REPUBLIC OF SOUTH AFRICA

SAN HYDROGRAPHIC OFFICE

NATIONAL REPORT

TO THE

8TH SOUTHERN AFRICA AND ISLANDS HYDROGRAPHIC

COMMISSION MEETING (SAIHC)

06 - 07 SEPTEMBER 2011

(WALVIS BAY, NAMIBIA)

CONTENTS

8th SAIHC 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 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 four full time marine cartographers working on paper chart production and one full time marine cartographer working on ENC production.

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 36 paper charts as part of the Region H International (INT) charting Scheme, of which **32** (89%) have been published. Three national paper charts have been allocated INT numbers and IHO adopted into the scheme as INT charts. Some of these charts have undergone a second round of revision.

INT Chart No	**SAN No**	**TITLE**
Medium Scale : 1 : 300 000		
*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.

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.
*7533	1026	Ngqura Harbour.
*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.
7560	86	Port Shepstone to Tugela River.
*2673	1011	Entrance to Saldanha Bay.
*7563	1029	Approaches to Durban Single Point Mooring (SPM).

* IHO adopted as new INT charts.

Region M:

9056	2004	Antarctica. Approaches to Dronning Maud Land.

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 pro-active 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, Durban and Richards Bay. With the commission of the new deepwater commercial port of Ngqura in October 2009, 10 miles to the north of Port Elizabeth, 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 and Sable* Oil Fields as well as 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, provides 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 back 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. It is the intension to re-instate the Gariep Dam chart SAN 2053 towards the second part of 2011. It is located on the Orange River, situated about 35km north of Colesberg, which forms the provincial boundary between the Free State and Eastern Cape.

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. Forty two charts (**42%**) 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 **88%**. 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 repromat in film positive output from an AO 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 70 charts (**70%**) using this process. The office has acquired two AO inkjet printers (Epson 9600/9800) to support an in-house PoD facility.

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 six dKart Editor licences, four dKart Publisher licences and one licence each of dKart Navaids, 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 installed a new dedicated 6TB storage device to accommodate the digital survey data obtained from the multi-beam survey system on SAS PROTEA.

ENC Production

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

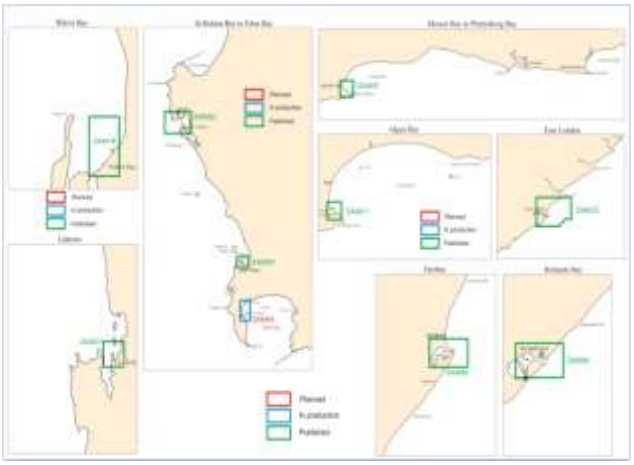
Chart Series	*ENC Usage Band*
SAN Harbour charts	Harbour
SAN Approaches charts	Approaches
SAN 100 000 and 150 000 Series charts	Coastal
SAN 300 000, 600 000 Series	General
SAN 1 000 000 Series and all other small scales	Overview

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 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, General and in the Overview usage band have been published.

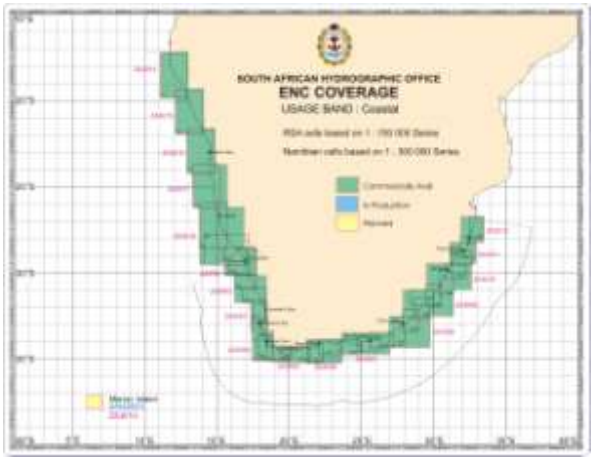
Status of Harbour Usage Band Coverage

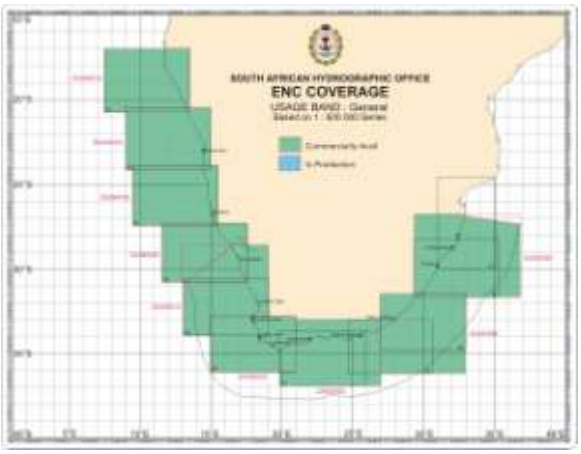


Status of Approaches Usage Band Coverage

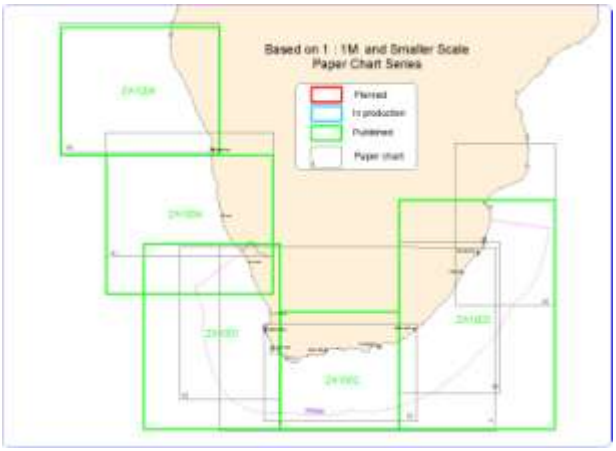
Status of Coastal Usage Band Coverage

Status of General Usage Band Coverage





Status of Overview Usage Band Coverage



South African ENC Products (as at 16 August 2011)

IC-ENC Product Ref	*Cell Title*
ZA500040	Saldanha Bay
ZA500050	Table Bay
ZA500070	Simon's Bay
ZA500090	Mosselbaai Harbour
ZA500120	Port Elizabeth Harbour
ZA500125	Ngqura Harbour
ZA500140	East London Harbour
ZA500160	Durban Harbour
ZA500170	Richards Bay 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
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
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	18	94.7
Approaches	12	12	100
Harbour	8	8	100
Berthing	0	0	0
Total	**53**	**52**	**98.1%**

Outstanding cell production

ZA300200 Prince Edward and Marion Islands

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	2011 & 2012
SAN HO-3	Catalogue and Indexes of SAN Charts and other Pubs And a revised digital version	2004 2011
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 Coasts	2003
	Annual Summary of SA Notices to Mariners	2011
	Cumulative List of SA Notices to Mariners	2011

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 are 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. During early 2011 advisory visit teams visited Namibia, Malawi, the Comores and Madagascar. Angola 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 was a success.

Training. The SAIHC Capacity Building management plan included a WWNWS-MSI training course in April 2010 in Walvis Bay, Namibia. 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. All member states are encouraged to submit this initiative through the RHC (SAIHC).

At the 9th CBSC Meeting, a Phase 1 Skills and Chart Awareness Course have been approved for SAIHC for 2012 and have been incorporated in the 2012 Capacity Building work programme.

Hydrographic Survey Courses and Data Processing and Marine Cartography Modules were presented at SANHO in 2010 and 2011 during which training was provided to four international learners from Malawi and Nigeria. Other countries also expressed interest in receiving training in South Africa but no nominations were received. The courses presented are highlighted in the tables below:

Hydrographic Surveying

Course	Period	Participants
Hydrographic Survey Recorder Course Part 2.	3 May – 11 June 2010	Nigeria (2)
Hydrographic Survey Recorder Course Part 3 / Basic survey for Officers.	23 Aug – 12 Nov 2010	Nigeria (1)
Hydrographic Survey Recorder Course Part 1.	24 Jan – 25 Feb 2011	South Africa (11)
Hydrographic Survey Recorder Course Part 2.	11 Apr – 11 Jun 2011	No takers
Hydrographic Survey Recorder Course Part 3	22 Aug – 11 Nov 2011	South Africa (2)

Data Processing and Marine Cartography

Course	Period	Participants
Hydrographic Data Processing and Marine Cartography including specialist ENCs **(Module 1).** Presented by the UKHO in South Africa.	17 May – 18 June 2010	South Africa (9) Malawi (1)
Module 2.	17 Jan – 18 Feb 2011	South Africa (10)
Module 3.	12 Sep – 14 Oct 2011	South Africa (8)

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 February 2011. 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 Port Nolloth 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 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 2003.

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