Timba which has been very helpful to the cash strapped economy.

8.1. Problems encountered

The automatic tide gauge and the sound velocity profiler have worked well in the past years but some updating may still be required including the apparently simple task of battery replacement which in view

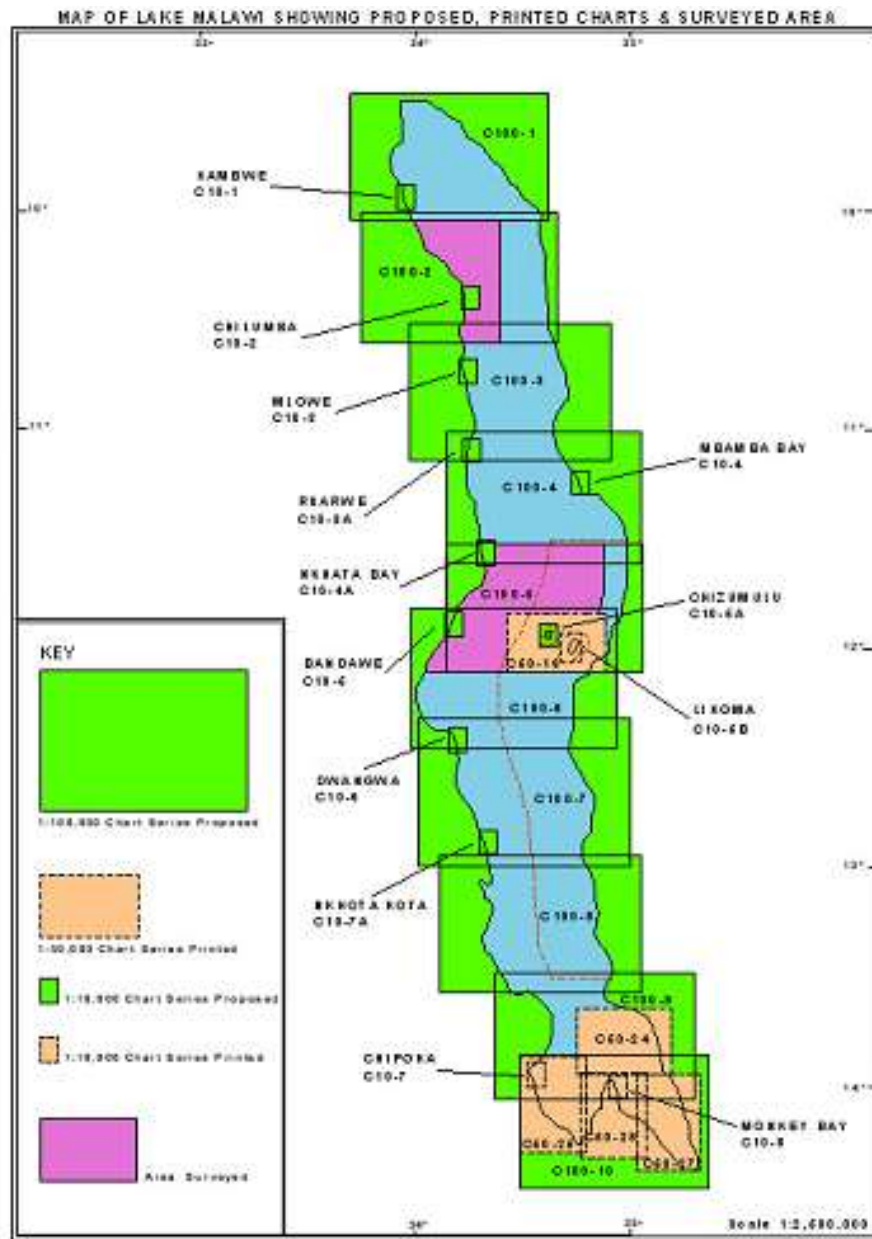
of the time period it may not be certain whether the Suppliers of this item will be readily available or not.

9. Concluding Remarks

With the growing demand of hydrographic data by different stake holders, we have to strive for modern equipment and technology to extend the use of hydrographic data beyond the focus on navigation. Therefore by moving towards data centricity, our office will gain wider appreciation.

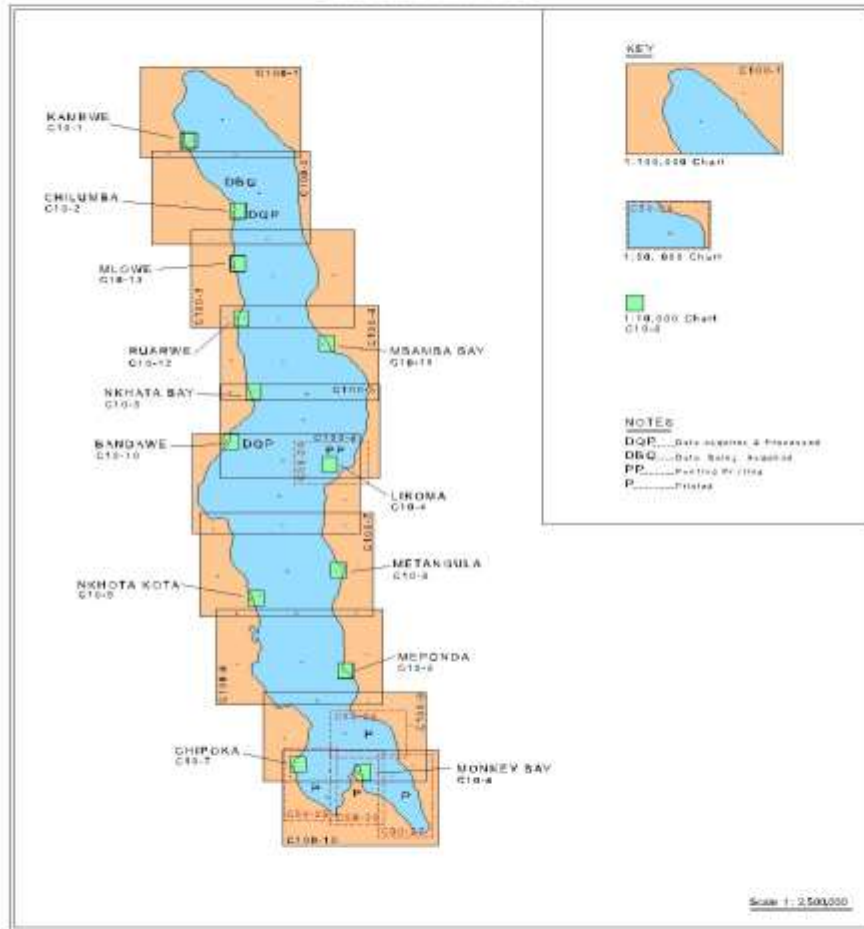
~~The Engineering and Deck crew have shown immense capabilities and a milestone has been achieved which was in some circumstances not certain would be achieved considering the length of time that it has taken.— We are almost certain that with the right cooperating partner such as Norway we can bring back the successes in the production of modern navigation charts, revision of the Lake pilot and monitoring the lake and river environment.~~

We have also trust in our erstwhile development partners who have shown a willingness to assist us even in the face of adversary. We appreciate the support both past and present from Iceland, Germany GIZ and UK Norway who have pledged to support Malawi in printing charts and not forgetting including the mother body the IHO who have provided short training courses to our staff tirelessly every year and with such support we would like to assure our partners that the noble cause shown will not be in vain. As a country we realize the vital role played by the water infrastructure and the requirement to develop it and not take it for granted. We are therefore happy to be here at the conference and meet again in amicable but serious discussions despite problems of finances that are always glaring their uncanny faces to stop us from sharing with the SAIHC community our zealous and worthy efforts at sustained establishment of a hydrographic concern.



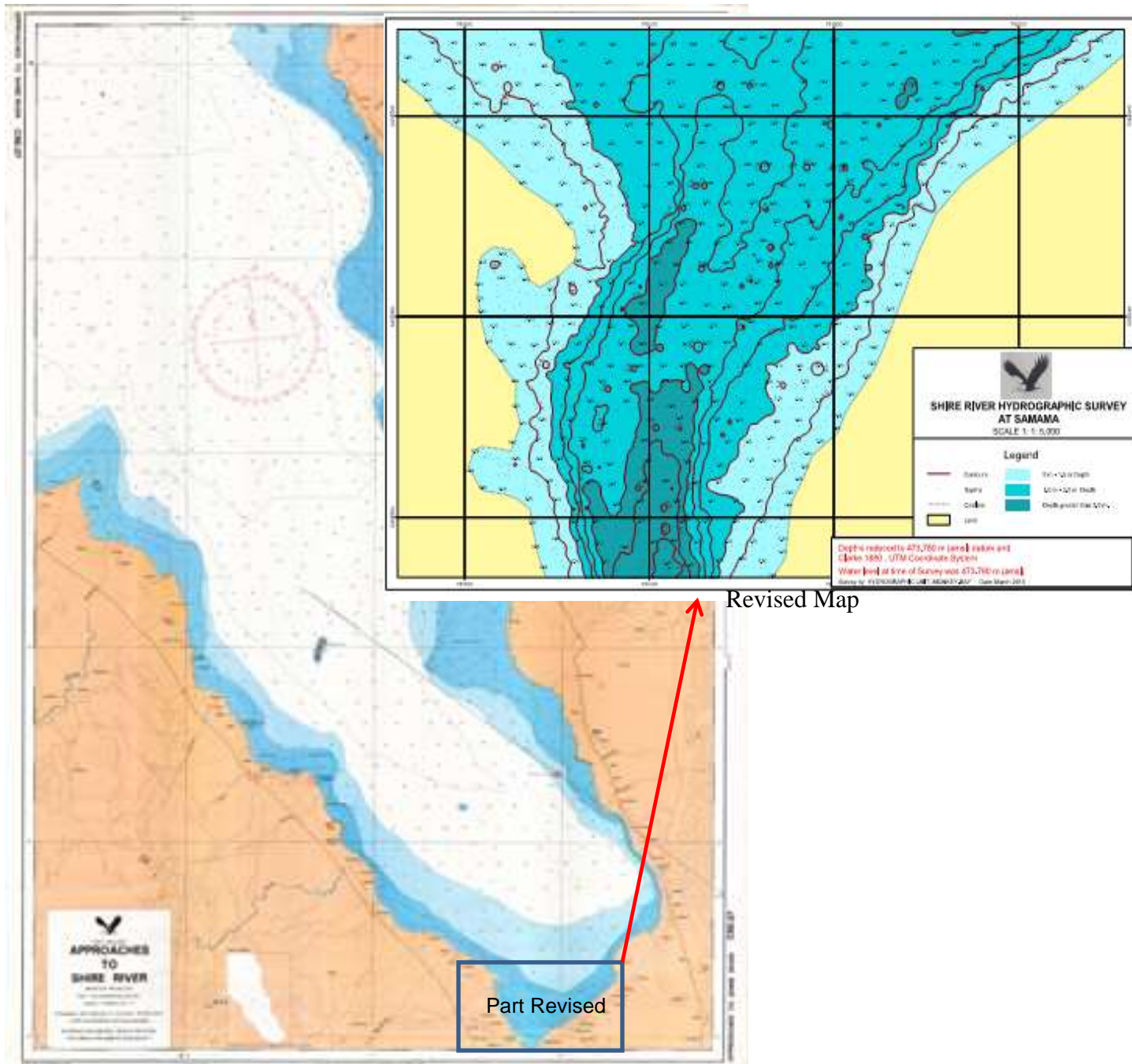
Annex 1

PROPOSED CHART INDEX





Annex III



Annex IV