

REPUBLIC OF SOUTH AFRICA



SAN HYDROGRAPHIC OFFICE

NATIONAL REPORT

TO THE

10TH SOUTHERN AFRICA AND ISLANDS HYDROGRAPHIC
COMMISSION CONFERENCE (SAIHC)

17 -18 SEPTEMBER 2013

(PORTUGAL)

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**10thSAIHC MEETING
REPORT BY THE REPUBLIC OF SOUTH AFRICA**

1. SA NAVY HYDROGRAPHIC OFFICE (SANHO)

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:

One Hecla Class Hydrographic Survey Vessel, namely **SAS PROTEA**. She carries on board two smaller survey launches that are deployed for shallow water surveys. There is an additional launch on a trailer and equipment that is used as a mobile survey unit (MSU)

The Hydrographic Office, with the following principal functions: Conduct hydrographic surveys, produce paper nautical charts, electronic navigation charts (ENCs) and publications including List of Lights and Radio Signals, three volumes of Sailing Directions, maintaining a tide gauge network and provide tidal information, collect GEBCO data, issue monthly Notices to Mariners, Maritime Safety Information (MSI) and the provision of a Chart Depot service.

Personnel

The SANHO has three fully skilled marine cartographers working on paper chart production and one fully skilled marine cartographer working on ENC production. The five junior cartographers that completed the Cat-B Data Processing, Marine Cartography and Specialist ENC Modules presented by the UKHO have been suitably placed within the two departments but still need more experience. However, they still need to be granted their Cat-B Certification from the UKHO.

2. HYDROGRAPHIC SURVEYS

There are areas along the RSA southeast coast that were surveyed in the early 1900's by hand lead line. This area is progressively being filled in by surveys utilizing modern electronic surveying equipment and methodology. There is approximately another ten years of survey work remaining to cover the entire coast with modern survey methods. **(Appendix A)**.

3. CHARTS AND PUBLICATIONS

CHARTS

International (INT) Charts. South Africa is the coordinator for charting Region H and the designated producer for 44 paper charts in this scheme. To date **39** (87%) charts have been produced and published. Some of these charts have undergone a second and in some cases, even a third round of revision.

During the past year South Africa has completed the coverage of the 1:300 000 INT series around Southern Africa with the publication of INT 7560-SAN 86 in May 2013 and produced the first INT version of SAN 2003 (INT 7745) in July 2013. In addition a new edition of INT 7533-SAN 1026 was produced in Nov 2012 due to extensive buoyage changes and a new edition of INT 2640-SAN 76 was produced in August 2013 due to printing limitations.

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	(new edition)
*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	(new chart)
*7570	87	Tugela River to Ponta do Ouro	

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.

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	
2613	1005	Approaches to Walvis Bay	
*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	(new edition)
*7541	1027	East London and Approaches	
*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	(new chart)

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

The following paper chart is at an advanced stage of production:

7563	1029	Approaches to Durban Single Point Mooring (SPM)
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Area M:

9056	2004	Antarctica - Approaches to Dronning Maud Land
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National paper charts. The South African paper chart folio currently consists of 102 charts; 39 of which are international (INT) charts, at various scales and categories as detailed in the table below:

A. NAVIGATIONAL CHARTS MAINTAINED BY NOTICES		
INT CHARTS (39 in total)	Small (1: 600T >)	3
	Medium (100T- 300T)	17
	Large (<100T)	18
	Islands and Antarctica	1
NATIONAL CHARTS (21 in total)	Small (>1: 600T)	5
	Medium (100T- 300T)	1
	Large (<100T)	3
	Small Craft	6
	PEXA	4
	Islands and Antarctica	2
B. OTHER CHARTS NOT MAINTAINED BY NOTICES		
Plotting Sheets		20
Small Craft		6
Inland Dams		2
PEXA charts		3
Training		1
Information		1
TOTAL PUBLISHED PRODUCTS		93

C. PLANNED CHARTS	
INT Small Scale	5
INT Large Scale	1
Inland Waters	2
Small craft	1
TOTAL	9

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. The SA national 1:150 000 scale coastal series was discontinued along the Namibian coastline with the publication of the 1:300 000 scale INT 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 from time to time to ensure that the most up to date information is available to the Hydrographic Office for product updating.

World Geodetic System (WGS 84). Prior to 1997 all navigational charts were referenced to the Clarke 1880 modified ellipsoid. With the advent of the Global Positioning System (GPS) the WGS84 ellipsoid as a reference for positioning has become the spheroid for all new charts and new editions.. The spheroidal shift between Clarke 1880 and WGS 84 is only plottable on scales larger than 1:150 000. Of the 36 SAN charts which fall into this category, only four (11%), namely SAN 150, 1003, 1022 and 1029, 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).

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. Due to the on-going oil exploration activities approximately 65 nautical miles south west of Mossel Bay, careful navigation is essential in these waters particular in the vicinity of the *Oribi and Sable* Oil Fields as well as the E.M. Control Buoy.

Inland Waters and Small Craft Charts. 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. Six (6) of these charts have been published. Added, in similar format, is the popular leisure craft chart SAN 2051 of the Vaal Dam, one of South Africa's largest inland dams situated approximately 80 kilometres south of Johannesburg in the Gauteng Province. Chart SAN 2053, the Gariep Dam was re-instated towards the end of 2011. It is located on the Orange River, situated about 35km north of the town of Colesberg, which forms the provincial boundary between two provinces. Similar charts for other large inland dams are also been considered.

A new inland waters navigational chart of the SAN 2054 Vanderkloof Dam is being finalized. This dam is situated approximately 130 km downstream from Gariep Dam and is fed by the Orange River. This chart will be followed by a new chart covering the Theewaterskloof Dam (SAN 2055).

Lithographic and Print-on-Demand (PoD). The Office is currently producing paper charts using CorelDraw software. These digital files are used for PoD printing. Presently the office can provide 90 charts (**75.6%**) using this process. The office has acquired three AO inkjet printers (Two Epson 9600 & 9800 and one HP 5200) to support an internal PoD facility.

In May 2013 the Navy Printing Unit in Simon's Town printed the first batch of SAN charts since it underwent a major upgrade of facility and equipment. POD printing will only be used to print charts which cannot fit the DE format (1040 x710mm) required for lithographic printing or charts which are flagged by the Office as low turnover products (6 charts fit this category at present).

Electronic Navigational Charts (ENCs). The SANHO utilizes dKart software for electronic navigational chart (ENC) production and conversion of paper survey records into digital format. This suite of software includes modules for sounding selection, colour banding, as well as a module for producing WECDIS based Additional Military Layer (AML) digital charts. DKart Hydrographer is also used to assess digitally captured and rendered survey data.

The SANHO currently has six dKart Editor licences, four dKart Publisher licences and one licence each of dKart Nav aids, Catalogue Server and Archives. Validation tools used are dKart Inspector (built into Editor, one licence of Seven C's Analyser and a ECPINS 6.0 WECDIS).

ENC PRODUCTION

South Africa has chosen the following paper chart - ENC relationship:

<i>Chart Series</i>	<i>ENC Usage Band</i>
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

The ENCs in the Harbour and Approaches bands are the equivalent of the paper chart in area of coverage but those in the Coastal, General and Overview usage bands are compiled from more than one paper chart source. All ENCs conform to the current international guidelines for SCAMIN and data consistency. In addition, SAN ENCs also encode M_SREL (survey reliability) in the Harbour, Approaches and Coastal usage bands and maintain the products for (T) and (P) notices.

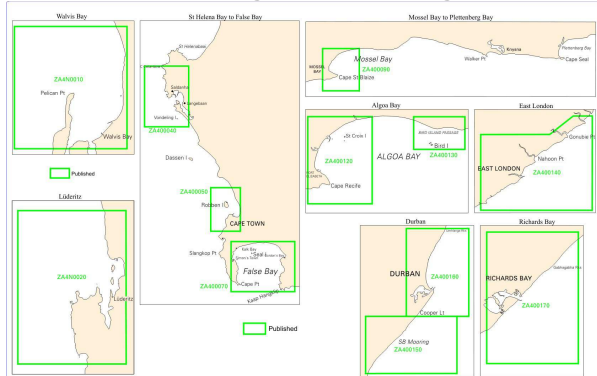
ENC Coverage

The following chartlets graphically indicate the South African and Namibian ENC. In addition, all ENC coverage:

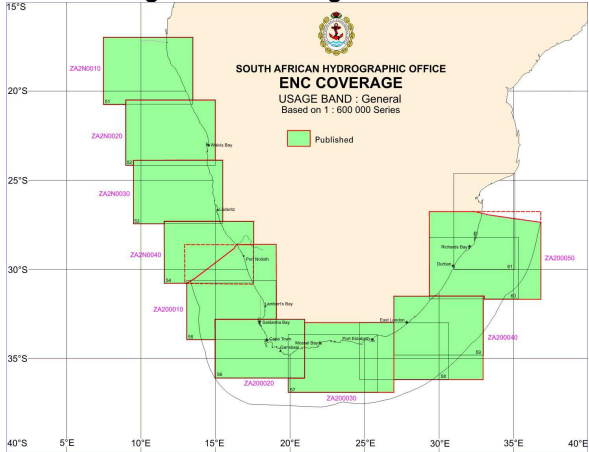
Harbour Usage Band Coverage



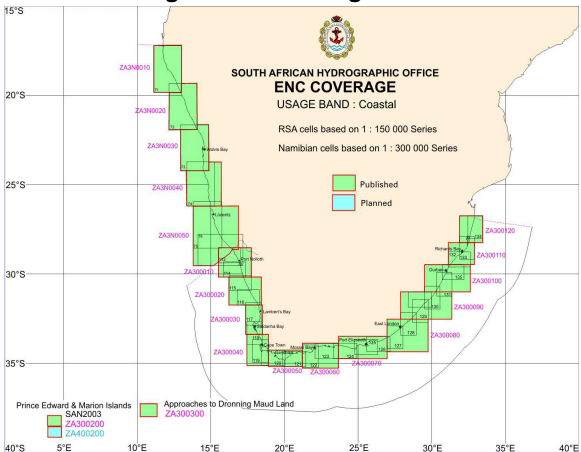
Approaches Usage Band Coverage



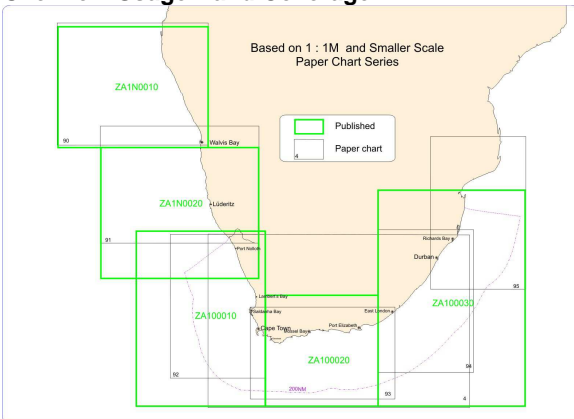
Coastal Usage Band Coverage



General Usage Band Coverage



Overview Usage Band Coverage



South African and Namibian ENC Products (as at 16 September 2013)

<i>IC-ENC Product No</i>	<i>Cell Title</i>	
ZA500040	Saldanha Bay	
ZA500050	Table Bay	
ZA500070	Simon's Bay	
ZA500090	Mossel Bay Harbour	
ZA500120	Port Elizabeth Harbour	
ZA500125	Ngqura Harbour	(new edition)
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	
ZA400130	Bird Island Passage	
ZA400140	Approaches to East London	
ZA400150	Durban Oil Terminal SMB	(new edition in progress)
ZA400160	Approaches to Durban	
ZA400170	Approaches to Richards Bay	
ZA4N0010	Approaches to Walvis Bay	
ZA4N0020	Approaches to Lüderitz	
ZA300010	Oranjemund to Skulpfonteinpunt	
ZA300020	Hondeklipbaai to Olifantsrivier	
ZA300030	Doringbaai to Yzerfonteinpunt	
ZA300040	Dassen Island to Kaap Hangklip	
ZA300050	Mudge Point to Cape Infanta	
ZA300060	Cape Barracouta to Cape Seal	
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	
ZA300120	Cape Vidal to Ponta do Ouro	
ZA300200	Prince Edward and Marion Islands	(new ENC)
ZA300300	Approaches to Dronning Maud Land	
ZA3N0010	Kunene River to Sand Table Hill	
ZA3N0020	Terrace Bay to Cape Cross	
ZA3N0030	Farilhao Point to Conception Bay	
ZA3N0040	Meob Bay to Hottentot Point	
ZA3N0050	Douglas Point to Orange River	
ZA200010	Orange River to Stompneuspunt	
ZA200020	Cape Columbine to Cape Infanta	
ZA200030	Cape Barracouta to Cape Padrone	
ZA200040	Great Fish Point to Cape Hermes	
ZA200050	South Sand Bluff to Ponta do Ouro	
ZA2N0010	Kunene River to Palgrave Point	

ZA2N0020	Haub River to Conception Bay
ZA2N0030	Meob Bay to Elizabeth Bay
ZA2N0040	Driemasterpunt to Orange River
ZA100010	Western Waters of South Africa
ZA100020	Southern Waters of South Africa
ZA100030	Eastern Waters of South Africa
ZA1N0010	Northern Waters of Namibia
ZA1N0020	Southern Waters of Namibia

Scope of ENC Work done

Usage Band	Total Planned	Total Produced	% Coverage Available
Overview	5	5	100
General	9	9	100
Coastal	19	19	100
Approaches	13	12	92.3
Harbour	11	11	100
Berthing	0	0	0
Total	57	56	98.3%

Outstanding ENC production

Only one more ENC needs to be completed in order to finalize coverage in this region, that being the approaches to Transvaal Cove at Marion Island. This product will be titled ZA400200Marion Island – Transvaal Cove and production thereof is scheduled for late 2013).

Distribution of ENCs

South African commercial ENCs are distributed through IC-ENC (UK).

Dissemination of ENC and related information

The South African Hydrographic Office maintains its own web site (www.sanho.co.za) which provides information concerning ENC, Charts and Carriage Requirements, arising from the joint work of Primar, IC-ENC and the Working Group on Information (PSIWG).

Information on MSI, chart products (paper and ENCs), publications and tidal data is also made available on the SANHO web site.

b. PUBLICATIONS

The present status of 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	2013 & 2014
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	2011
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	2002

SAN HO-23	SA Sailing Directions Vol III – South and East Coasts	2003
-	Annual Summary of SA Notices to Mariners	2013
-	Cumulative List of SA Notices to Mariners	2013

New editions of SAN HO-22 and SAN HO-23 are currently in hand.

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).

4. CAPACITY BUILDING

Regional capacity building initiatives. In accordance with the IHO and SAIHC capacity building initiatives, South Africa continues to provide or facilitate training and courses to develop expertise in the SAIHC region. The tables below summarize the progress achieved since the last SAIHC meeting:

Capacity Building/ Hydrographic Surveying Training - Completed

Course	Period	Participants
Hydrographic Survey for Officers/ Part 3 for Ratings - presented by SANHO.	Cape Town, 20 Aug – 09 Nov 2012	Zimbabwe (1). Kenya (1).
SAIHC Capacity Building - Phase 1 Skills and Chart Awareness Course – presented by UKHO.	Cape Town 26 – 30 Nov 2012	South Africa (2) Comores (1) Kenya (1) Madagascar (1) Malawi (1) Mauritius (1) Mocambique (1) Namibia (1) Seychelles (1)

Capacity Building/ Hydrographic Surveying Training - Current

Course	Period	Participants
Hydrographic Survey for Officers - presented by SANHO..	19 Aug – 08 Nov 2013	Kenya (1) Senegal (1)
Hydrographic Survey for Ratings Part II.	20 Aug – 09 Nov 2013	South Africa (6)

Capacity Building/ Technical Visits

Visit	Period	Participants
Technical and Advisory Visit to Tanzania	02 – 04 Dec 2012	South Africa & UK
Technical and Advisory Visit to Kenya	05 – 08 Dec 2012	South Africa

5. IHO SPECIAL PUBLICATION 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. A comprehensive update was provided to the IHO in 2012. The status of Namibia is included in South Africa's assessment.

6. OCEANOGRAPHIC ACTIVITIES

General Bathymetric Chart of the Oceans (GEBCO). 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, which will greatly contribute to the use of this data in digital products and the production of the International Bathymetric Chart of the West Indian Ocean (IBCWIO) project.

IBCWIO Project (International Bathymetric Chart of the West Indian Ocean). This is a joint mapping project between the IHO and the International Oceanographic Commission (IOC) to chart the eastern side of Africa, from approximately 13° N to 36° S extending seaward to as far as 68° E, at a scale of 1:1 000 000. Of the 21 sheets needed, South Africa undertook to produce sheets 16 - 21 inclusive. South Africa has suspended work on this project due to its lack of personnel and prioritising of its ENC production program.

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. Since the end of 2001 the tide gauge network has progressively being replaced with modern radar type tide gauges. The Tide Gauge Network has now 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. 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 Durban, 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.



APPENDIX A : STATUS OF HYDROGRAPHIC SURVEYS ALONG THE SOUTHERN AFRICAN COAST

