

## Construction of two new Research Vessels for Argentina

Martín D. Ehrlich, L. Machinandiarena  
and A. Madirolas

National Institute for Fisheries Research and Development (INIDEP)

Mar del Plata, Argentina. University of Buenos Aires

## Background, 52 m Regional Fisheries Research Vessel (RV-098) 2014-present

### Parameters considered by Armon that define ship forms

- Bow
- Hull
- Stern
- Blocks
- Gondola
- Resistance to advance

### General layout characteristics

- Decks
- Winches
- Working spaces

### Scientific equipment

## Background

***2014 International Development Bank (IDB) gave a loan to the Argentine Government of about 40 million dollars for a sustainable aquaculture and fisheries development program. 33 million will be allocated for the construction of two fishing and oceanographic research vessels of 52 and 25 m respectively.***

**The coastal vessel was awarded to Armon Shipyard in June 2016 but the contract has not yet been signed**

***01/2015 INIDEP staff members Commission was formed to define the operational requirements of both vessels.***

***02/2015 Trip to visit the Mexican research vessel (BIPO INAPESCA) built by similar purchasing procedure (credit IDB).***



R/V BIPO INAPESCA

## Background

**02-03/ 2015 Selection of an external consultant to develop the specifications of the 52 m vessel, according to guidelines of IDB. In April the same consultant involved in the Mexico's Project was hired.**

**05-06/2015 Meetings in the INIDEP between consultant and the scientific staff to define the project and to prepare the final specifications.**

**07/2015 Completed request for tender.**

**09/ 2015 Opening of tenders and evaluation. One offer from Shipyard Armon, Vigo Spain ca. 28,000,000 USD**

**12/2015 Signature of the contract between Armon Vigo and INIDEP.**

**03/2016 Construction start.**

**04/2016 Channel testing in Madrid.**

**07/2016 Ceremony of laying the first hull section.**



**Regional research vessel designed for fisheries and acoustic research operations, and in environmental investigations. Designed to meet the noise requirements of ICES CRR Report 209.**

- Retractable drop keel
- Dynamic positioning (DP)
- Capacity to carry 2 x 20 ft *laboratory containers*



### ***Main features RV-098***

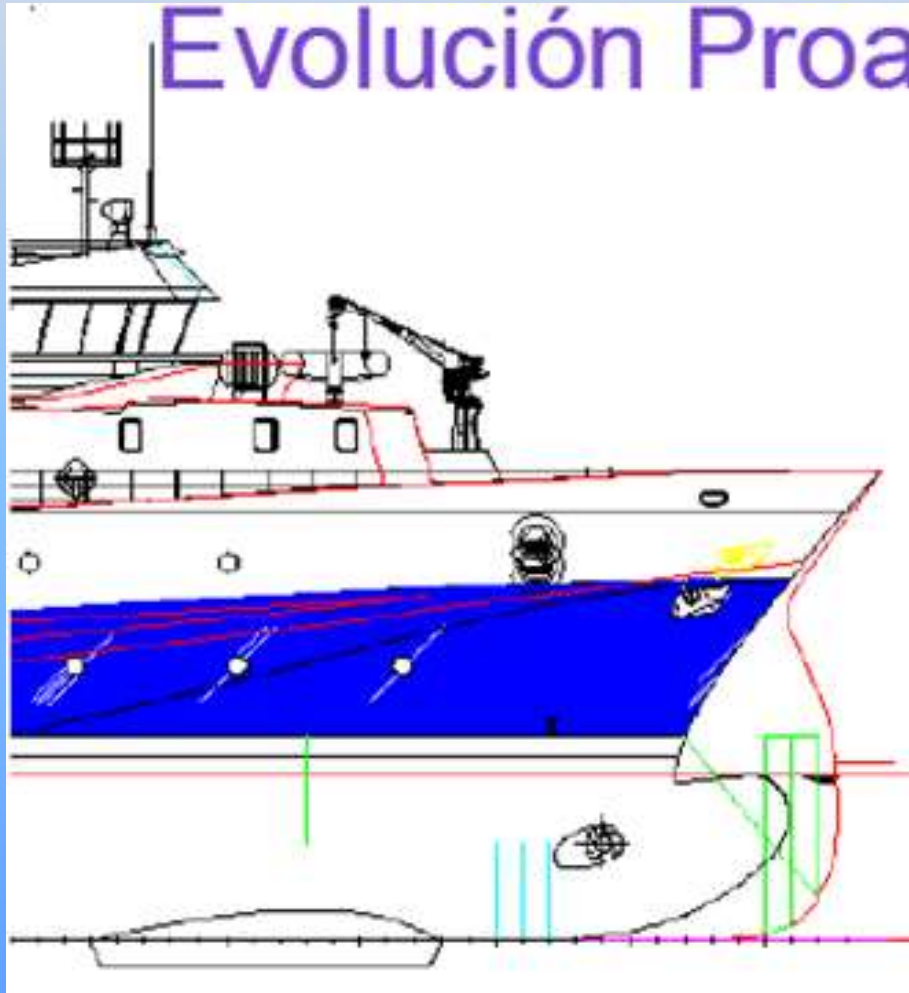
Length OA: 52.80 m  
Length BP: 47.10 m  
Breadth: 12.80 m  
Depth to main deck: 5.00 m  
Design draft: 4.80 m  
Power Main Generators: 3210 KVA  
Propulsion: Diesel-Electric: 2 x 1050 Kw  
Max. Speed: 12-13 kn  
Cruise speed: 11 kn  
Crew: 14  
Scientists: 17  
Daily fuel consumption 12-13 kn: 13,608 l/d  
Daily fuel consumption 11 kn: 6,768 l/d  
Cruising range 11 kn: 43.8 days

**CLASIFICACION: ABS**

**☒ A1, ☒ AMS, ☒ ACCU**

**OCEANOGRAPHIC RESEARCH VESSEL**

## **BOW EVOLUTION**



The bow cuts the water instead of pushing

**EXCELENT BEHAVIOUR  
IN BAD WEATHER**

## CHARACTERISTICS OF THE HULL

### *INCREASE OF FLAT BOTTOM AND FLARE*

Greater protection of the bridge in bad sea  
Reduction of acceleration and displacement in heave



### *SEPARATION BETWEEN PROPELLER AND HULL*

Not to interfere with acoustics

### *LENGHTENING OF THE STERN*

Not to interfere with the gear

## ***CHARACTERISTICS OF THE STERN***



### ***UPPER STERN HEIGHT REDUCTION***

Improves the hoisting of the gear, the maintenance of the course and heave behavior



## PARAMETERS THAT DEFINE THE FORMS: BLOCKS

The accelerations in the fishing **blocks**: the maintenance of the tension in the towing cable

The accelerations in the research platform in laboratories

Accelerations reduction in the **blocks**

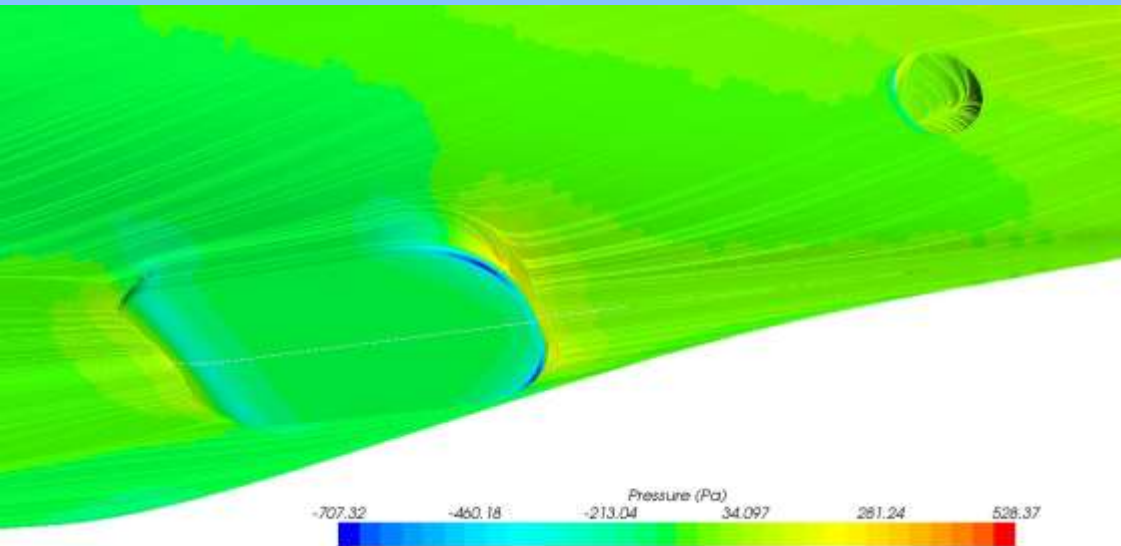
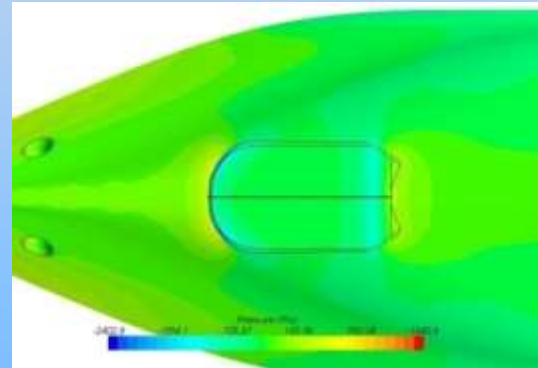


# GONDOLA

Flat surface that integrates the multibeam



*LOW HEIGHT OF APPENDIX UNDER THE HULL TO PREVENT THE INCREASE IN DRAUGHT AND RESISTANCE TO ADVANCE AND COURSE*



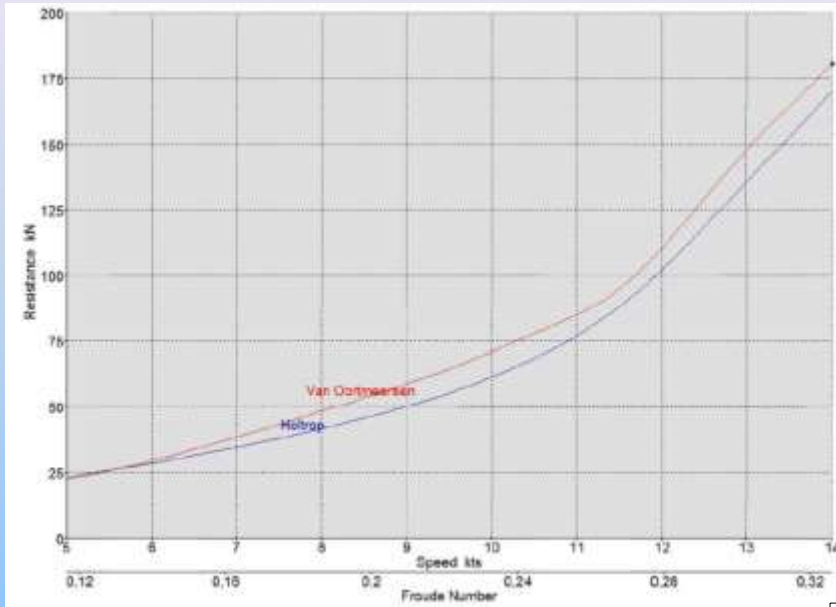
*APPROPRIATE STUDIES OF CURRENT LINES*



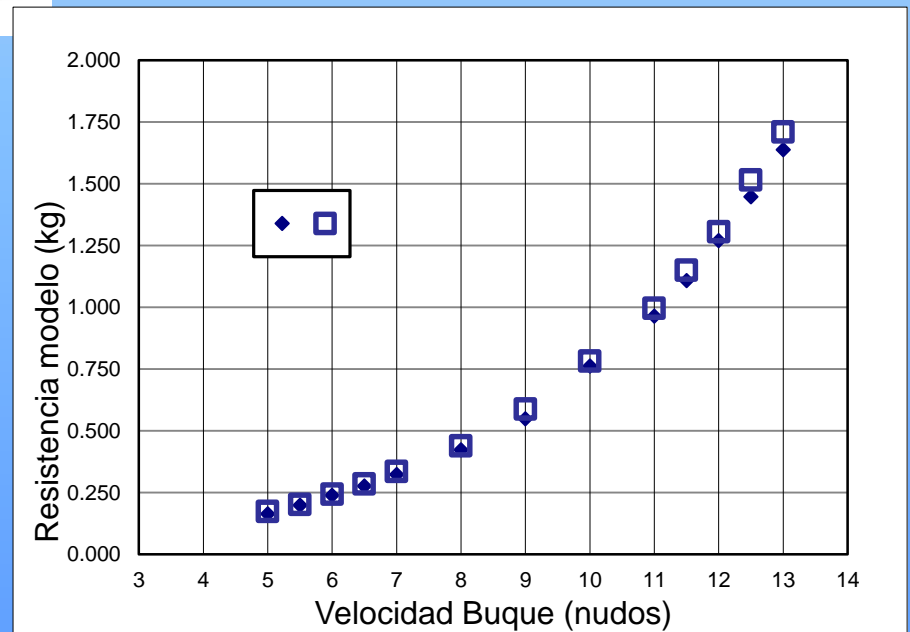
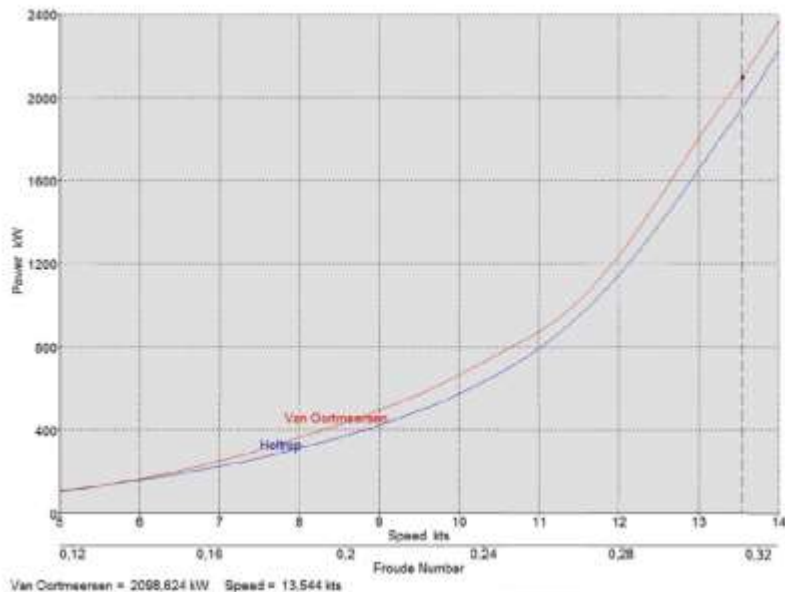
# RESISTANCE TO PROGRESS



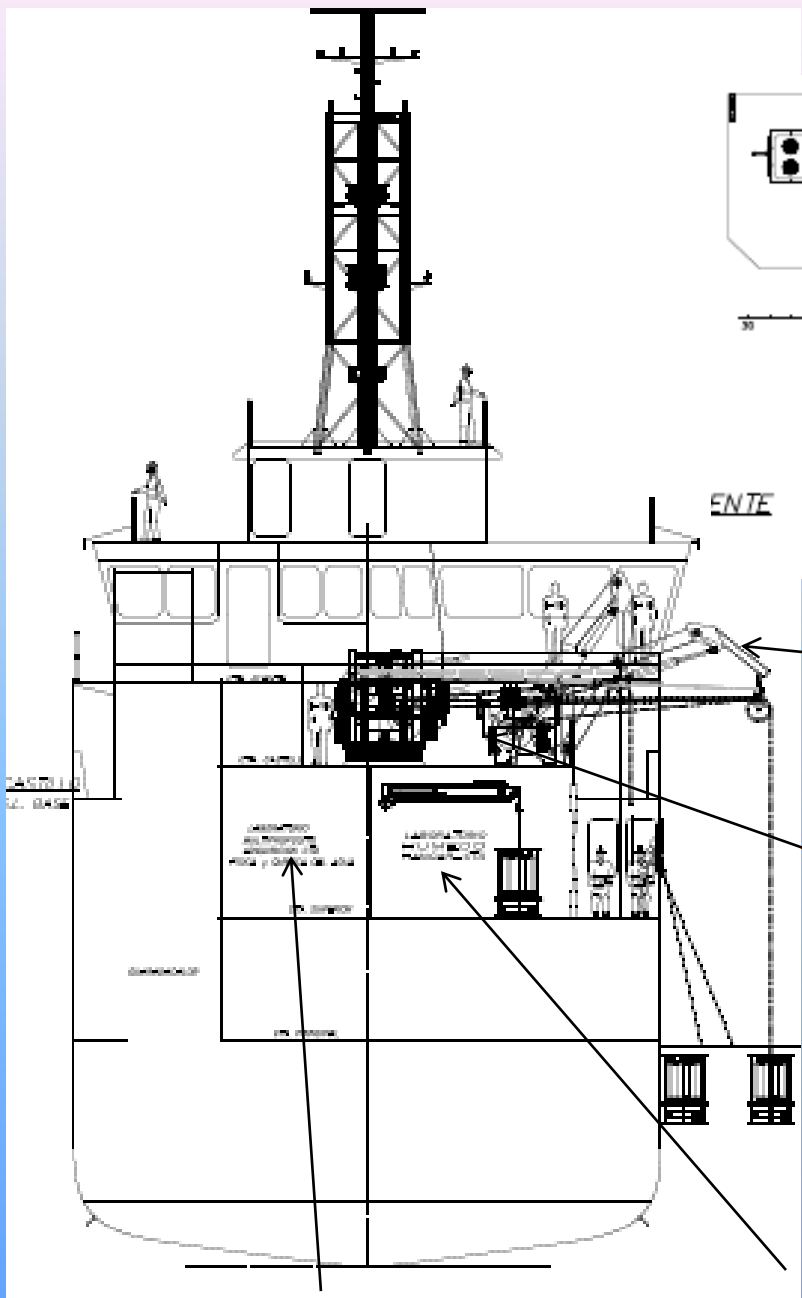
INIDEP TEST CHANNEL



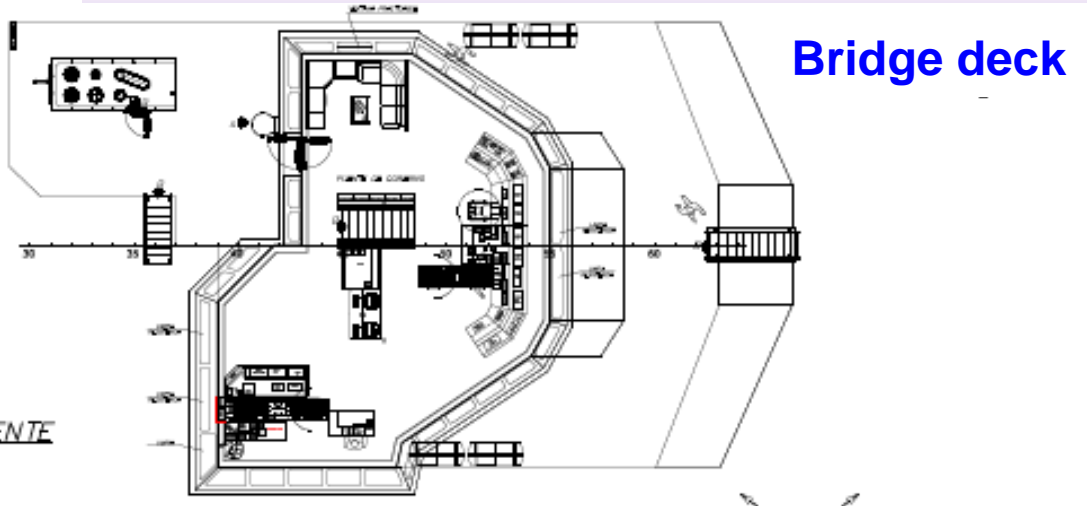
VALORES DE POTENCIA TOTAL NECESARIA GRAFICOS:







Multipurpose lab



Bridge deck

Double articulated frame

CTD and hydrographic winches

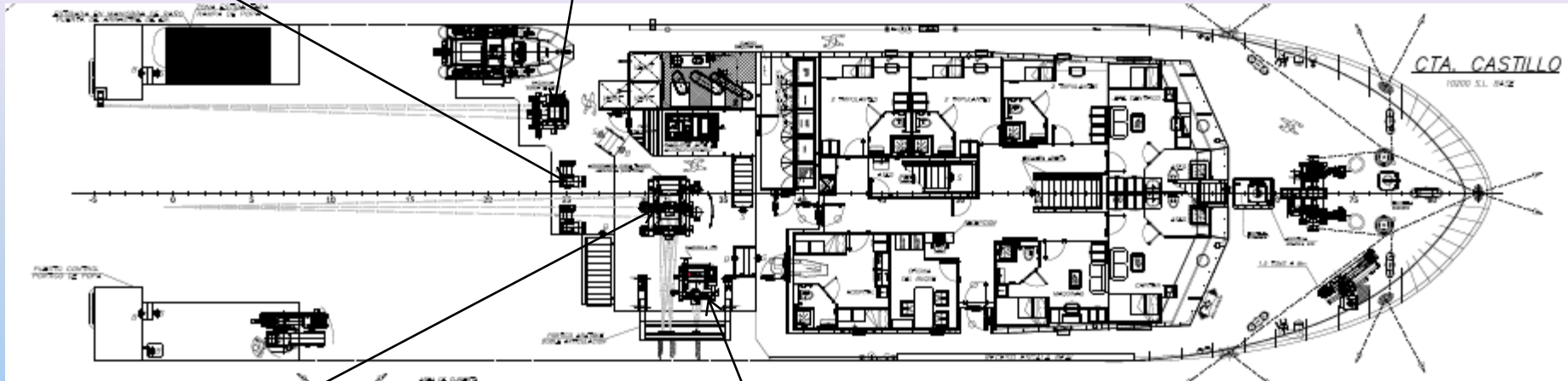
CTD and plankton, benthos operation

Wet lab, CTD Hangar

Trawl auxiliary winches

Net sounder winch

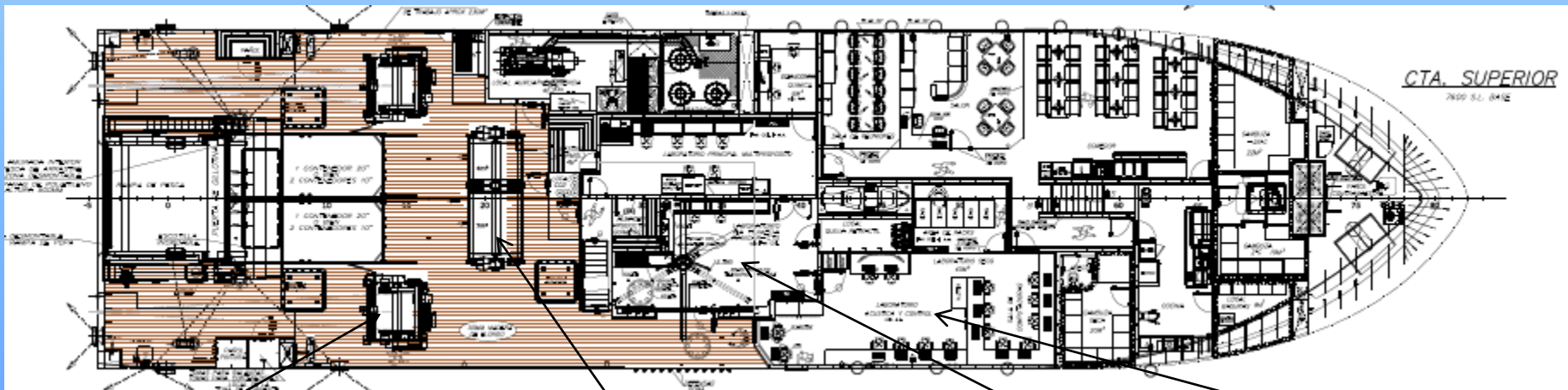
Forecastle deck



Double drum rotating hydrographic winch

CTD winch

Upper deck



Trawl winch

Two net winches, dem. 4 m<sup>3</sup>  
and pel. 7 m<sup>3</sup>

CTD hangar

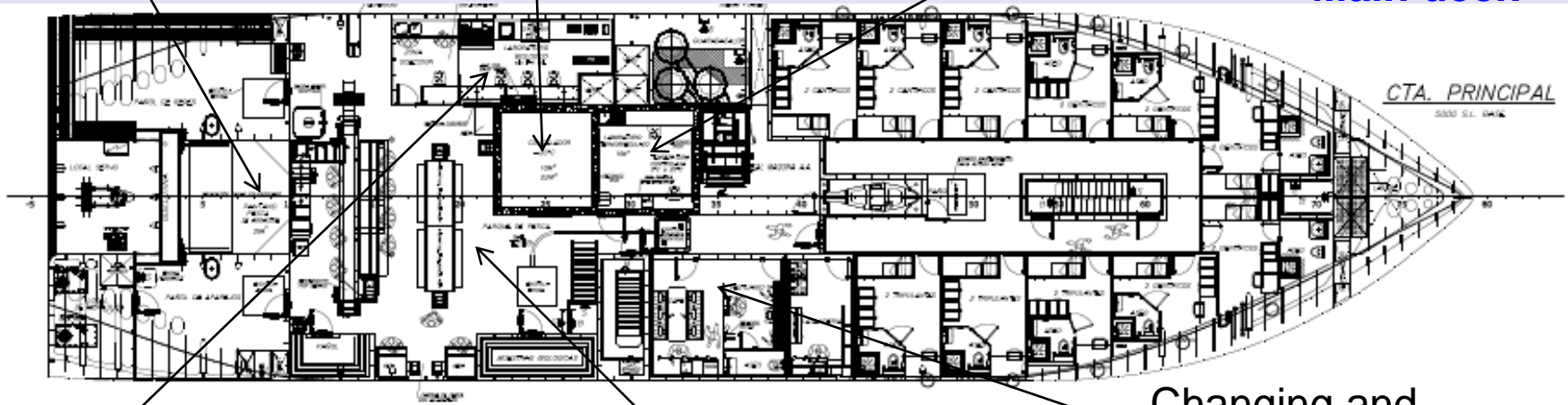
Dry lab

20 m<sup>3</sup> fish pond

22 m<sup>3</sup> fish hold

5-20 °C Temp-regulated lab

Main deck



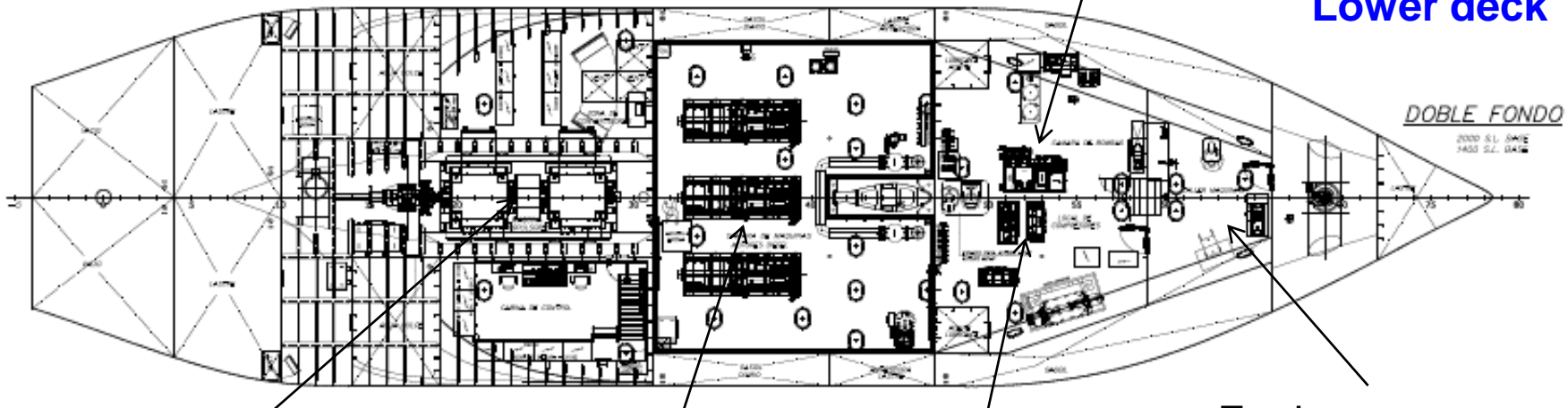
Biological lab

Fish sorting wet space,  
conveyor belt, sorting tables  
and scales

Changing and  
waiting room

Pumps

Lower deck



El. propulsion  
motors

Generators

Compressors

Engine room  
work shop

## ***SCIENTIFIC EQUIPMENT / SONARS***

- CTD Rosette water sampling system
- Meteorological station
- Data Acquisition system
- Scientific Computer System Network
- Scientific wide band Echo sounder SIMRAD EK 80
- Scientific multibeam Echo sounder SIMRAD ME 70
- Low frequency sonar SIMRAD SX 90
- Fish finding sonar SIMRAD SU 90
- Acoustic Doppler Current Profiler (ADCP)
- Termosalinograph
- Laboratory salinometer
- Plankton and benthos samplers
- Marine scales
- Not contaminated sea water circulation circuit
- Div. environmental sensors
- ROV



**Thank you for your attention!**

**Questions?**

