

REPUBLIC OF SOUTH AFRICA



SAN HYDROGRAPHIC OFFICE

NATIONAL REPORT

TO THE

7TH SOUTHERN AFRICA AND ISLANDS HYDROGRAPHIC

COMMISSION MEETING (SAIHC)

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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 is 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.

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, Radio Navigational Warnings and the provision of a Chart Depot service.

The officers and ship's company of the survey vessel SAS PROTEA; and

The staff members of the Hydrographic Office (SANHO) at Cape Town, Tokai.

Personnel. Technical staff recruitment in the Hydrographic Office remains a serious problem. The loss of cartographers to the private sector over the past years and the need to recruit suitably skilled staff to replace them and the aging work force in the Office, is being addressed.

The SANHO has six full time marine cartographers working on paper chart production and one full time marine cartographer working on ENC production, with one reserve force member assisting in digital data processing.

2. Hydrographic Surveys

There are areas along the RSA southeast coast that have not been surveyed using electronic methods and last surveyed in the early 1900's by hand lead line. This area is progressively being filled in by modern electronic methods. There is approximately another ten years of survey work remaining to cover the entire coast with modern survey methods. In the mean time the EEZ will continue to also receive some attention (**Appendix A**).

3. Charts and Publications

a. Charts

International (INT) charts. South Africa is the coordinator for charting Region H and the producer nation for 33 paper charts as part of the Region H International (INT) charting Scheme, of which **30** (91%) have been published. Some of these charts have undergone a second round of revision.

INT Chart No	SAN No	TITLE
<u>Medium Scale : 1 : 300 000</u>		
*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.
*7570	87	Tugela River to Ponta do Ouro.

Small Scale : 1 : 1 000 000

2051	90	Baia dos Tigres to Walvis Bay.
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Large Scale : Between 1 : 10 000 – 1 : 50 000

*2611	1001	Walvis Bay and Approaches.
*2631	1002	Approaches to Lüderitz.
*2671	1010	Approaches 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.
*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.

Note: * Indicates charts adopted by the UKHO.

The following paper charts are at early or advanced stages of production:

7550	85	Mbashe Point to Port Shepstone.
*2673	1011	Entrance to Saldanha Bay.
*7533	1026	Ngqura Harbour (new commercial Port).
*7563	1029	Approaches to Durban Single Point Mooring (SBM)

Note: * National charts still needs IHO approval as INT charts.

Region M:

9056	2004	Antarctica. Approaches to Dronning Maud Land.
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National paper charts. The South African paper chart folio consists of some 100 national and international (INT) charts at various scale categories ranging from large scale harbour charts, port approach charts, medium scale coastal navigation charts to 1 : 10 (Million) small scale charts for passage planning around the southern tip of Africa and adjacent islands.

Namibia still remains the charting responsibility of South Africa and charting mainly consists of two hub 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 have been discontinued some

years ago 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) and revised to meet with IHO international charting standards and to maintain standardization. The SANHO adopts a proactive approach by visiting main activity areas from time to time to ensure that the most up to date information is available to the Hydrographic Office for promulgation.

Vessel Traffic Service (VTS) and Traffic Separation Schemes (TSS). Vessel Traffic Services (VTS) have been implemented at the main hub ports of Saldanha Bay, Table Bay, Port Elizabeth, Richards Bay and Durban. With the commission of the new deepwater port of Ngqura, 10 miles north of Port Elizabeth, in October 2009, it was necessary to revise a new VTS system to cover approaches to both ports. Consideration is also being given to Mossel Bay and East London.

Secondly, a Traffic Separation Scheme (TSS), which has been adopted by the International Maritime Organisation (IMO), has been implemented off the south coast to ensure safe navigation of laden tankers either side of the *Alphard Banks* and the *FA Platform*. 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*, *Sable* Oil Fields and the E.M. Control Buoy.

Small Craft Charts. The Hydrographic Office continues to maintain and provide small craft paper charts to the leisure market. These are unique in a sense that they cover a general coastal area at a scale of 1:200 000, are half standard chart size, provide condensed sailing directions, show seasonal wind roses, facility diagrams and detailed larger scale inset plans of fishing harbours, yacht clubs and marinas. All this information is on one sheet printed front and the reverse side providing a comprehensive user document. Six (6) of these charts have been published. Added to this, 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.

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, it has become the spheroid for all new charts and new editions. Thirty-five charts (35%) have been published on WGS84, but if not considering small-scale charts where the WGS 84 shift is considered negligible, the figure changes significantly to 84%. However, it will be several years before the full South African paper chart folio, totalling some 100 charts, will be fully converted.

Print-on-Demand (PoD). The Office is currently producing paper charts using CorelDraw to produce the reformat in film positive output from an A0 image setter for use in conventional lithographic printing. In addition these CorelDraw files may also be used for PoD printing. Presently the office can provide 46 charts (46%) using this process. The office has acquired two A0 inkjet printers (Epson 9600/9800) to support an in-house PoD facility. The setting of colour output values have been finalized.

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 survey data.

The SANHO currently has eight dKart Editor licences, two 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 Transas NaviSailor 3000).

The Office has recently upgraded a new dedicated server to accommodate the volume of digital survey data and other digital data being captured by the ongoing in-house survey data conversion program and the output from the multi beam survey system on SAS PROTEA.

ENC Production

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

Chart Series	ENC Usage Band
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

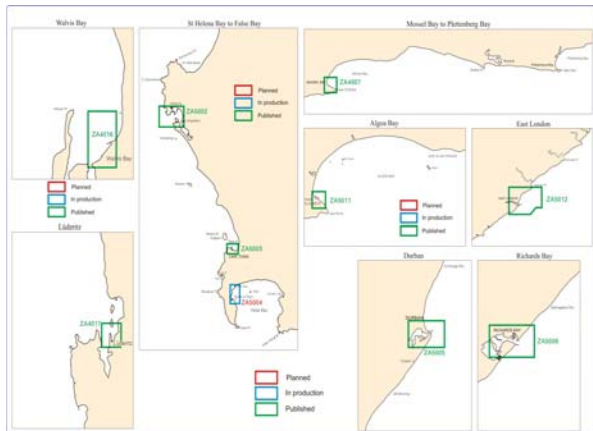
The cells in the Harbour and Approaches bands are the equivalent of the paper chart wrt coverage area but cells in the Coastal, General and Overview usage bands are compiled from more than one paper chart. All cells will conform to the current international guidelines for SCAMIN and data consistency.

ENC Production Priority

All South African and Namibian Ports and Approaches are fully covered by ENCs. In addition, all ENCs in the Coastal usage band and in the Overview usage band have been published.

Only the production of the 6 remaining ENCs in the General usage band remains to be done. This work will require extensive data preparation using the published 1:300 000 scale published paper charts as source to create new 1:600 000 scale coverage, due to the outdated status of the existing 1:600 000 published paper charts.

Status of Harbour Usage Band Coverage

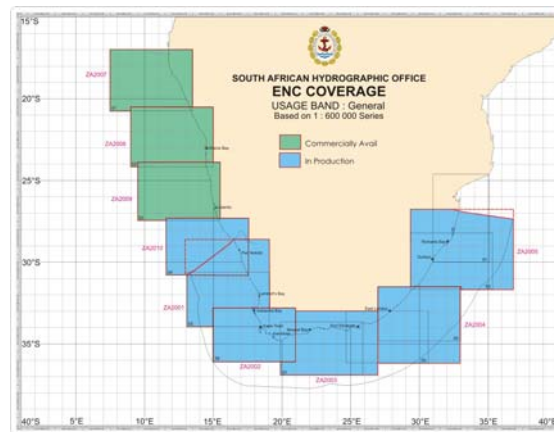
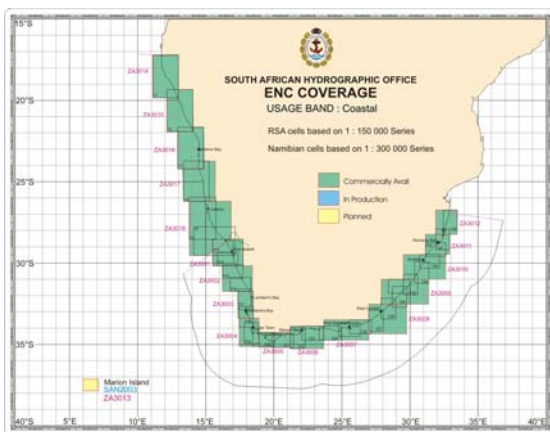


Status of Approaches Usage Band Coverage

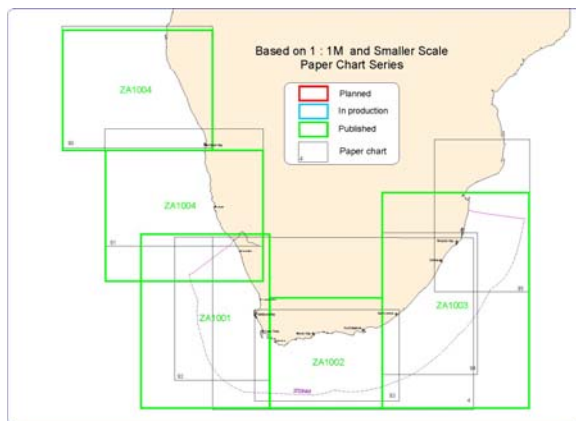


Status of Coastal Usage Band Coverage

Status of General Usage Band Coverage



Status of Overview Usage Band Coverage



South African ENC Products (as at 17 August 2009)

<i>IC-ENC Product Ref</i>	<i>Cell Title</i>
ZA5002	Saldanha Bay
ZA5003	Table Bay
ZA4007	Mosselbaai Harbour
ZA4011	Port Elizabeth Harbour
ZA4012	East london Harbour
ZA5005	Durban Harbour
ZA5006	Richards Bay Harbour
ZA4002	Approaches to Saldanha Bay
ZA4004	Approaches to Table Bay
ZA4006	False Bay
ZA4007	Mossel Bay and Approaches
ZA4010	Approaches to Port Elizabeth
ZA4011	Port Elizabeth and Bird Island Passage
ZA4012	East London and Approaches
ZA4013	Durban Oil Terminal SMB
ZA4014	Approaches to Durban
ZA4015	Approaches to Richards Bay
ZA4016	Approaches to Walvis Bay
ZA4017	Approaches to Lüderitz

ZA3001	Oranjemund to Skulpfonteinpunt
ZA3002	Hondeklipbaai to Olifantsrivier
ZA3003	Doringbaai to Yzerfonteinpunt
ZA3004	Dassen Island to Kaap Hangklip
ZA3005	Mudge Point to Cape Infanta
ZA3006	Cape Barracouta to Cape Seal
ZA3007	Storm Point to Port Alfred
ZA3008	Great Fish Point to Cape Morgan
ZA3009	Mbashe Point to North Sand Bluff
ZA3010	Port Shepstone to Tongaat Bluff
ZA3011	Tugela River to Cape St Lucia
ZA3012	Cape Vidal to Ponta do Ouro
ZA3014	Kunene River to Sand Table Hill
ZA3015	Terrace Bay to Cape Cross
ZA3016	Farilhao Point to Conception Bay
ZA3017	Meob Bay to Hottentot Point
ZA3018	Douglas Point to Orange River
ZA2007	Kunene River to Palgrave Point
ZA2008	Haub River to Conception Bay
ZA2009	Meob Bay to Elizabeth Bay
ZA1001	Western Waters of South Africa
ZA1002	Southern Waters of South Africa
ZA1003	Eastern Waters of South Africa
ZA1004	Northern Waters of Namibia
ZA1005	Southern Waters of Namibia

Scope of ENC Work done

Usage Band	Total Planned	Total Produced	% Coverage Available
Overview	5	5	100.0
General	9	3	33.3
Coastal	18	17	94.4
Approaches	12	11	91.2
Harbour	8	7	87.5
Berthing	0	0	0
Total	52	43	82.7%

Outstanding cell production

ZA5004	Simon's Bay
ZA3013	Prince Edward and Marion Islands
ZA2001	Orange River to Stompneuspunt
ZA2002	Cape Columbine to Cape Infanta
ZA2003	Cape Barracouta to Cape Padrone
ZA2004	Great Fish Point to Cape Hermes
ZA2005	South Sand Bluff to Ponta do Ouro
ZA2010	Driemasterpunt to Orange River

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 on its ENC program as well as information concerning ENC, Charts and Carriage Requirements, arising from the joint work of Primar, IC-ENC and the Working Group on Information (PSIWG).

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	2008
SAN HO-2	South African Tide Tables	2009 & 2010
SAN HO-3	Catalogue and Indexes of SAN Charts and other Pubs	2004
SAN HO-6(INT 1)	Symbols and Abbreviations used on SA Charts	2009
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 Coast	2003
	Annual Summary of SA Notices to Mariners	2009
	Cumulative List of SA Notices to Mariners	2009

The above publications are maintained through the promulgation of monthly NM's and generally fully revised at 2 to 3 year intervals. Charts and Publication information and Tidal Data is also made available on the SANHO web site (www.sanho.co.za) and may be downloaded as convenient.

4. Capacity Building

Regional capacity building initiatives. SAIHC have identified Capacity Building initiatives with MSI as a very important first phase component. This needs to be completed to be able to move forward. The IHO Capacity Building Sub-Committee (CBSC) has established a capacity building fund (CBF) to facilitate capacity building through seed-corn activities such as technical workshops and visits, courses and training within the region.

During early 2008 advisory visit teams visited Angola and Malawi. Namibia was not visited at this time as planned. Member countries are encouraged to establish contact and sensitise their governments about the importance of hydrography. The main objective is to utilise regional projects to facilitate the improvement of hydrography through capacity building.

Tide gauge installation. The Benguela Current Large Marine Ecosystem Project (BCLME) and the Intergovernmental Oceanographic Commission (IOC-UNESCO) approached South Africa to install two Radar type tide gauges at the ports of Walvis Bay and Lüderitz, Namibia. At the request of the IOC, a satellite transmitter was installed at Walvis Bay. It has been confirmed by the IOC, BCLME and NAMPORT that the project is a success.

Training. The SAIHC Capacity Building management plan included a CPRNW-MSI training course from 13-15 November 2007 in Maputo, Mozambique. This took place with the course rated a success. It is hoped that it would stimulate a capability increase through the empowerment of national co-ordinators. The ultimate aim of capacity building is to increase MSI awareness in national waters. Namibia has shown further interest, but if this is a requirement, all member states are encouraged to submit this initiative through the RHC (SAIHC). The CBSC has approved a follow-up MSI training course in the SAIHC region in 2010. The venue still has to be determined.

A Hydrographic survey course was presented at SANHO in 2009 during which training was provided to one international learner from Malawi. Other countries also expressed interest in receiving training in South Africa but no nominations were received. The course presented is highlighted in the table below:

Hydrographic Surveying

Course	Period	Student
1. Hydrographic Survey Recorder Course Part 2	14/04/09 to 05/06/09	Malawi (1)

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 April 2009. Malawi has been assisted to update their C-55 information and 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 spans from Port Nolloth on the West Coast to Richards Bay on the East Coast. Since the end of 2001 the tide gauge network has progressively been replaced with modern radar type tide gauges. The South African Navy Tide Gauge Network has now been completely upgraded with all ten tidal stations having radar type gauges. Biannual calibration and maintenance site visits are carried out by the Tidal Department.

At the request of the IOC, satellite transmitters were installed at 3 tidal stations, two of which are Global Sea level Observing System (GLOSS) stations. The 1min 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 was changed from a standard 0.900m below MSL to Lowest Astronomical Tide (LAT) as from 1 January 1998.



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

