

## **Annex IV Instruments and fishing gear used**

### **Acoustic instruments**

The SIMRAD EK500/38 KHz scientific sounder was used during the survey for estimation of fish density. The EK500 has a built-in digital echo integrator, but the Bergen Echo Integrator system (BEI) was used throughout the survey. The details of the instrument settings are as follows:

#### **Tranceiver settings:**

Bandwith	Wide (3.8 KHz)
Pulse length	Medium (1 ms)
Max Power	2000 Watt
Sv Transducer gain	28.1 dB
Ts Transducer gain	28.1 dB

#### **Printer settings:**

Range	0 - 100 or 0 - 250 m
TVG	20 log R
Sv Colour min	- 64 dB

An ES38B with a 6.8° -3dB beamwith transducer was used for integration.

A calibration experiment using a standard copper sphere, performed in Baia dos Tigres 4/6 1994 gave the following results: Sv Transducer gain 27.8 dB, Ts Transducer gain 28.1 dB.

#### **Glossary:**

Sv Transducer gain: Peak transducer gain assumed during computation of volum backscattering strength.

Ts Transducer gain: Peak transducer gain assumed during computation of target strength.

Sv Colour min: Lower limit of colour scale relative to Volume back scattering.

### **Hydrography**

Conductivity, temperature, density and oxygen were sampled regularly at CTD stations with a Seabird CTD-sonde. The salinity was calculated by a computer.

## Fishing gear

The vessel has two different sized 'Åkrahavn' pelagic trawls and one Gisund super bottom trawl. Only the bottom trawl was used during the survey.

The bottom trawl has a headline of 31m, footrope 47m and 20mm meshsize in the codend with an innernet of 10mm meshsize. The estimated headline height is 5m and distance between wings during towing about 18m. The trawl is equipped with a 12" rubber bobbins gear. During the present survey two 7.81 m<sup>2</sup>, 1670kg 'Thyborøn' combi-doors were used on the trawl. The sweeps are 40m long.

The following drawing show the size of the trawl:



