

## RESEARCH SHIP AFRICANA



### BACKGROUND:

**Africana**, was built and commissioned in 1982 for the then Sea Fisheries Research Institute. She has achieved close to 40 000 scientific stations. The Africana is based in Cape Town and owned by the Department of Agriculture, Forestry and Fisheries.

The **Africana** is the flagship of the Branch: Fisheries. Her main roll is as a platform for research and monitoring the fish stocks which is undertaken to guide the management of South Africa's offshore fisheries. An array of scientific winches caters for biological, physical and chemical oceanography research.

A suite of hull mounted acoustic transducers, high tech scientific echo-sounders and her specialised design makes her one of the best vessel in the world for hydro-acoustic surveys.

A purpose- built stern trawler, the **Africana** is designed specifically for both Pelagic and Demersal trawling, hydro acoustic surveys, deployment of underwater sensors up to

6000m depth, towing of various sampling nets and is ice strengthened for working in the southern oceans where she has conducted krill surveys in the past.

### **VESSEL PARTICULARS:**

Type: Steel Hulled Fisheries Research Ship  
Class: Lloyds Register 100 A1 + Ice Class II  
Keel Laid: 1979 (Commissioned in March 1982)  
IMO Number: 7905405  
Official Number: 350893  
Call Sign: ZUAB  
Builders: Dorbyl Marine, Durban  
Gross tonnage: 2471.11 T  
Nett tonnage: 617.78 T  
Displacement: 3337 T  
Length: 69.886 m  
Breadth: 15, 25 m  
Moulded draft: 5, 5 m  
Horsepower: 1790 kW (2400 BHP)  
Cruising speed: 12 knots  
Maximum speed: 14 knots  
Minimum speed: 1 knot  
Range: 20 000 nautical miles  
Endurance: 45 days  
Complement: 52 comprising 34 crew and 18 scientific/other staff  
Affiliation: Department of Agriculture, Forestry and Fisheries  
Directorate: Research

### **PROPULSION:**

Single screw, Diesel Electric  
3 x APE Allen Diesel Engines each developing 1044 kW at 600 rpm  
3 x 750 kW Siemens DC Generators supplying Siemens Motors of 1790 kW at 174 rpm.  
Bunker capacity 532 tonnes

### **ELECTRICAL POWER:**

2 x 550 kW Siemens Alternators driven by 2 of the 3 Main Engines.  
Auxiliary power by 437 kW Deutz Diesel Engine driving 350 kW Siemens Alternator.

### **NAVIGATIONAL EQUIPMENT:**

Anschutz Standard 20 Gyro Compass  
Humber Mark 11 Standard Compass  
Racal Decca Bridgemaster ARPA 340 Series S Band Radar  
Max Sea Pro Chart Plotter  
Decca 550 Arkas Type 42 E1.4 Autopilot  
Raytheon DSN 450 Doppler Log  
Furuno DS-70 Doppler Log with remote displays at Trawl Winch Console and in the

Acoustics, Hydrological and Biological Laboratories  
Racal Decca AC 1690 X Band Radar  
Trimble Navtrack GPS  
Koden KGP – 98 GPS Navigator  
Leica MX 412 Professional DGPS

**METEOROLOGICAL EQUIPMENT:**

Wind Speed and Direction - Furuno FW200  
Air Temperature, Atmospheric Pressure and Atmospheric Relative Humidity - Aandreaa  
Sea Surface Temperature and Salinity - Seacat Thermosalinograph  
Weatherfax - JRC JAX-9A  
Weather Satellite Receiver - Dart.Com P/C based

**COMMUNICATIONS:**

**Communications Room**

Global Email  
Skanti Scansat-B Inmarsat-B  
Nokia 8 Watt Cellphone fixed installation (Obsolete)  
Sailor RT 143 VHF with Autolink  
Marconi Marine Hermes Broadcast Receiver (Obsolete)

**Bridge:**

Full international GMDSS Station consisting of:  
2 x Sailor RT2048 VHF's Maritime Band  
1 x Sailor HF SSB RE2100  
1 x Sailor HF SSB Telex RM2151  
1 x Sailor Inmarsat-C  
1 x Sailor T11 127 HF Tranceiver All Marine Frequencies  
Sailor RT145 VHF  
ICS NAV 5 GMDSS Navtex

**Internal Communications:**

Broadcast System  
Ring Call System  
Telephone System

**ECHO SOUNDING EQUIPMENT:**

Simrad EK 500 38 kHz and 120 kHz Split Beam and 300 kHz Single Beam  
Simrad ES 500 50/18 kHz Deep Sea Sounder  
Simrad SP-70 Sonar  
Simrad FS 20/25 Trawl Sonar  
Simrad ITI Net Monitoring System

**DECK MACHINERY:**

Hydraulic Brattvag Windlass  
2 Pesci PI700 Cranes 0.5 ton  
Petrel Knuckle Boom Crane SWL 2.8 tonnes at 10 meters

4000m x 11.88mm Conductor Cable  
Petrel Stern Towing Winch 3 tons at 60m per minute  
Clarke Chapman Main Trawl Winch: 2 x 25 ton finger capstans, 2 storage drums each with 5000m x 26 mm Warp  
Petrel Net Drum Winch 7.5m – 6.2 tons  
Petrel Auxiliary Trawl Winch 2 x 10 tons  
Petrel Fishing/Mooring Winches 2 x 10 tons  
Elac Net Sonde Winch 2500mm Cable, constant tension  
Clarke Chapman Hydrographic Winch Single Finger Capstan with 1 storage drum 5000m x 9.5mm Conductor Cable and 1 storage drum 6000m x 6mm SWR.  
Lebus Large Towing Winch with 1 drum 2500m x 12.5mm Conductor Cable and 1 drum 2500m x 12.5 Conductor Cable.  
Lebus Vertical Plankton Winch with 1 drum 1000m x 7.2 Conductor Cable  
Lebus Small Towing Winch with 1 drum 1000m x 9.5mm Conductor Cable

### **ACOUSTICAL CHARACTERISTICS:**

Diesel electric configuration  
Isolation of reciprocating machinery and special treatment of hull and propeller, permits acoustics surveys to be conducted at speeds of up to 12 knots.

### **LABORATORIES:**

Lower Bridge Deck: Acoustics  
Forecastle Deck: Operations Room / Computer room  
Main Deck Amidships: Hydrology, wet and dry  
Main Deck Starboard: Biological dry and wet plankton  
Main Deck Port: Fish, wet and dry  
Forecastle and Main Decks: 3 x Container laboratories

### **ALL LABORATORIES ARE PROVIDED WITH THE FOLLOWING FACILITIES:-**

Air conditioning and separate temperature control  
Positive pressure maintained in Acoustic Laboratory and Operations Room  
Hot and cold fresh water, sea water (Acoustics and Operations Rooms excluded)  
Ship's 220v/AC power as well an independent 220v/AC  
Laboratory dedicated stabilized supply  
2 Telephone systems  
Acoustics, Hydro and Biological Laboratories have winch controls and talk back system to working deck areas  
Ring call system (speaker & microphone) at all main work points (not in Container Laboratories)  
Data links to Operations Room  
Fire alarm  
Smoke detector  
The above facilities are also available in the Container Laboratories, except as stated above.

### **SCIENTIFIC WORKING AREAS:**

Forecastle Deck and Main Deck

**ON BOARD SCIENTIFIC SYSTEMS:**

An Ethernet based Networked Data System (NDS) interfaced to a variety of Navigational, Meteorological and Winch Systems, displaying these data on PCs housed in all Scientific Spaces. There are Ethernet Nodes in all cabins for monitoring the NDS. Parameters are monitored once per second, but only mean values and standard deviations are logged once per minute.

The NDS facilitates interaction between the various spaces and permits the storing and processing of real time and historical data at each work station.

In addition a Marine & Coastal Management Underway Mapping System has been developed to produce horizontal sections, Track Charts, etc.

Seabird 911 Plus CTD with 12 x 8 litre Bottles, Fluorimeter, Transmissometer, Par Light Sensor and Altimeter

Seacat Thermosalinograph

Turner Designs flow through Fluorometer

Expendable Bathythermograph

ADCP x RDI (750 kHz phased array)

Retractable Calibration Monitor for Echo Sounders

Retractable Underway water Sampling Probe

Universal Underwater Unit (Branch: Fisheries)

Electronic Fish Measuring Boards (Branch: Fisheries)

Ethernet Network and Nodes in all Laboratories and Cabins

**SCIENTIFIC ACCOMMODATION:**

Chief Scientist's cabin with Day Room and adjoining Conference Room

3 x Double Berth Scientist Cabins with Bathrooms are situated on Forecastle Deck

5 x Double Berth Scientist Cabins on the Lower Deck

1 x Single Berth Technician's Cabin

**HABITABILITY:**

All Accommodation, Public Rooms and Laboratories are air conditioned

Dining Saloon with adjoining Lounge provided with Television, Video Recorder and Sound Systems

Bar for Soft Drinks, 2% Beer, Confectionery and Cigarettes

Duty Mess for Dining in Working Gear

Library / Personal Computer / Laptop Room

**OTHER FEATURES:**

Passive Stabiliser Tanks 2 x 60 ton

Retractable Bow Propeller, 360° rotation (Azimuth Thruster)

Hospital, two bed, fully equipped with Dispensary

**REPLACEMENT PROGRAMME:**

Within next five years