

**16<sup>TH</sup> MEETING OF THE SOUTHERN AFRICAN AND ISLANDS  
HYDROGRAPHIC COMMISSION (SAIHC16)  
Cape Town, South Africa, 2 - 5 September 2019**

**NATIONAL REPORT FROM REPUBLIC OF SOUTH AFRICA TO THE SAIHC16**

Reference: IHO Resolution 2/1997 as amended.

**Executive summary**

**1. Hydrographic Office / Service**

- a. **Name of the institution.** South African Navy Hydrographic Office (SANHO).
- b. **Description.** The SA Hydrographic Service is a government-funded service and is part of the SA Navy. The major assets for the Hydrographic Service are as follows:

Hydrographic Survey Vessel: One Hecla Class Hydrographic Survey Vessel, named **SAS PROTEA**. She carries onboard two smaller survey motor boats that are deployed for shallow water surveys. There is an additional survey motor boat on a trailer and equipment that is used as a mobile survey unit (MSU).

Hydrographic Office, with the following principal functions:

- i. Conduct hydrographic surveys;
- ii. Produce paper nautical charts and electronic navigation charts (ENCs);
- iii. Produce hydrographic publications including List of Lights and Radio Signals, three volumes of Sailing Directions;
- iv. Maintain a tide gauge network and provide tidal information;
- v. Collect GEBCO data;
- vi. Issue monthly Notices to Mariners;
- vii. Provide hydrographic survey training;
- viii. Provide a Maritime Safety Information (MSI) and
- ix. Provide a Chart Depot and Chart Agent service.

Personnel, with the following principal functions:

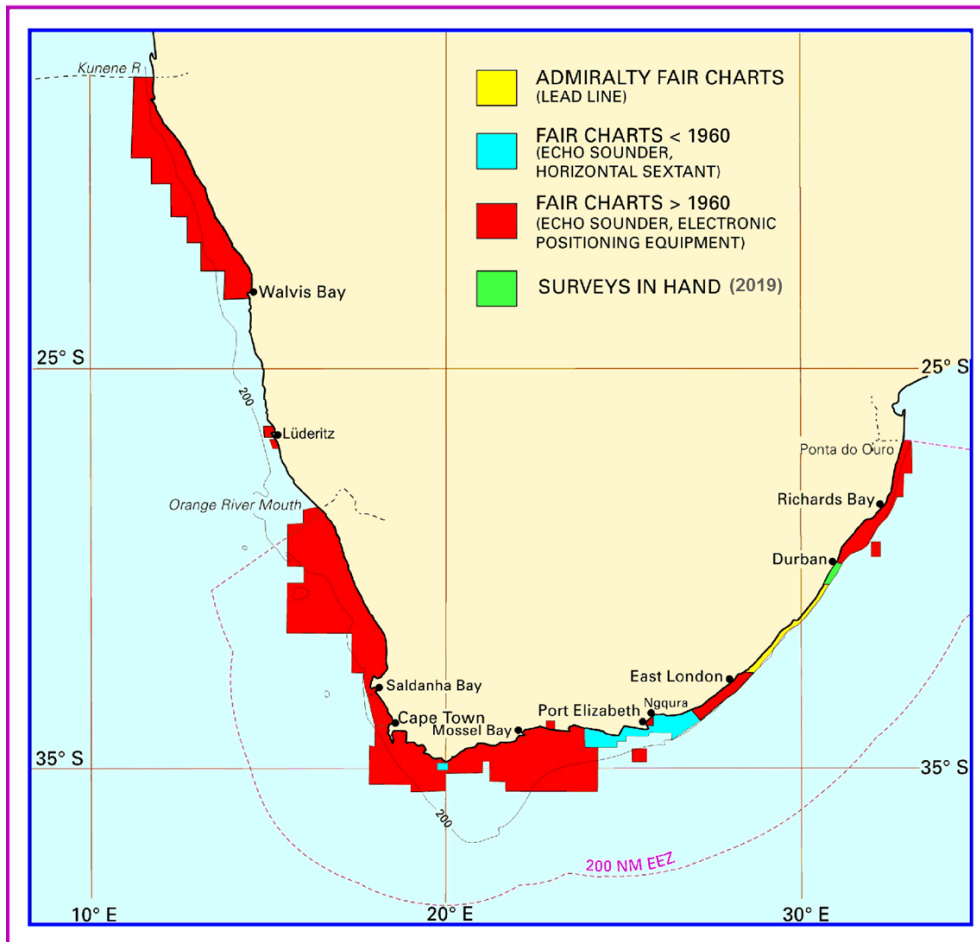
- i. **Cartographic Personnel.** The SANHO has 4 trained marine cartographers and 7 junior cartographers undergoing IHO/FIG CAT B training in the Chart Production Department working on paper chart and ENC production.
- ii. **Survey Personnel.** The SA Navy Hydrographic Service has 4 IHO/FIG CAT A surveyors and 6 IHO/FIG CAT B (2 x officers, 4 x senior ratings) surveyors available to conduct hydrographic surveys. There are also 33 qualified survey recorders.

- a. **Submitted by.** National Hydrographer of South Africa  
Captain (SAN) Theo Stokes  
hydrosan@iafrcia.com

Detailed information to update IHO Publication P-5 (*Yearbook*) is submitted in Annex A.

## 2. Hydrographic Surveys

a. **Coverage of new surveys.** There are areas along the RSA south-east coast that were surveyed in the early 1900's by lead line and sextant. This area is progressively being filled in by surveys utilizing modern electronic surveying equipment and methodology. Along the Namibian coast in the area south of Walvis Bay to Orange River, modern systematic surveys are required to replace the old German Government charts that currently serve as source in this area.



The following surveys were conducted by SAS PROTEA in the reporting period:

- i. Special Hydrographic Instruction: SHI-02/2018 – Revision of San Ho-23 South African Sailing Directions Volume III – Cape Agulhas to Cape St Francis. The purpose of the survey was to confirm the accuracy and relevance of the content as contained within SASD Vol III. The scope of the survey included confirming the relevant reference points as described in the beginning of each chapter, and any new significant new reference points are to be described and photographed in full. Verification of geographic names and important features, photos of the coastline, approaches to ports and harbours, as well as aerial photography revised, with particular effort placed on the description of harbours and ports, the relevant port information as contained within SASD Vol III, as well as SAN charts SC 9 and 12.

- ii. Special Hydrographic Instruction: SHI-03/2018 – Survey of Submarine Bottoming Areas – Simon’s Bay. The aim of the survey was to establish whether an identified area is suitable for submarine bottoming operations.
- iii. Special Hydrographic Instruction: SHI-04/2018 – Small Craft Harbour Survey. The purpose of the survey was to confirm the accuracy and relevance of the content as contained within the relevant Small Craft (SC) charts. The relevant reference points and features of interest of each SC charts were to be confirmed and verified, and any new significant new reference points to be described and photographed (if required) in full. Geographic names and important features were to be verified and confirmed, and focus placed on the content of SAN HO-22 and SAN HO-23 South African Sailing Directions (SASD) Volume II and III. Special effort was placed on the description of harbours and ports, the relevant port information as contained within SASD Vol II and III, as well as SAN SC on the West and South West Coast of South Africa.
- iv. Special Hydrographic Instruction: SHI-05/2018 – Sub-Surface Sea Floor Contact Investigation – False Bay. Commercial divers discovered un-disclosed objects off Miller’s Point, False Bay, during a routine diving excursion. The possibility existed that more un-disclosed objects may be stashed or scattered throughout the area. The survey aimed to establish whether more un-disclosed objects were in the area to be recovered and/or disposed.
- v. Special Hydrographic Instruction: SHI-01/2019 – Salisbury Island Survey – Durban. The survey affecting the current edition of chart SAN 1031 (INT 7562). The limits of the survey area are confined within the geographic area of Salisbury Island within Durban harbour.

b. **New technologies and /or equipment.**

- i. Policy issues regarding the collection and use of crowd-sourced bathymetry (CSB). Approval has been granted to the SANHO to vote in favour of CSB activities within South African national waters of jurisdiction, excluding the Territorial Waters, but extending from the Contiguous Zone to the EEZ only. Approval will increase bathymetric data in South Africa’s national charting area of responsibility, as well as contribute to the population of GEBCO Project charts under the Republic’s responsibility. Neither the safety of navigation nor national security is affected by CSB activities from the Contiguous Zone to the EEZ as described above.
- ii. Status of data collection. No data collected to date.

c. **New ships.** The South African Navy Hydrographic Service is currently undergoing a rejuvenation programme with the acquisition of a new hydrographic survey vessel, 3 x survey motor boats and an upgrade of the SANHO’s production and training capabilities. This programme is well underway and is intended to be completed by middle 2022. Civils infrastructure upgrades to the SANHO has been completed and software upgrades to production software are underway.

Detailed information about surveys to update IHO Publications P-5 (Yearbook) and C-55 (Status of Hydrographic Surveying and Charting Worldwide) is submitted in Annexes A and B, respectively.

**3. New charts & updates**

a. **Electronic Navigational Charts (ENCs).** SANHO currently utilizes Hydroservice dKart software for electronic navigational chart (ENC) production and maintenance and currently has 10 dKart Editor software licences, four dKart Publisher licences and one licence each for dKart Catalogue Server, FODB, SMDB and Archives. ENC validation tools used by SANHO are Seven C's Analyser and eGlobe (ECDIS). The SANHO is currently changing over to CARIS Teledyne production software as part of the Hydrographic Capability Replacement Project, and will continue to utilise existing validation tools. SANHO is currently procuring dKart Inspector as an additional validation tool.

**ENC Production.** South Africa has the following paper chart - ENC relationship:

<b>Chart Series</b>	<b>ENC Usage Band</b>
SAN Harbour charts	Harbour
SAN Approaches charts	Approaches
SAN 100 000 and 150 000 Series charts	Coastal
SAN 300 000, 600 000 Series	General
SAN 1 000 000 Series and all other small scales	Overview

All ENCs conform to the current international guidelines for SCAMIN and data consistency. In addition, SAN ENCs also encode M\_SREL (survey reliability) and CATZOC in the Harbour, Approaches and Coastal usage bands and maintain the products for (T) and (P) notices.

**ENC Coverage.** The following diagrams below graphically illustrate the South African and Namibian ENC coverage:

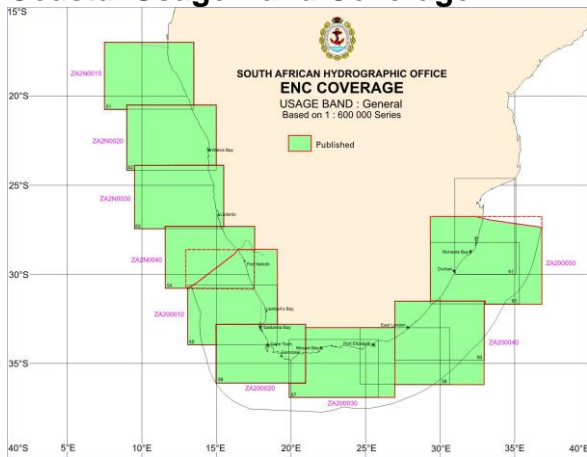
**Harbour Usage Band Coverage**



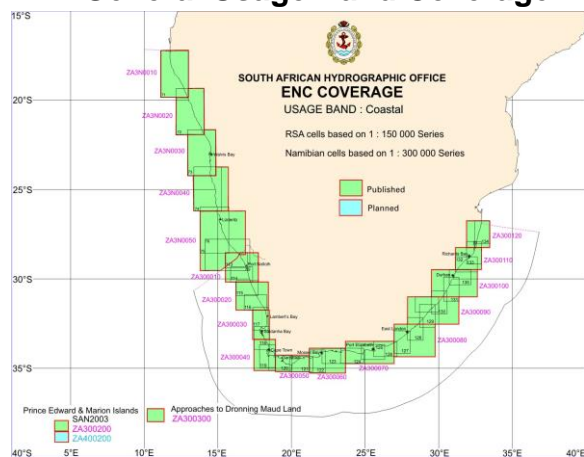
**Approaches Usage Band Coverage**



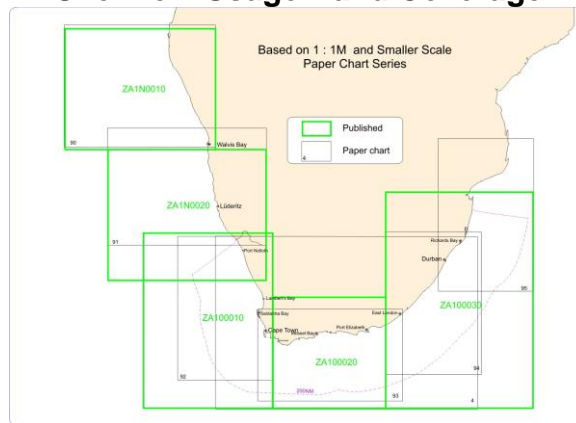
### Coastal Usage Band Coverage



### General Usage Band Coverage



### Overview Usage Band Coverage



### South African and Namibian ENC Products (as at 2 August 2019)

<b>IC-ENC Product No</b>	<b>Cell Title</b>
ZA500040	Saldanha Bay
ZA500050	Table Bay
ZA500070	Simon's Bay
ZA500090	Mossel Bay Harbour
ZA500120	Port Elizabeth Harbour
ZA500125	Ngqura Harbour
ZA500140	East London Harbour
ZA500160	Durban Harbour
ZA500170	Richards Bay Harbour
ZA5N0010	Walvis Bay Harbour
ZA5N0020	Lüderitz Harbour
ZA400040	Approaches to Saldanha Bay
ZA400050	Approaches to Table Bay
ZA400070	False Bay
ZA400090	Approaches to Mossel Bay
ZA400120	Approaches to Port Elizabeth

(new edition in progress)

ZA400130	Bird Island Passage	
ZA400140	Approaches to East London	
ZA400150	Durban Oil Terminal SMB	
ZA400160	Approaches to Durban	
ZA400170	Approaches to Richards Bay	
ZA4N0010	Approaches to Walvis Bay	
ZA4N0020	Approaches to Lüderitz	
ZA400200	Approaches to Transvaal Cove	
ZA300010	Oranjemund to Skulpfonteinpunt	
ZA300020	Hondeklipbaai to Olifantsrivier	
ZA300030	Doringbaai to Yzerfonteinpunt	<b>(new edition in progress)</b>
ZA300040	Dassen Island to Kaap Hangklip	
ZA300050	Mudge Point to Cape Infanta	
ZA300060	Cape Barracouta to Cape Seal	<b>(new edition in progress)</b>
ZA300070	Storm Point to Port Alfred	
ZA300080	Great Fish Point to Cape Morgan	
ZA300090	Mbashe Point to North Sand Bluff	
ZA300100	Port Shepstone to Tongaat Bluff	
ZA300110	Tugela River to Cape St Lucia	<b>(new edition in progress)</b>
ZA300120	Cape Vidal to Ponta do Ouro	
ZA300200	Prince Edward and Marion Islands	
ZA300300	Approaches to Dronning Maud Land	
ZA3N0010	Kunene River to Sand Table Hill	<b>(new edition in progress)</b>
ZA3N0020	Terrace Bay to Cape Cross	<b>(new edition in progress)</b>
ZA3N0030	Farilhao Point to Conception Bay	<b>(new edition in progress)</b>
ZA3N0040	Meob Bay to Hottentot Point	<b>(new edition in progress)</b>
ZA3N0050	Douglas Point to Orange River	
ZA200010	Orange River to Stompneuspunt	<b>(new edition in progress)</b>
ZA200020	Cape Columbine to Cape Infanta	<b>(new edition in progress)</b>
ZA200030	Cape Barracouta to Cape Padrone	<b>(new edition in progress)</b>
ZA200040	Great Fish Point to Cape Hermes	<b>(new edition in progress)</b>
ZA200050	South Sand Bluff to Ponta do Ouro	
ZA2N0010	Kunene River to Palgrave Point	<b>(new edition in progress)</b>
ZA2N0020	Haub River to Conception Bay	<b>(new edition published 2019)</b>
ZA2N0030	Meob Bay to Elizabeth Bay	<b>(new edition published 2019)</b>
ZA2N0040	Driemasterpunt to Orange River	<b>(new edition published 2019)</b>
ZA100010	Western Waters of South Africa	
ZA100020	Southern Waters of South Africa	<b>(new edition published 2019)</b>
ZA100030	Eastern Waters of South Africa	<b>(new edition published 2019)</b>
ZA1N0010	Northern Waters of Namibia	
ZA1N0020	Southern Waters of Namibia	

**Scope of ENC Work done**

Usage Band	Total Produced	% Coverage Available
Overview	5	100
General	9	100
Coastal	19	100
Approaches	13	100
Harbour	11	100
Berthing	0	0
<b>Total</b>	<b>57</b>	<b>100%</b>

**Outstanding ENC production.** There are no new ENC products planned for the immediate future, but new editions of the Overview, General and Coastal usage bands are in production based on the new 1:1 000 000 paper charts. ENC products for berthing are being considered. High density ENC are also being considered.

b. **ENC Distribution method.** South African commercial ENCs are distributed through IC-ENC. The South African Hydrographic Office maintains its own web site ([www.sanho.co.za](http://www.sanho.co.za)) which provides information concerning ENC, Charts and Carriage Requirements. Information on MSI, chart products (paper and ENCs), publications and tidal data are also made available on the SANHO web site.

c. **RNCs.** SANHO does not produce RNCs.

d. **International (INT) Charts.** South Africa is the coordinator for charting Region H and the designated producer for **45** paper charts in this scheme. To date **43** (96%) charts have been produced and published. Some of these charts have undergone a second and in some cases, even a third round of revision. Currently in production is the remaining new chart to complete the 1:1 000 000 INT series, namely INT 7052 (SAN 95), which was projected for publication in 2019. The 1:1 000 000 INT series will replace the existing 1:600 000 national paper chart series on completion of INT 7052. Production of the first edition of the 1:300 000 scale chart INT 7580 (SAN 88) is also currently undergoing verification. Due to significant developments taking place at Walvis Bay harbour, INT 2612 (SAN 1004) and INT 2613 (SAN 1005) are in a planning stage for production of a new chart/new edition.

**Area H:****Medium Scale : 1:300 000**

<i>INT No</i>	<i>SAN No</i>	<i>Title</i>
*2590	71	Kunene River to Sand Table Hill
*2600	72	Sand Table Hill to Cape Cross
*2610	73	Cape Cross to Conception Bay
*2620	74	Conception Bay to Hottentot Point
*2630	75	Hottentot Point to Chamais Bay
*2640	76	Chamais Bay to Port Nolloth
*2650	77	Port Nolloth to Island Point
*2660	78	Island Point to Cape Deseada
*2670	79	Cape Deseada to Table Bay
*2680	80	Table Bay to Cape Agulhas

*7510	81	Cape Agulhas to Cape St Blaize
*7520	82	Cape St Blaize to Cape St Francis
*7530	83	Cape St Francis to Great Fish Point
*7540	84	Great Fish Point to Mbashe Point
*7550	85	Mbashe Point to Port Shepstone
*7560	86	Port Shepstone to Tugela River
*7570	87	Tugela River to Ponta do Ouro
*7580	88	Jesser Point to Boa Paz

Small Scale : 1:1 000 000

<i>INT No</i>	<i>SAN No</i>	<i>Title</i>
2051	90	Baia dos Tigres to Walvis Bay
2052	91	Walvis Bay to Orange River
2053	92	Orange River to Table Bay
7050	93	Table Bay to East London
7051	94	East London to Richards Bay
7052	95	Durban to Inhambane <b>(NC in verification process)</b>

Large Scale : Between 1:10 000 – 1:50 000

<i>INT No</i>	<i>SAN No</i>	<i>Title</i>
2611	1001	<i>vacant (previously Walvis Bay Harbour and Approaches)</i>
*2631	1002	Approaches to Lüderitz
2612	1004	Walvis Bay Harbour <b>(NC in process)</b>
2613	1005	Approaches to Walvis Bay <b>(NC in process)</b>
*2671	1010	Approaches to Saldanha Bay
*2673	1011	Entrance to Saldanha Bay
*2672	1012	Saldanha Bay Harbour
*2681	1013	Approaches to Table Bay
*2682	1014	Table Bay Harbour
*7521	1020	Mossel Bay and Approaches
*7531	1024	Approaches to Port Elizabeth
*7532	1025	Port Elizabeth and Bird Island Passage
*7533	1026	Ngqura Harbour
*7541	1027	East London and Approaches
*7563	1029	Approaches to Durban – Oil Terminal SMB
*7561	1030	Approaches to Durban
*7562	1031	Durban Harbour
*7572	1032	Approaches to Richards Bay
*7571	1033	Richards Bay Harbour
7745	2003	Prince Edward and Marion Islands

**Note:** \* Indicates charts adopted by the UKHO. Text highlighted in **bold and red** is new work since the previous SAIHC meeting.



e. **National paper charts.** The South African paper chart folio currently consists of 104 charts; 44 of which are international (INT) charts. Planned charts at various scales and categories as detailed in the table below:

<b>PLANNED CHARTS</b>		
	<b>NC</b>	<b>NE</b>
INT Small Scale	2	2
INT Large Scale	2	0
National Coastal	1	16
Inland Waters	2	
Small craft	3	2
<b>TOTAL</b>	<b>9</b>	<b>21</b>

Namibia still remains the charting responsibility of South Africa and chart coverage mainly consists of harbour and approaches charts of the two ports, Walvis Bay and Lüderitz, while the coastline is covered by medium scale international (INT) paper charts. All paper charts are regularly maintained by the promulgation of monthly Notices to Mariners (NMs). The SANHO adopts a pro-active approach by visiting areas and ports when necessary, to ensure that the most up to date information is available to the Hydrographic Office for product updating.

**World Geodetic System (WGS 84).** Of the 36 SAN charts which fall into the category of scales larger than 1:150 000, only three (8%), namely SAN 150, 1009 and 1022 are still based on Clarke 1880 spheroid.

**Vessel Traffic Service (VTS) and Traffic Separation Schemes (TSS).** Vessel Traffic Services (VTS) have been implemented at the ports of Saldanha Bay, Table Bay, Port Elizabeth, Ngqura, Durban and Richards Bay. The ports of Mossel Bay and East London has implemented VTS but is as yet not officially approved by the South African Maritime Safety Authority (SAMSA). In 2018, the port of Walvis Bay implemented a TSS which is not yet fully operational. A Traffic Separation Scheme (TSS), which has been International Maritime Organisation (IMO) adopted, has been implemented off the south coast to ensure safe navigation of laden tankers north and south of the *Alphard Banks* and the *FA Platform* for east and west bound traffic.

f. **Other charts, e.g. for pleasure craft.** The Hydrographic Office continues to maintain and provide small craft paper charts to the leisure market. These are half the standard chart size and are unique in a sense that they cover general coastal areas by a main chart at scales of between 1:200 000 to 1:260 000, with condensed sailing directions, seasonal wind roses, facility diagrams and detailed larger scale inset plans of fishing harbours, yacht clubs and marinas on the reverse side. To date six charts have been published. Published leisure craft charts of South Africa's largest inland dams provide coverage of the Vaal Dam (SAN 2051), Gariep Dam (SAN 2053) and the Vanderkloof Dam (SAN 2054). As part of the newly created South African Co-operative Inland Waterway Safety Programme, there is a navigational requirement to produce charts covering the Hartebeespoort and the Theewaterskloof Dams. Survey data for the Hartebeespoort Dam has been received and production planning for a new chart is currently in progress. The SANHO is also involved closely with SAMSA's initiative to provide aids to navigation to marine estuary areas, including Knysna, Plettenberg Bay, Witsand (Breede River mouth), Sedgfield and Veldrift.

Detailed information about charting to update IHO Publications P-5 (*Yearbook*) and C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) is submitted in Annexes A and B, respectively.

#### 4. Publications

The present status of the most essential SANHO Publications is as given in the table below:

SANHO Ref No	Title	Edition
SAN HO-1	South African List of Lights and Radio Signals	2011
SAN HO-2	South African Tide Tables	2019 & 2020
SAN HO-3	Catalogue and Indexes of SAN Charts, ENCs and Hydrographic Publications	2011
SAN HO-6 (INT 1)	Symbols and Abbreviations used on SA Charts	2017
SAN HO-15	International Regulations for Preventing Collisions at Sea 1972 (COLREGS)	2005
SAN HO-21	SA Sailing Directions Vol I – General Information	2005
SAN HO-22	SA Sailing Directions Vol II – Namibia and West Coast	2014
SAN HO-23	SA Sailing Directions Vol III – South and East Coasts	2014
-	Annual Summary of SA Notices to Mariners	2019
-	Cumulative List of SA Notices to Mariners	2019

The above publications are maintained through the promulgation of monthly NM's in paper format (available through SANHO Chart Agents) and in PDF format, which can be downloaded from the SANHO web site ([www.sanho.co.za](http://www.sanho.co.za)).

a. **New Publications.** Nil.

b. **Updated publications.** Publications are maintained through the promulgation of monthly NM's in paper format (available through SANHO Chart Agents) and in PDF format, which can be downloaded from the SANHO web site ([www.sanho.co.za](http://www.sanho.co.za)).

c. **Means of delivery, e.g. paper, digital.** All publications are available in paper format except SAN HO-3 and Annual Summary of SA Notices to Mariners, which is available in PDF format, available for downloading from the SANHO web site ([www.sanho.co.za](http://www.sanho.co.za)).

d. **Problems encountered.** The SA Navy Printing Unit in Simon's Town is the primary means of standard DE format chart and publication printing. The onboard PoD facility is only used to print charts which are larger than the standard DE format, as well as for miscellaneous and ad hoc stock replenishment.

Detailed information to update IHO Publication P-5 (*Yearbook*) is submitted in Annex A.

**5. MSI**

a. **Existing infrastructure for transmission.** The South African Navy Hydrographic Office (SANHO), Coordinator of NAVAREA VII, in conjunction with the South African Meteorological Service, promulgates and disseminates shipping safety messages and weather information. Cape Town Radio, via Telkom Radio services, is the GMDSS service provider and as such, transmits all MSI on behalf of the Coordinator.

**SafetyNET**

MSI transmission is to Indian Ocean Region (IOR) and to Atlantic Ocean Region East (AOR-E).

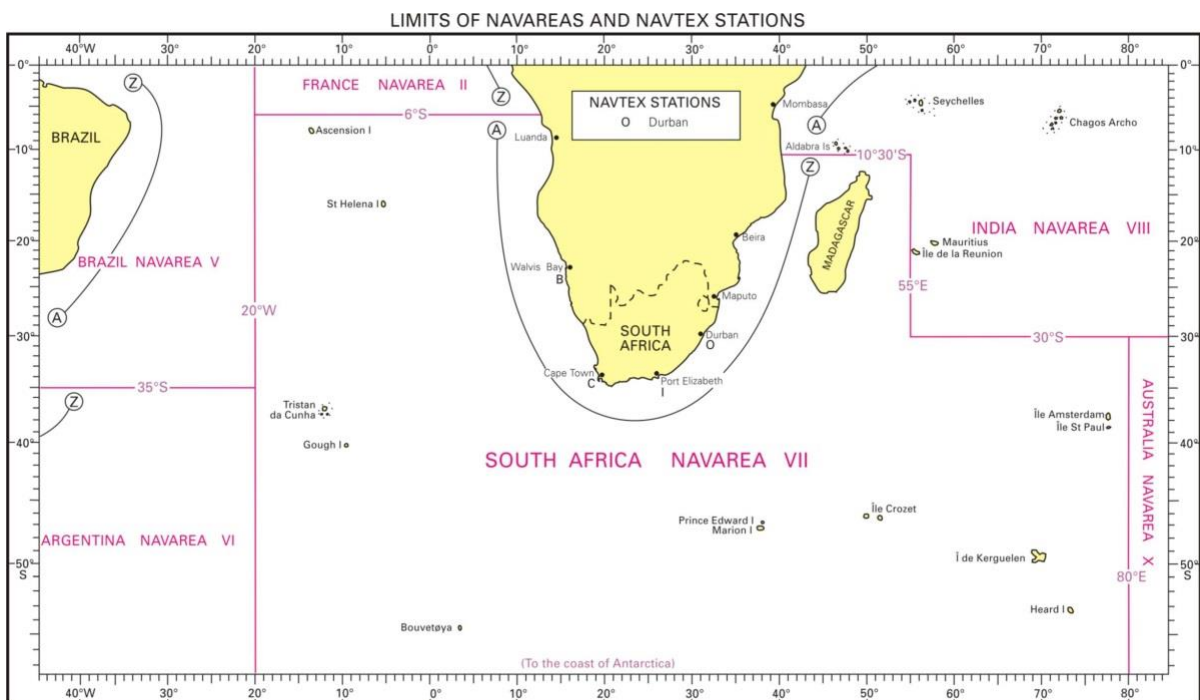
Meteorological Forecasts and NAVAREA VII Warnings: 0940 and 1940 UTC.

Land Earth Station 12 Burum; Service Provider: Stratos Mobile Networks.

**NAVTEX**

NAVTEX coverage out to 200 nm from the Namibian and South African Coasts is passed from the Coast Radio Stations at Cape Town (C), Port Elizabeth (I) Durban (O) and Cape Columbine (U). The Coast Radio Station at Walvis Bay, Namibia (B) NAVTEX service is operational since 28 June 2019. Cape Town Radio includes Namibian Maritime Safety Information with its scheduled NAVTEX and SafetyNET MSI broadcasts.

Station	Transmitter Character	Identification (T.I.C) - B1	Contact No
Walvis Bay Maritime Radio		<b>B</b>	+264 64 203581 (24H) Mobile: +264 811242697
Cape Town		<b>C</b>	+27 21 551 0700 Port Elizabeth, Cape Columbine and Durban is remotely controlled from CT Radio.
Port Elizabeth		<b>I</b>	
Durban		<b>O</b>	
Cape Columbine		<b>U</b>	



## Radio Telephony

### South Africa

For the benefit of non-GMDSS adapted vessels, the Cape Town, Port Elizabeth and Durban Radio Coastal Weather Bulletins and Navigational Warnings in force are combined and presented as one single-voice broadcast from Cape Town Radio at 1015 and 1815 UTC daily. The coastal weather report as at 1200 UTC is broadcast at 1333 UTC. Transmission is on HF on 4375, 8740 and on 13146 kHz and on 29 VHF traffic channels sited around the South African coast from Alexander Bay in the West to Kosi Bay in the East.

### Namibia

All RT MSI broadcasts are on VHF LZ Ch23; WVS Ch26 & 27 and on HF: 4357 & 8719 kHz

0903 UTC: Navigational Warnings

0935 UTC: Weather Forecasts and Traffic List

1235 UTC: Coastal Weather Reports

1635 UTC: Weather Forecasts and Traffic List

*Newly received navigational warnings are broadcast on receipt and thereafter are included in the once daily navigational warning broadcast at 0903 UTC.*

### Geographical Limits of NAVAREA VII:

#### Southern Africa – South Atlantic Ocean (AOR-E):

6° 00'S, 020° 00'W (Angola international border with The Democratic Republic of the Congo (DRC),  
(West Coast) to the coast of Antarctica

and

#### Southern Africa – Indian Ocean (IOR):

10° 30'S, 055° 00'E (Mozambique international border with Tanzania, (East Coast) to  
30° 00'S, 055° 00'E to  
30° 00'S, 080° 00'E to the coast of Antarctica.

b. **New infrastructure in accordance with GMDSS Master Plan.** NAVTEX Coast Radio Stations at Cape Columbine (U) and the Coast Radio Station at Walvis Bay, Namibia (B) NAVTEX service is operational since May and June 2019 respectively. The GMDSS Master Plan for NAVAREA VII is up to date.

Detailed information about MSI to update IHO Publication C-55 (Status of Hydrographic Surveying and Charting Worldwide) is submitted in Annex B. The national self-assessment of MSI is submitted in Annex C.

## 6. C-55

The South African Hydrographic Office acknowledges the importance of the constant review of C-55 to improve hydrographic services along the maritime routes in the region. The table with the latest information to update IHO Publication C-55 (Status of Hydrographic Surveying and Charting Worldwide) is provided in Annex B.

## 7. Capacity Building Offer of and/or demand for Capacity Building

### a. Training received, needed, offered.

- i. Marine Cartography. The CAT B course was presented by the UKHO at the South Africa Navy Hydrographic Office over the period 2016 to 2017. The 8 participants of this course are still undergoing on-the-job training to meet the necessary requirements to obtain the CAT B certification. The SANHO will also be represented by the Superintendent Electronic Charts at the NIPPON Foundation funded CAT B course in September to December 2019, hosted by the UKHO.
- ii. Hydrography. One survey officer from SAS PROTEA attended the Advanced Survey CAT A course hosted by the Royal Navy from January to July 2019. One survey recorder, also from SAS PROTEA, is currently attending the Survey Course for ratings in India. The SANHO conducted the following internal courses during the reporting period, and member states are encouraged to make use of the opportunities for their members to attend these courses:

Course	Period	Participants
Hydrographic Survey for Officers Part III	15 Aug – 02 Nov 2018	South Africa (3)
Hydrographic Survey for Ratings Part II	15 Apr – 07 Jun 2019	South Africa (5)
Hydrographic Survey for Ratings Part I (basic)	01 Jul – 02 Aug 2019	South Africa (5)

### b. Status of national, bilateral, multilateral or regional development projects with a hydrographic component. (In progress, planned, under evaluation or study).

Nothing to report.

c. Description of requests to be considered by the IHO/CBSC. Member states are invited to make use of the learning opportunities offered by the SANHO. The SANHO is also embarking on developing an eLearning programme which will enable interested parties to raise awareness on matters relating to Maritime Safety Information, tides and basic survey techniques, via an online learning facility. A capability demonstration will be presented at SAIHC16 and members are invited to attend and take note of what is planned for future capacity building opportunities.

## 8. Oceanographic Activities

- a. **General**. The SANHO conducts limited oceanographic activities, the most notable being the maintenance of a tide gauge network along the South African coast, as well as GEBCO/IBC activities.
- b. **GEBCO/IBC's activities**. Since 1991, South Africa has, in accordance with IHO Resolutions, ceased to maintain the 20 GEBCO Collector Plotting Sheets (passage soundings) for which the RSA is responsible. The analogue sheets of South Africa's GEBCO data holdings have been converted into digital format. However, South Africa still provides digital data for GEBCO activities.
- c. **Tide gauge network**. The tide gauge network is critical in the calculation of the tidal predictions for South Africa and Namibia, and spans from Walvis Bay on the West Coast to Richards Bay on the East Coast. The Tide Gauge Network has been completely upgraded with all twelve tidal stations having radar type gauges. The South African Navy Tide Gauge Network communication method is in the process of being upgraded from land lines to GSM communication. Solar power has been installed in Cape Town and will be expanded throughout the network. Biannual calibration and maintenance site visits are carried out by the Tidal Department.

At the request of the IOC, satellite transmitters were installed at three tidal stations, two of which are Global Sea Level Observing System (GLOSS) stations. The 1 minute data from Port Elizabeth and Simon's Town is transmitted in real time for use in the Indian Ocean Tsunami Early Warning System (IOTWS).

Chart Datum for all SA Ports is Lowest Astronomical Tide (LAT) as from 1 January 2003.

- d. **New Equipment**. Nothing to report.

## 9. Other Activities

- a. **Participation in IHO Working Groups**. South Africa actively participates in the TWCWG, NCWG, DQWG (by correspondence). South Africa represented SAIHC at C-2 Meeting and as a member state attended CBSC-17, IRCC-11, hosted HSSC-11 and will be hosting SAIHC-16.
- b. **Meteorological Data Collection**. Nothing to report.
- c. **Geospatial Studies**. Nothing to report.
- d. **Disaster Prevention**. The SANHO provides tidal and bathymetric information of Port Elizabeth, Durban, Simon's Bay and Walvis Bay to the Indian Ocean Tsunami Warning Service. The SANHO also provides Coastal Navigation Warnings for adverse weather conditions for areas experiencing 35 knots and more gale force winds, and swell/sea heights of 4m and above, based on weather forecasts and requests from Cape Town Radio. NAVAREA VII warnings for adverse weather conditions, especially tropical storm warnings, are also issued by the SANHO.

- e. **Environmental Protection**. Environmental protection areas, marine reserves, etc. are indicated on SANHO charts and publications. South Africa is also a signatory to MARPOL conventions and are published as such in charts and publications.
- f. **Astronomical Observations**. Nothing to report.
- g. **Magnetic/Gravity Surveys**. Nothing to report.
- h. **MSDI Progress**:
- i. **Policy and Governance**. SANHO is fully committed to providing continued support to ensure the successful implementation of Government's Operation Phakisa (Blue Economy) Initiative 6, Marine Spatial Planning (MSP) and Initiative 10 Oceans and Coastal Information Management System (OCIMS) Projects by providing access to accurate, complete, current and well maintained spatial information. The SANHO plays a crucial role in (MSP) and is an active member of the National Working Group (NWG). The SANHO also participates in the South African Spatial Data Infrastructure (SASDI) workshops and meetings to ensure compliance, adherence to policies, standards and specifications for the base data sets, in order to accomplish South Africa's national and international priorities.
  - ii. **Technical Standards**. Compliance with the Spatial Data Infrastructure Act, 2003 (Act No. 54 of 2003), Compliance with SANS 1878 and ISO 19115 for metadata.
  - iii. **Information systems**. South Africa utilises OCIMS as a data repository for MSP. ESRI ArcGIS is the software packaged utilised. The MSP NWG is investigating the SYMPHONY software package to analyse and manage MSP requirements.
  - iv. **Data**. The SANHO is required to provide data and metadata for the following and is a works in progress:
    1. Administrative Boundary Theme 1 – Straight baselines, Coastline, Territorial, Contiguous, and Exclusive Economic Zones respectively.
    2. Elevation Theme – All bathymetry and tidal data (South Africa only).
- i. **International**. Nothing to report.
- j. **Use of risk to support survey and chart updating priorities**. South Africa utilises risk management through a consultative method to support survey and chart updating priorities.

## 10. Conclusions

- a. **Areas of Significant Achievement.** The SANHO is building internal capacity through the successful transition from dKart production software to CARIS Teledyne production software. This new software and database management will also facilitate the transition from product centricity to data centricity. The proposed Hydrographic Bill was adopted by parliament, and currently ascending to the State President for Gazetting.
- b. **Areas of Particular Concern.** Resource constraints remain a constant challenge.
- c. **Any other matters of interest to the SAIHC.** Nil.