SCIENTIFIC COMMITTEE
FOURTH REGULAR SESSION

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Port Moresby, Papua New Guinea

RESEARCH ON ACOUSTIC SELECTIVITY ON FAD ASSOCIATED TROPICAL PURSE SEINE FISHERIES

WCPFC-SC4-FT-SWG/WP-2

Instituto Español de Oceanografía
(Ministerio de Ciencia e Innovación)

Secretaría General del Mar
(Ministerio de Medioambiente, Medio Rural y Marino)

OPAGAC
ALBACORA S.A.
AITZUGANA S.A.

Research on Acoustic Selectivity on FAD associated tropical purse seine fisheries

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Background experience

Polit Action of Experimental Fishing

RAI-AP-2004-07.

Western Indian Ocean

15 May-15 December 2005

2 purse seine vessel + 2 auxiliar vessel

Auxiliar vessels for acoustic experiments

Few experiments (11) after 6 months

Promising results of the experiments presented in SC2 **(WCPFC-SC2-2006/FT WP-8)**

Acoustic Selectivity Project

- Planned dates: January - July 2009
- Ground: East and Central Pacific
- Vessels: Two Spanish flag purse seine vessels.

-Albacora Uno (Albacora S.A.)

-Aurora B (Aitzugana S.A.)

Material and Methods

Technical characteristics:

- ALBACORA UNO

LOA: 105 m

GT: 3,584

HP : 6,004

Capacity: 1,900 mt

Construction: Astilleros Barreras, Vigo, SPAIN, 1995.

Material and Methods

Technical characteristics:

- AURORA B

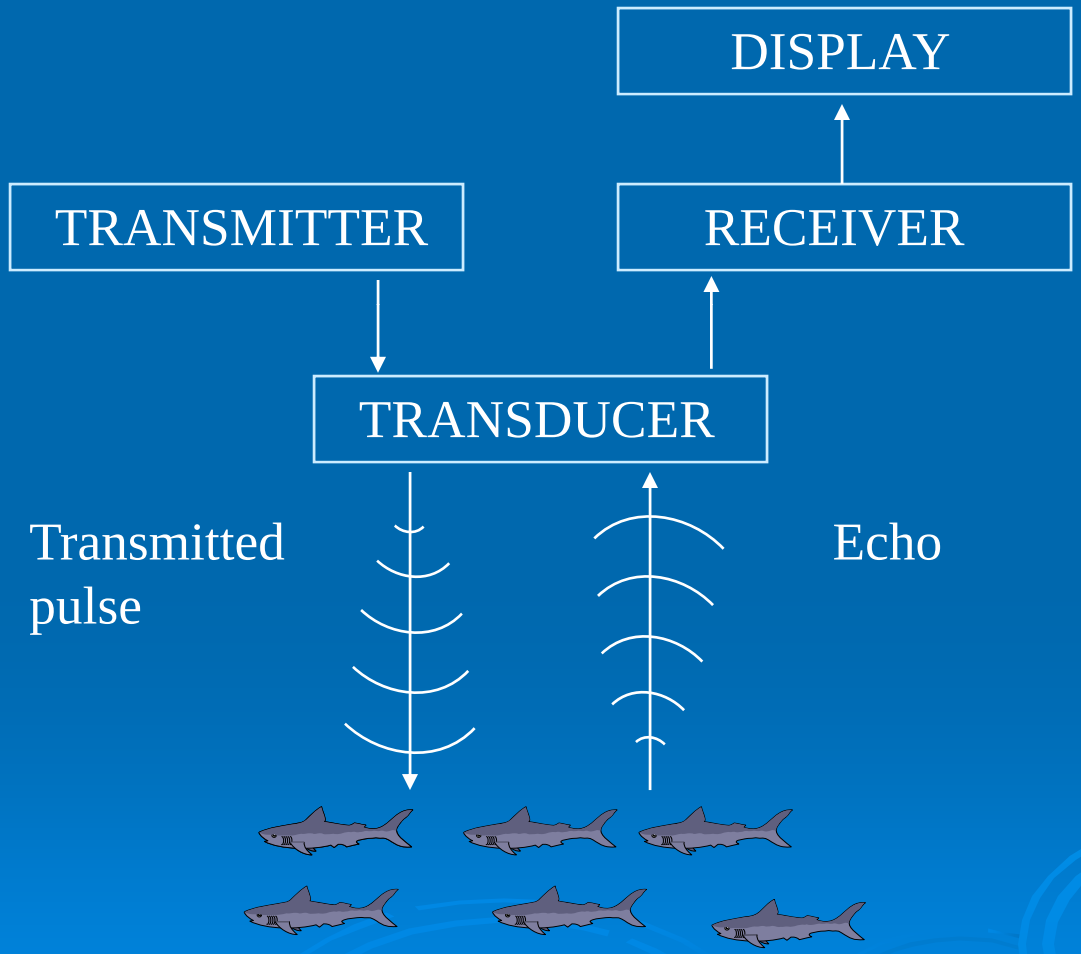
LOA: 72,58 m

GT: 2,479

HP : 4,080

Capacity: 1,200 mt

Construction: Astilleros Murueta, Vizcaya, SPAIN, 2000.


DISPLAY
TRANSMITTER
RECEIVER
TRANSDUCER
Transmitted pulse
Echo

Material and Methods

- Portable Scientific Echosounder SIMRAD EY-60 with 70, 120 and 200 Khz transducers.

Multifrequency acoustics.

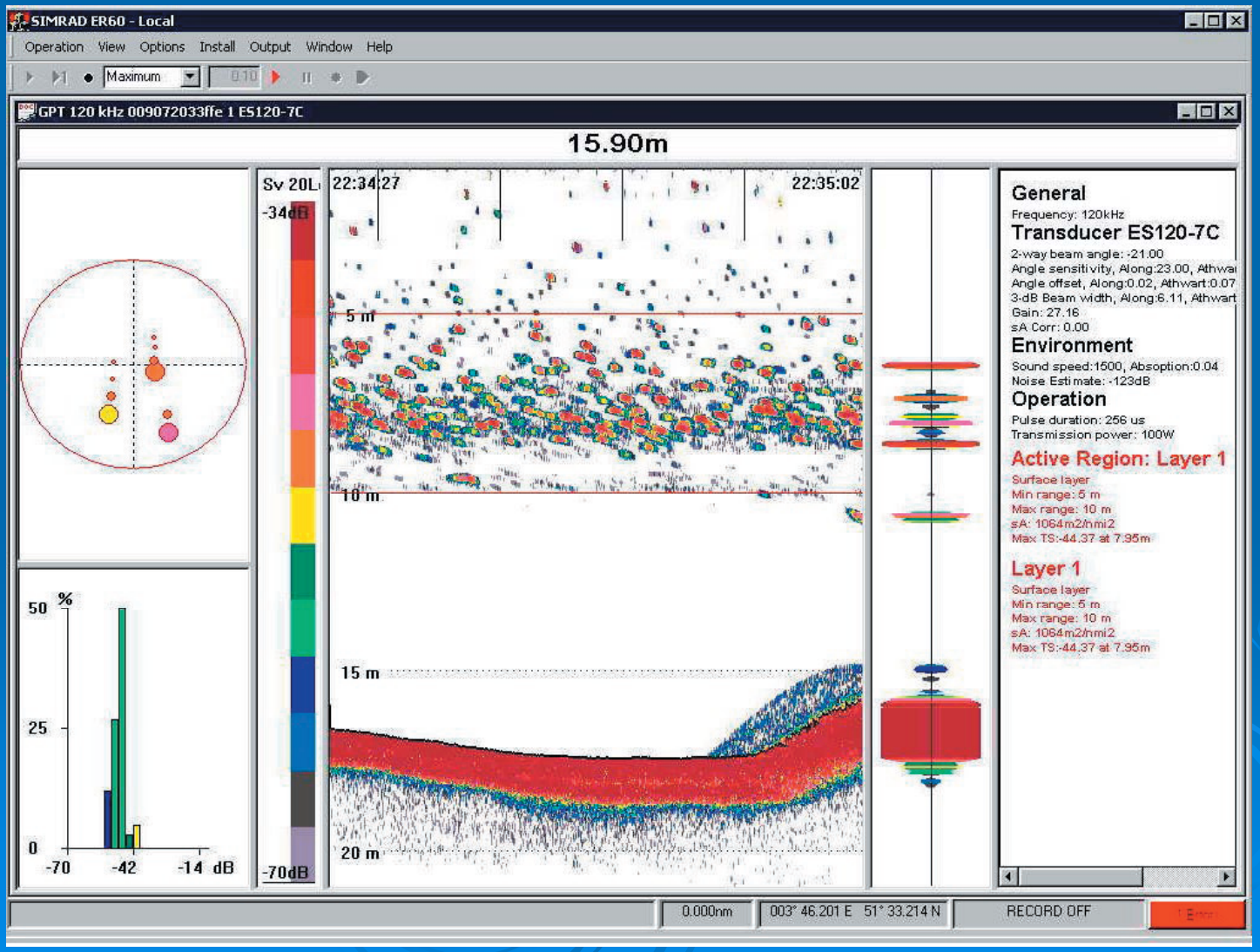
Wireless transmition.

Range: 0-15,000 m. Single fish echo down to 1,000 m.

Bottom detection: down to 9,000 m.

Material and Methods

SIMRAD EY60



Material and Methods

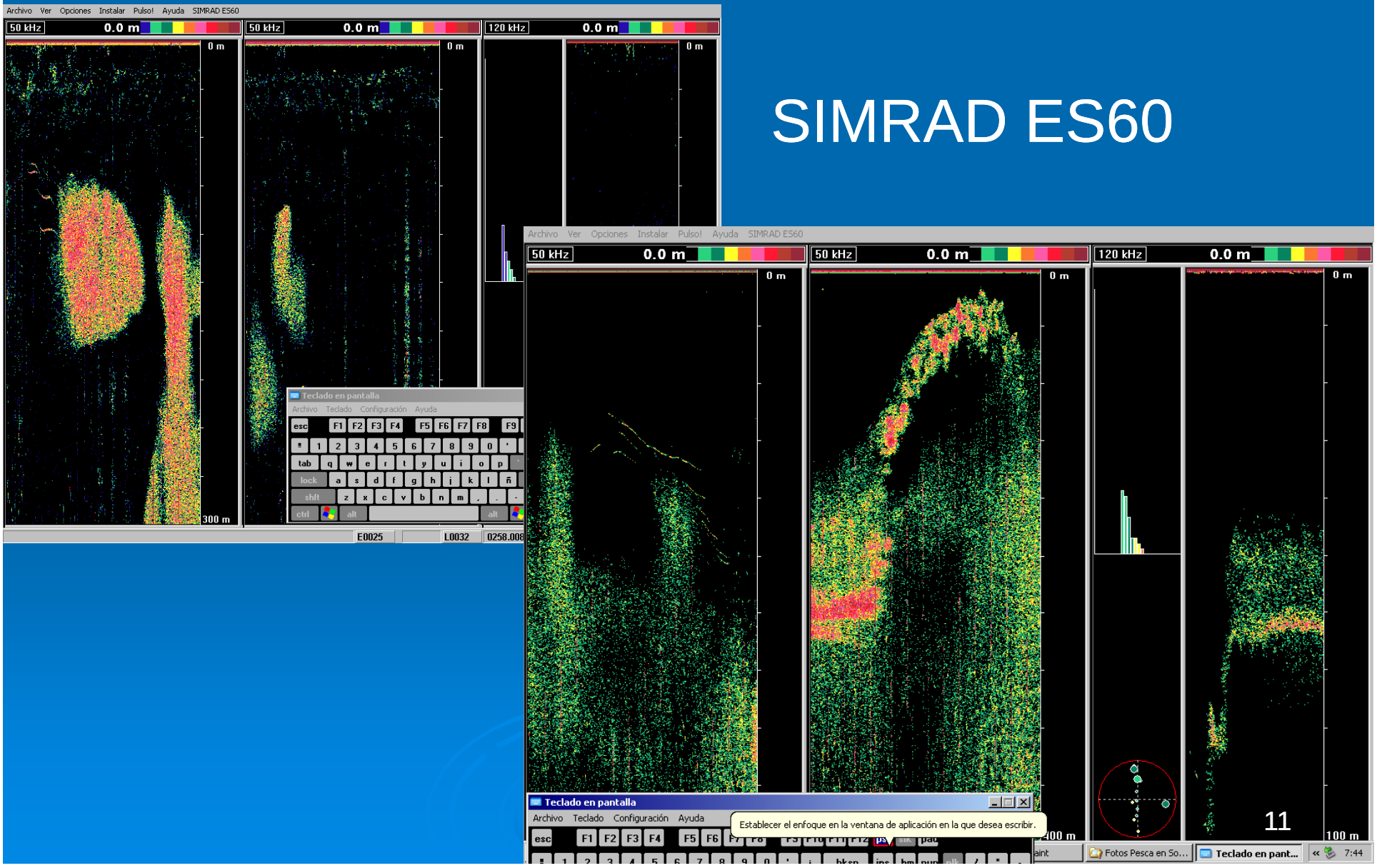
- Echosounder SIMRAD ES60 Split Beam, including 2 GPT 120 KHz 1KW Split Beam y 2 Transducers Split Beam 120 KHz

Range: 5-15,000 m.

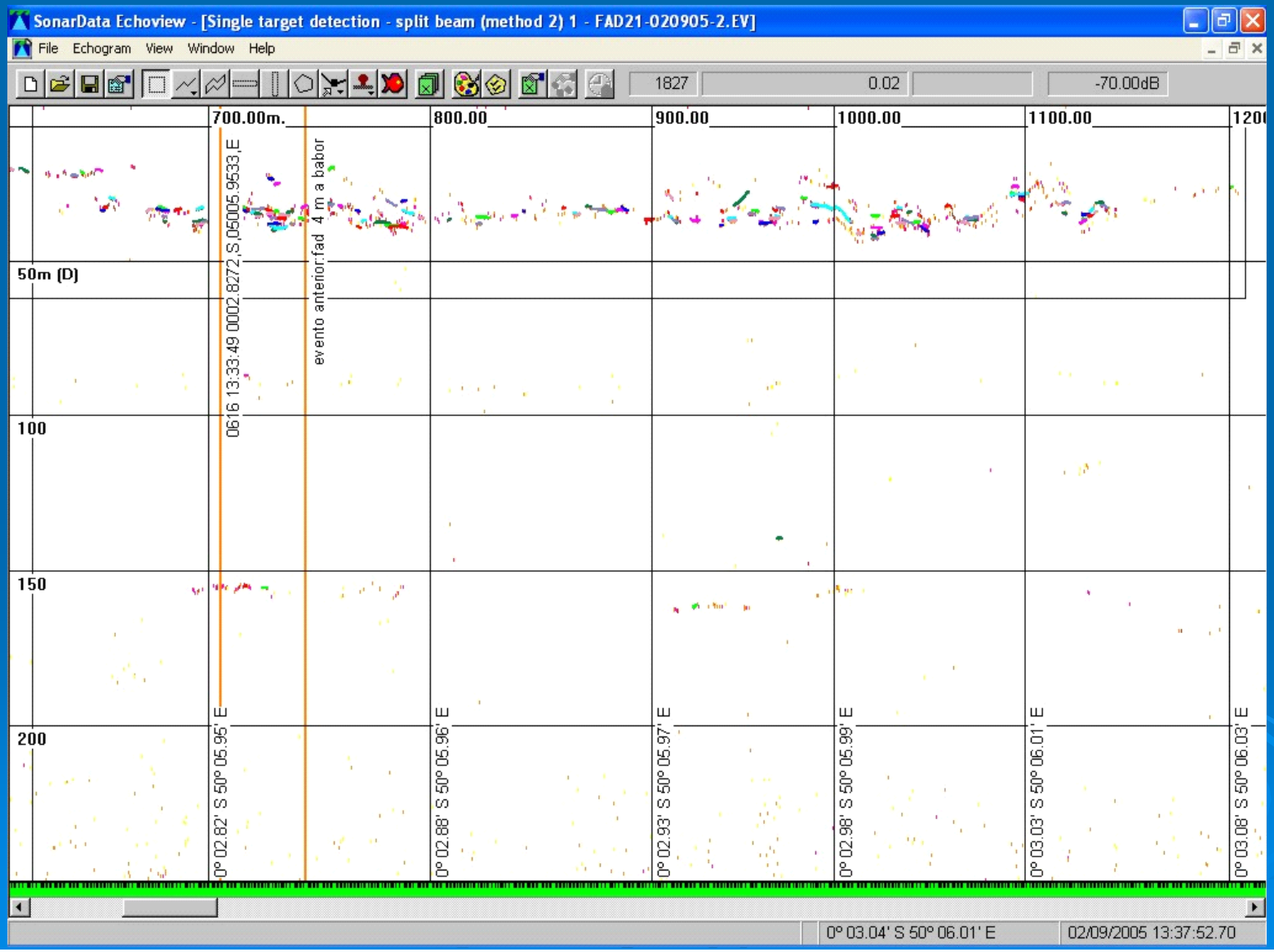
Bottom expansion: 5 to 7,500 m.

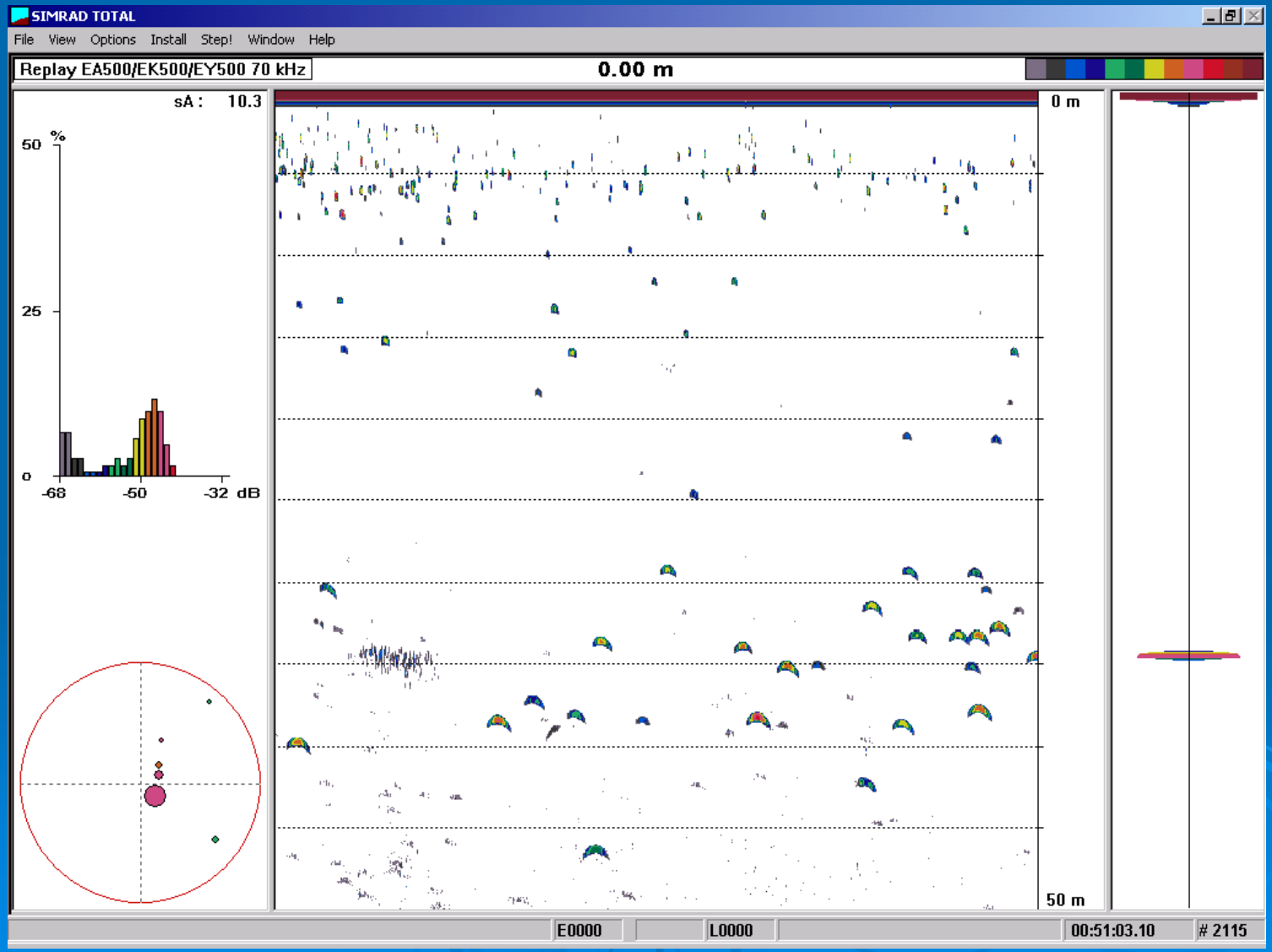
Material and Methods

SIMRAD ES60



- 500 m trace of a tuna school concentrated under a FAD performed by an auxiliar vessel with SIMRAD ES60




SIMRAD TOTAL
File View Options Install Step! Window Help
Replay EA500/EK500/EY500 70 kHz
0.00 m
sA : 10.3
50 %
25
0
-68 -50 -32 dB
0 m
50 m
E0000
L0000
00:51:03.10
2115

Material and Methods

- Echosounder Furuno FCV1000

50-200 Khz

Range: 5-2,000 m (max. Depth 4,000m)

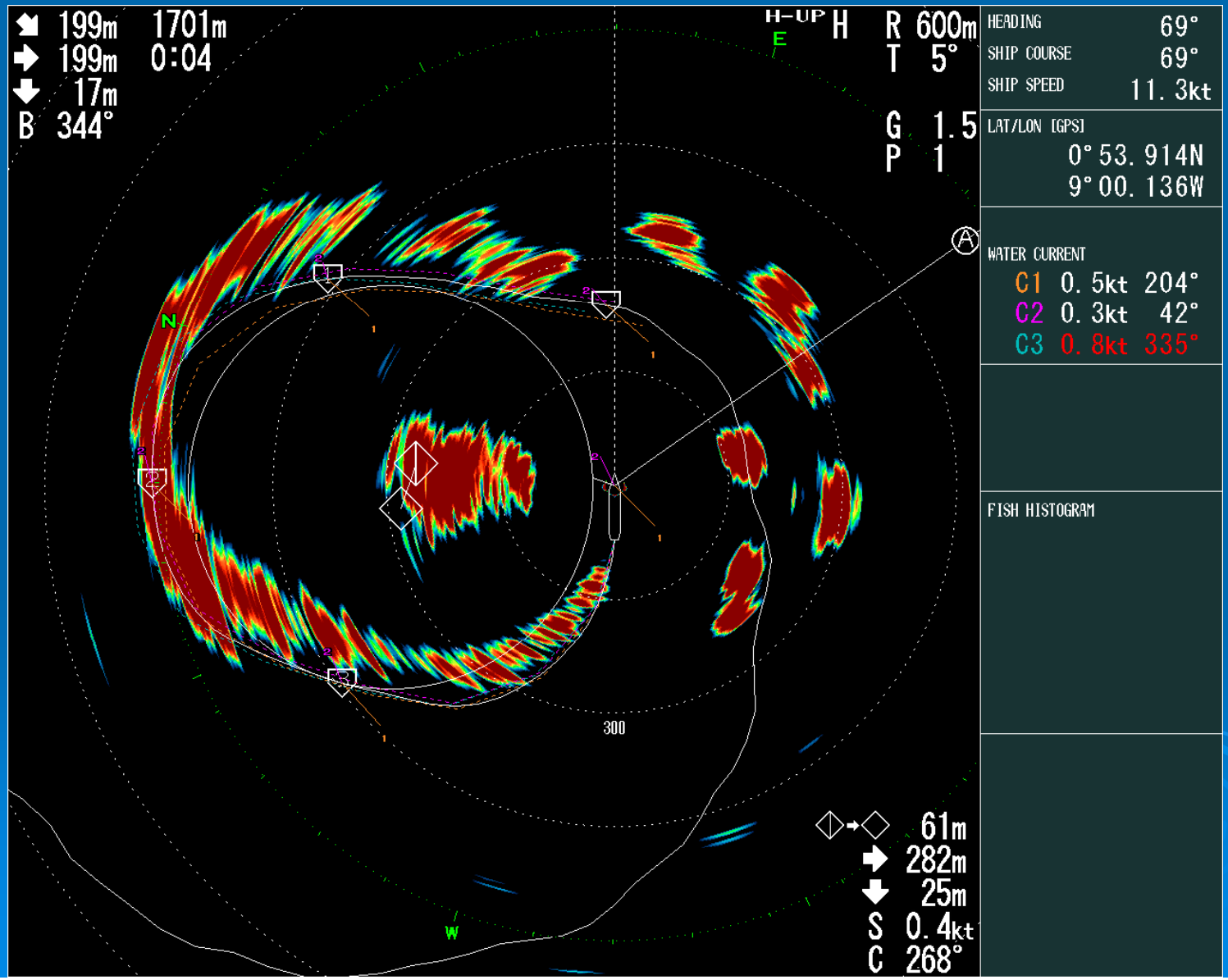
Expansion: 5-200 m

Material and Methods

Sonar Furuno FSV-24

Long Range up to 5,000 m

Material and Methods



Material and Methods

Sonar CSH-21

Medium Range: 1,600m

Material and Methods

- Sonar CSH-80

Short Range: 800 m

Material and methods

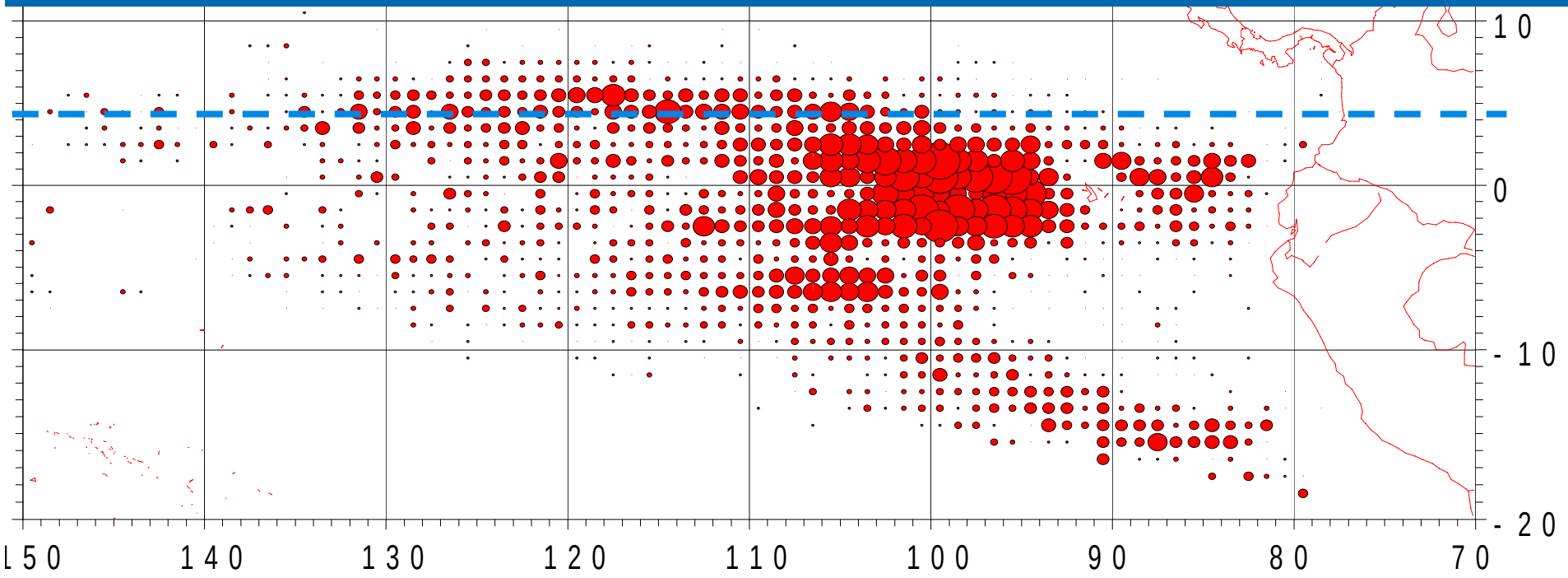
- FAD MONITORING PRIOR TO FISHING
  - Scientific echosounder on board speed boat
  - FAD monitoring with the speed boat before setting (1-2 hours prior to set)
  - Purse seine away from FAD during monitoring
  - Just before setting, school monitoring with equipment on board the purse seine (sonar and echosounder)

Material and methods

- Intensive sampling by set:
  - Species composition
  - Number of fish
  - Size frequency

Acoustic Selectivity Project

- In principle we will target the areas of bigeye concentration under FADs in the EPO



BET FAD catches 2000-2006

BET

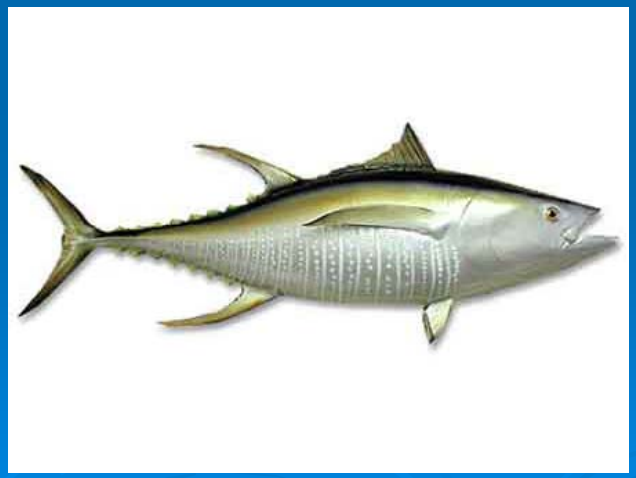
Acoustic Selectivity Project

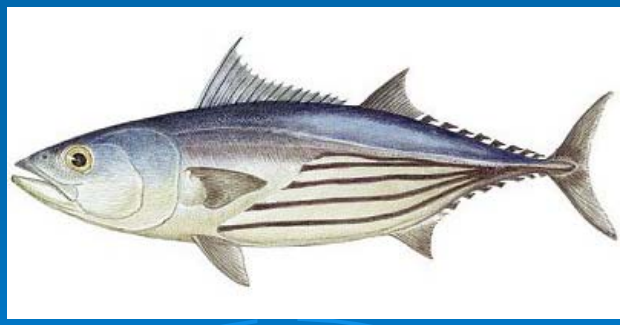
- Target species of the study:

-*Thunnus obesus* –- Bigeye tuna – BET

-*Thunnus albacares* – Rabil - Yellowfin tuna –YFT

-*Katsuwonus pelamis* – Listado - Skipjack - SKJ





Objective

- Obtain the individual echoes to discriminate by species and sizes of tunas under FADs.
- Being able to determine species, biomass and size of tunas concentrated under FADs.
- Behoavioural study of tunas under FADs.