



## **New technologies for sustainable fisheries**

### **SEAPIX 3D sonar**

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Lima Nov 2015, C.Corbières



## SeapiX system

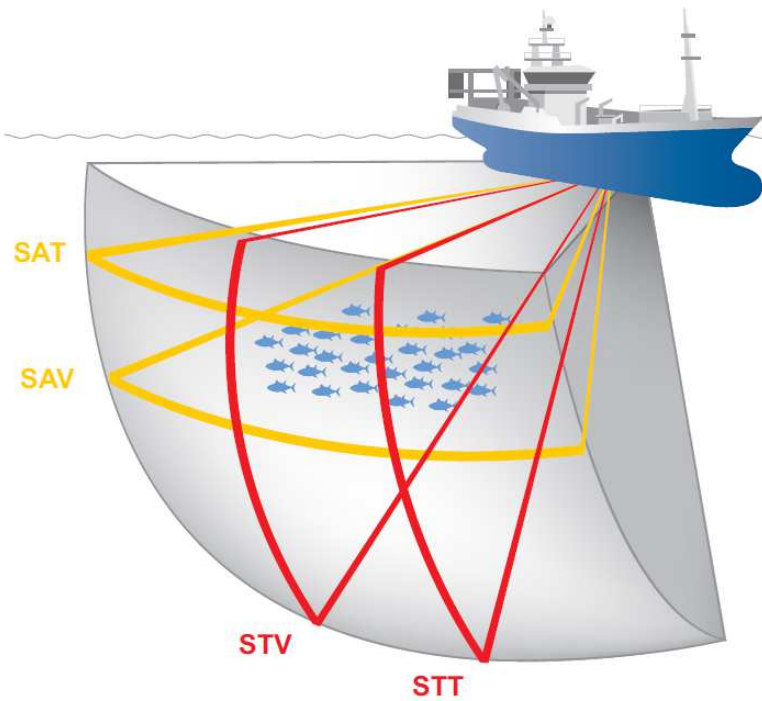


### Specifications

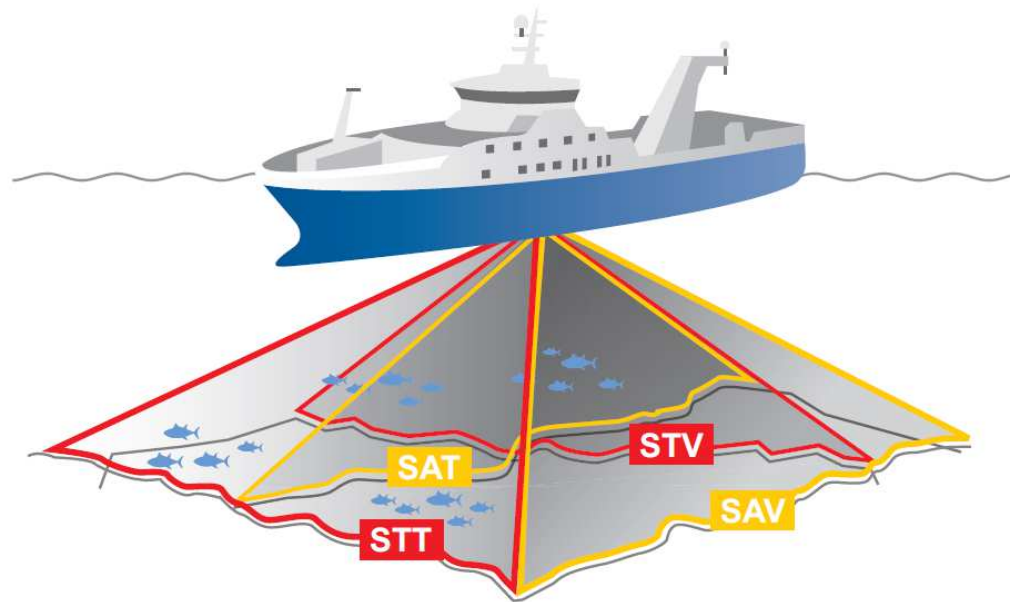
Radial resolution	7.5 cm (constant)
Resolution Cell at 100 m depth	0,6 m3
Individual beam pattern	1.6° x 1.6°
Across track / Along track swaths pattern	120°
Number of elements on across track swath	64
Number of elements on alongside swath	64
Beam stabilisation	RX + TX
Transmission power	1000 Watt

# SeapiX acoustic swath coverage

## Purse Seiner application

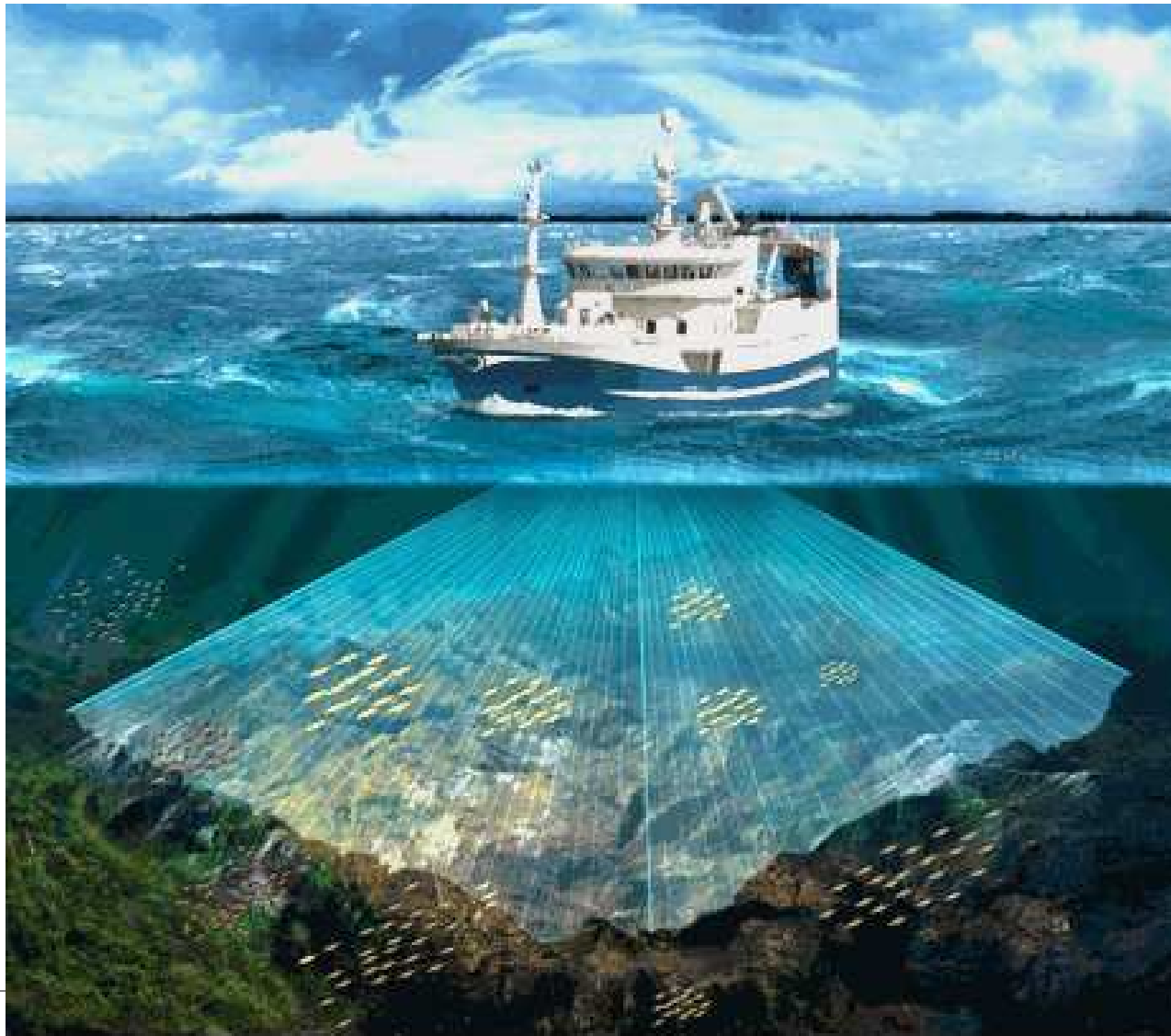


## Trawler application



Pyramidal volume 120° x 120°  
7cm resolution

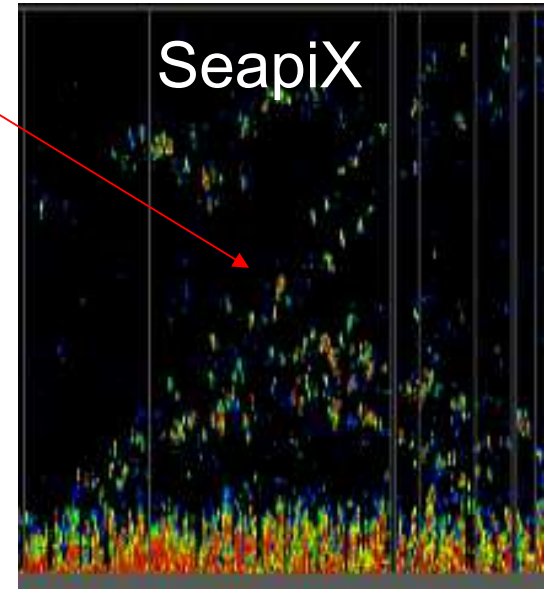
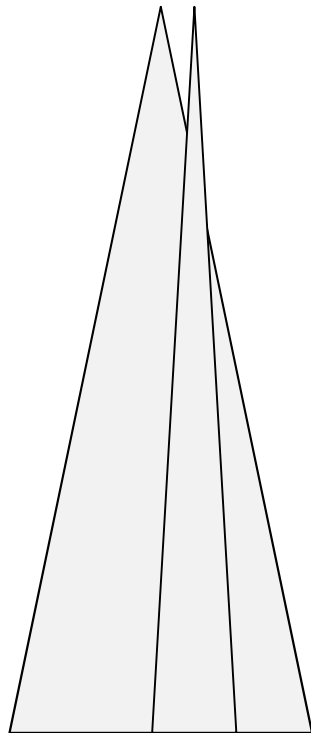
SeapiX acoustic swath coverage

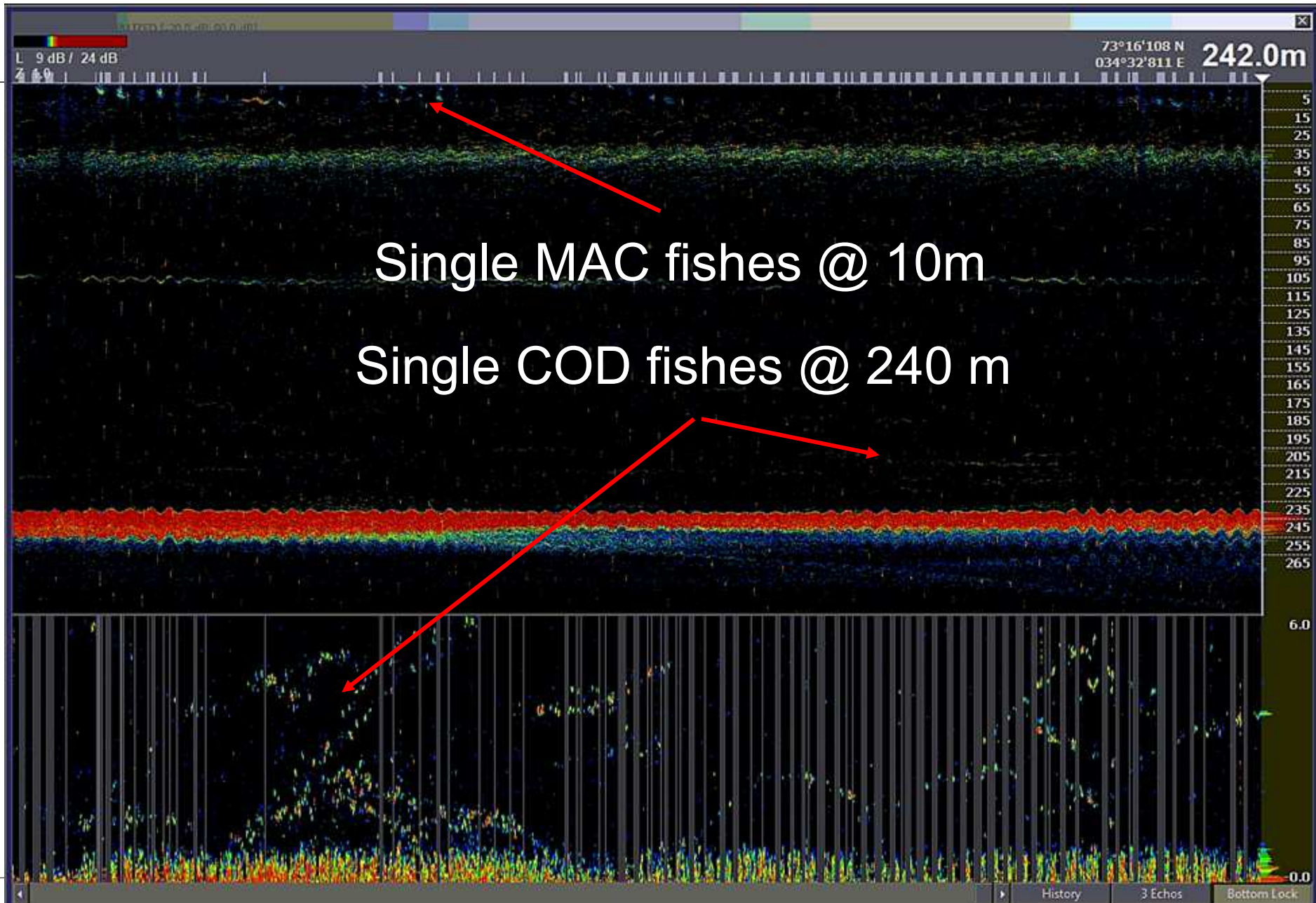


# Chirp + Narrow beams + Stabilisation

## Realistic fish resolution

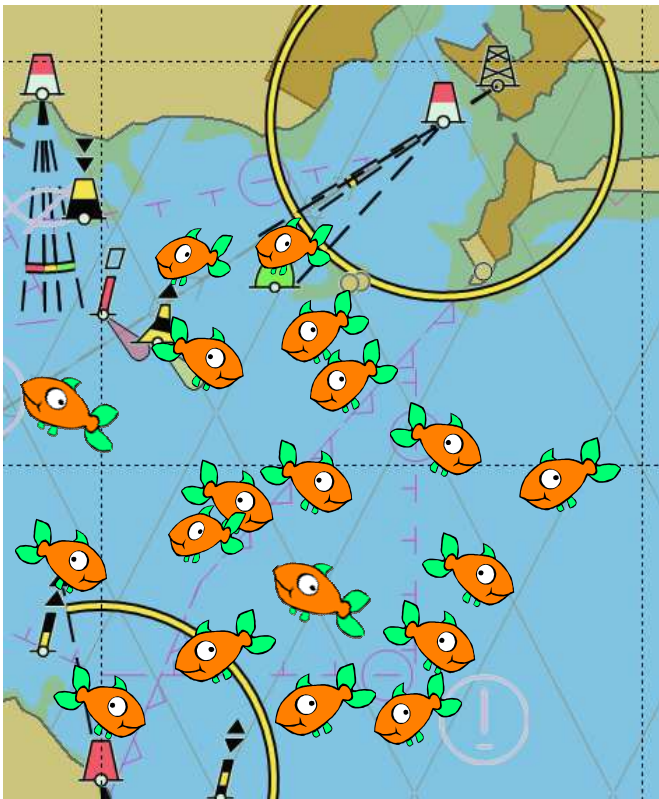
Realistic fish points



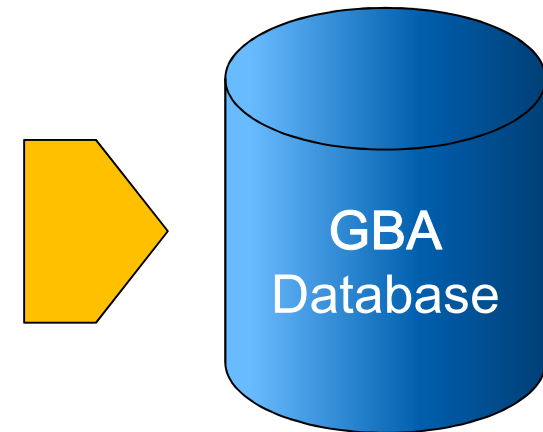


## Spatialized fish Database

- Fish measurements storage in GBA Database

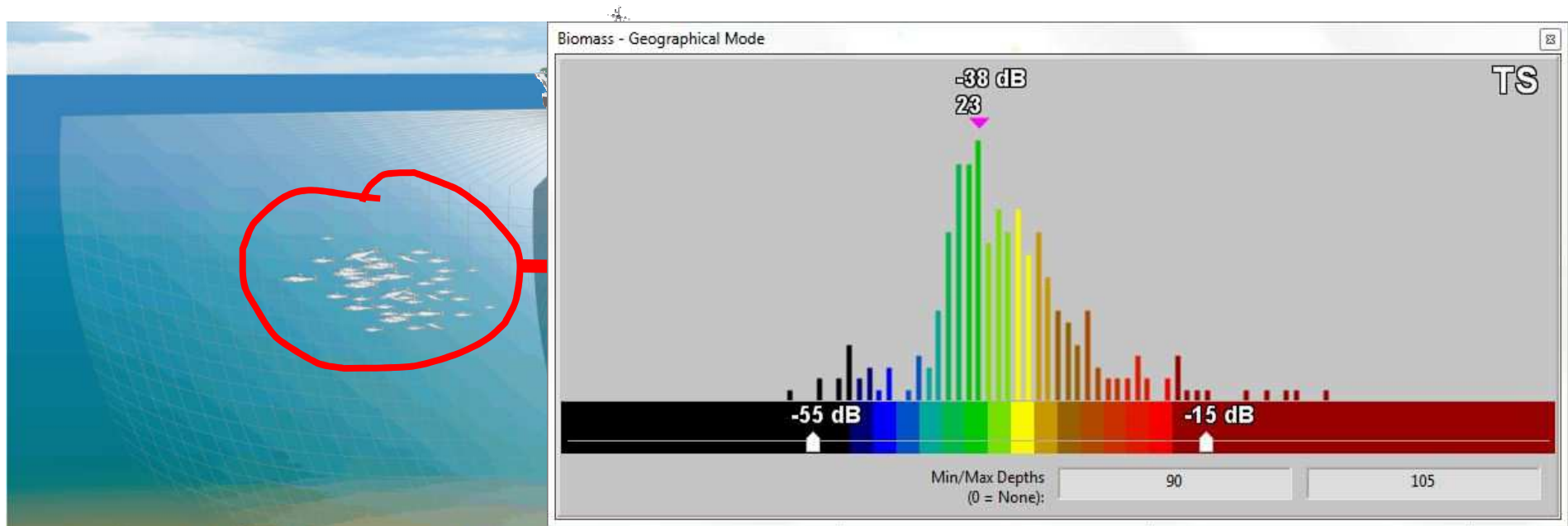


Time stamp  
Latitude  
Longitude  
Depth  
TS response  
SV Response



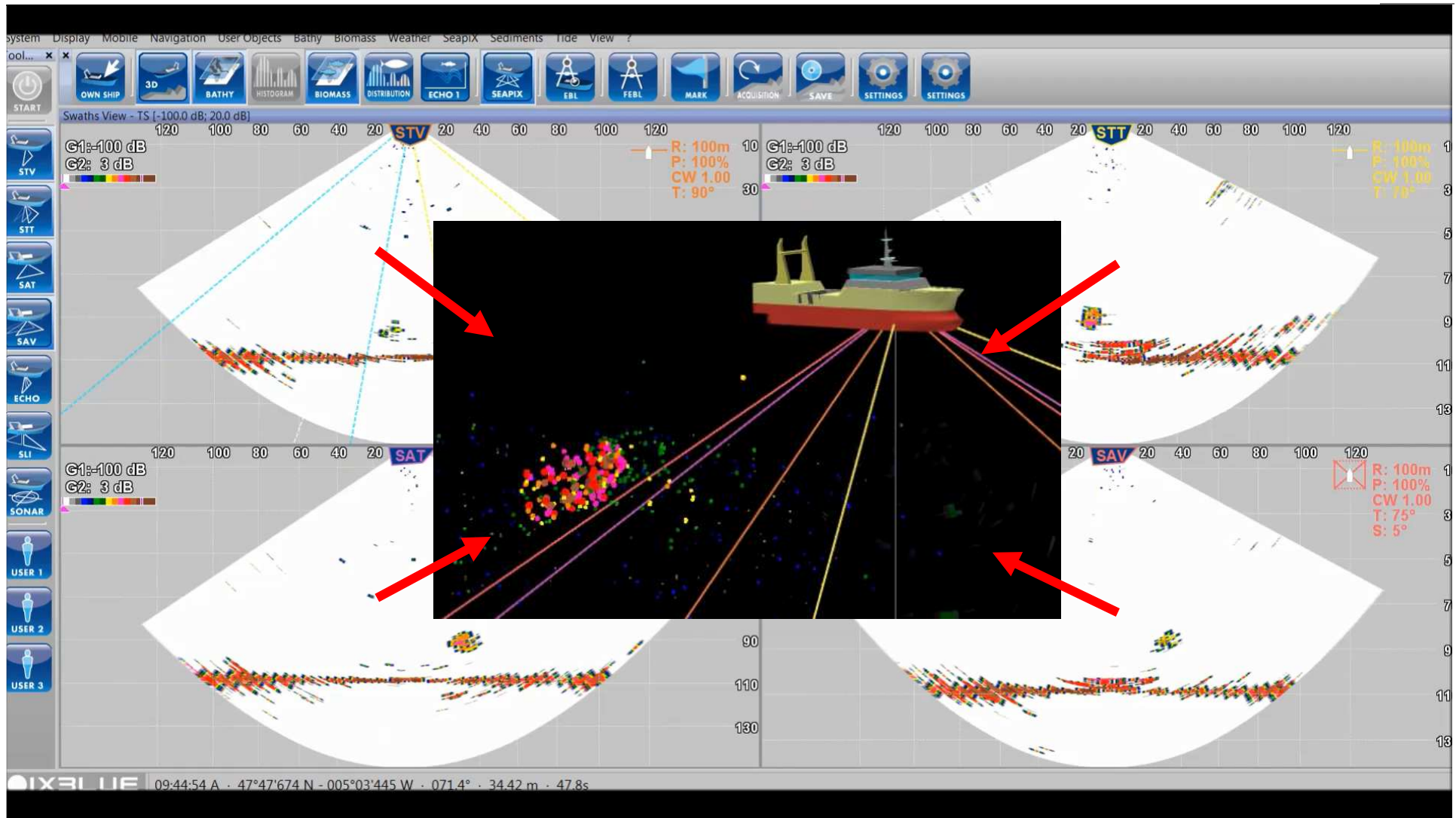
## Multibeam TS & SV measurement

- 50 times more single fish analyzed in TS and SV
- Full calibrated,
- Whole  $120^\circ \times 120^\circ$  pyramidal volume TS and SV analyze

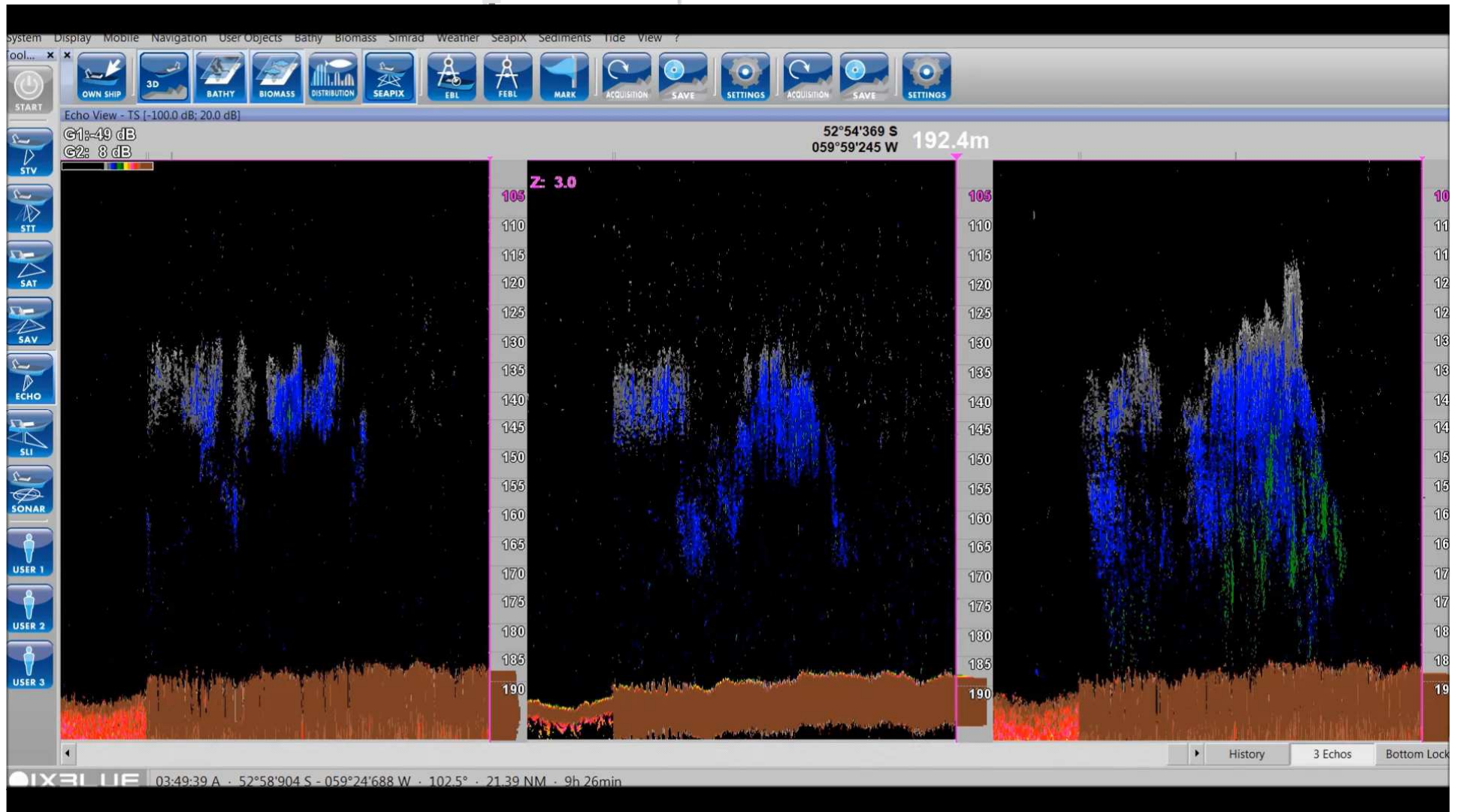




# Volumic detection → 4 multibeam swath

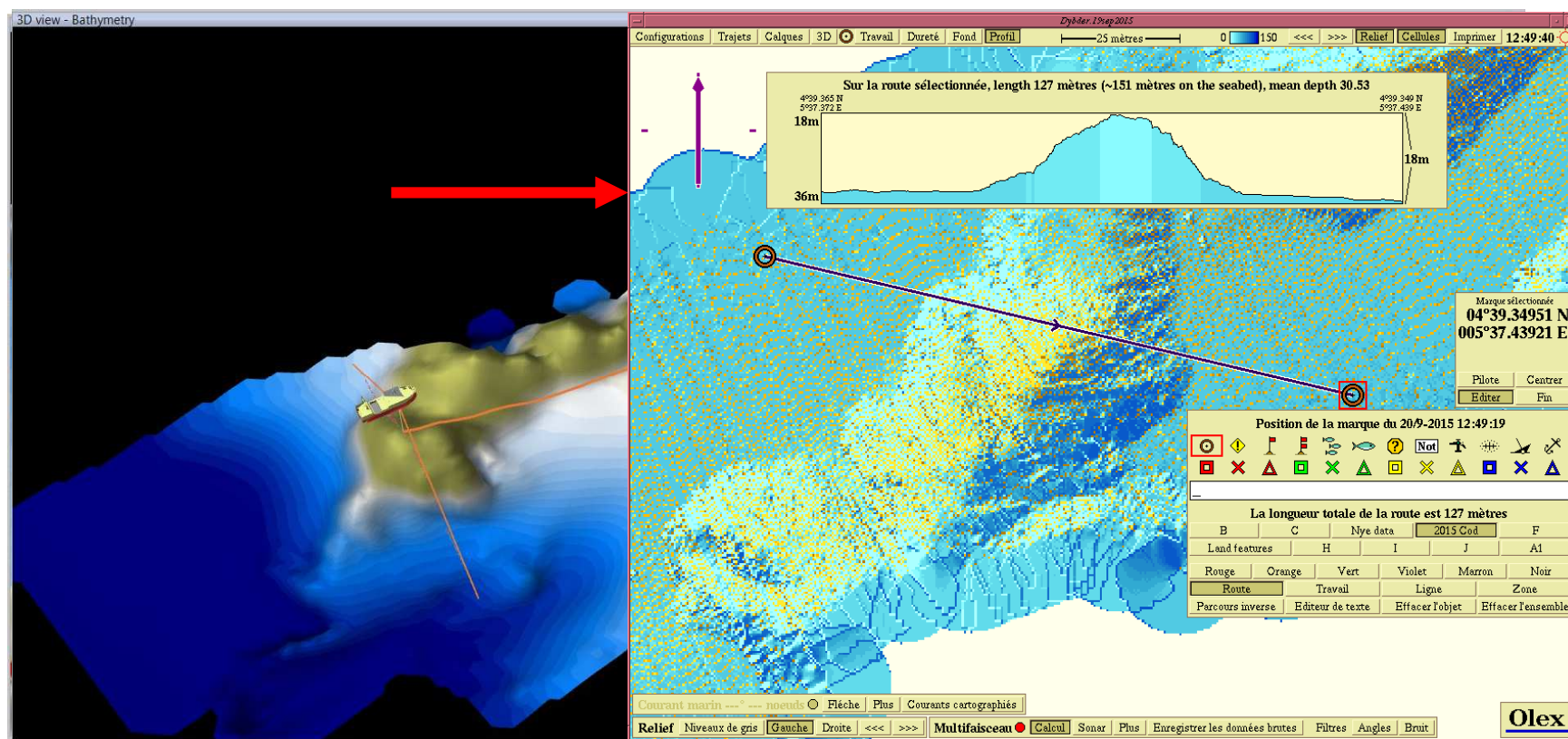


## Water column detection → 3 independent sounders



## Ecosystem mapping

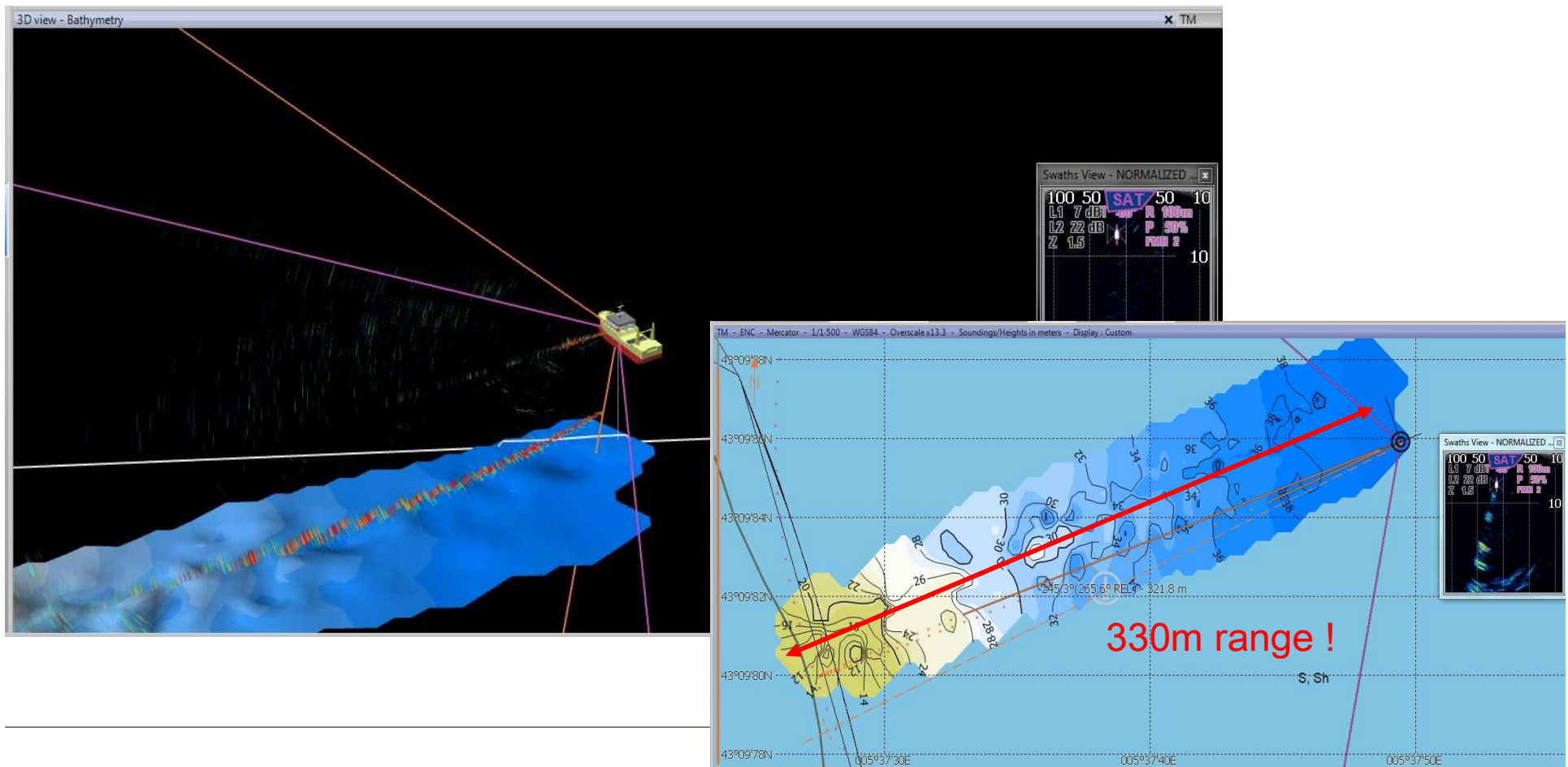
## Olex processing of SeapiX data



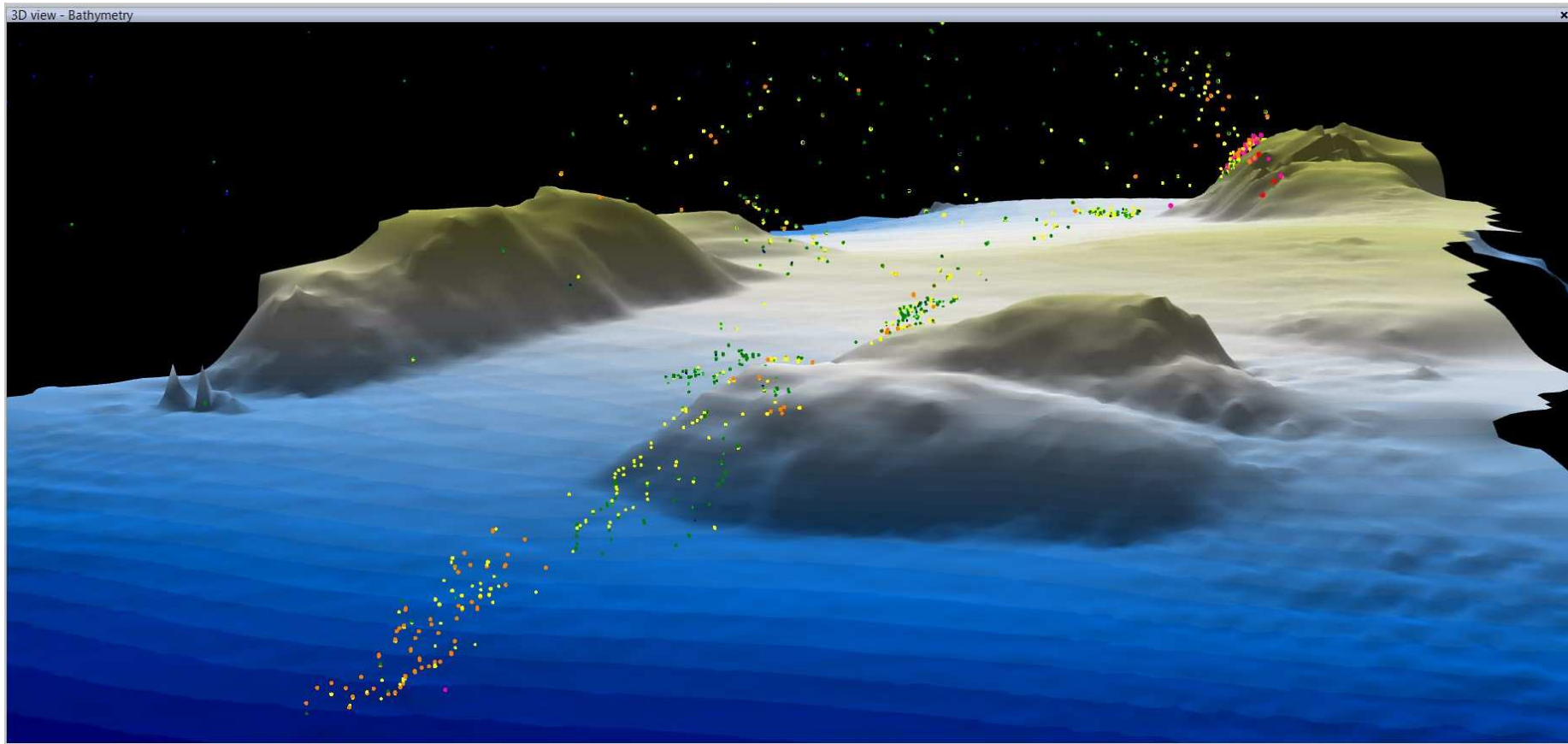
High resolution and motion compensated, IHO grade

## Side bathymetry & water column

- ▶ Side bathymetry construction with STV swath,  
Example, mapping until 330m range @25m depth only !



## Biomass processing → Biomass mapping



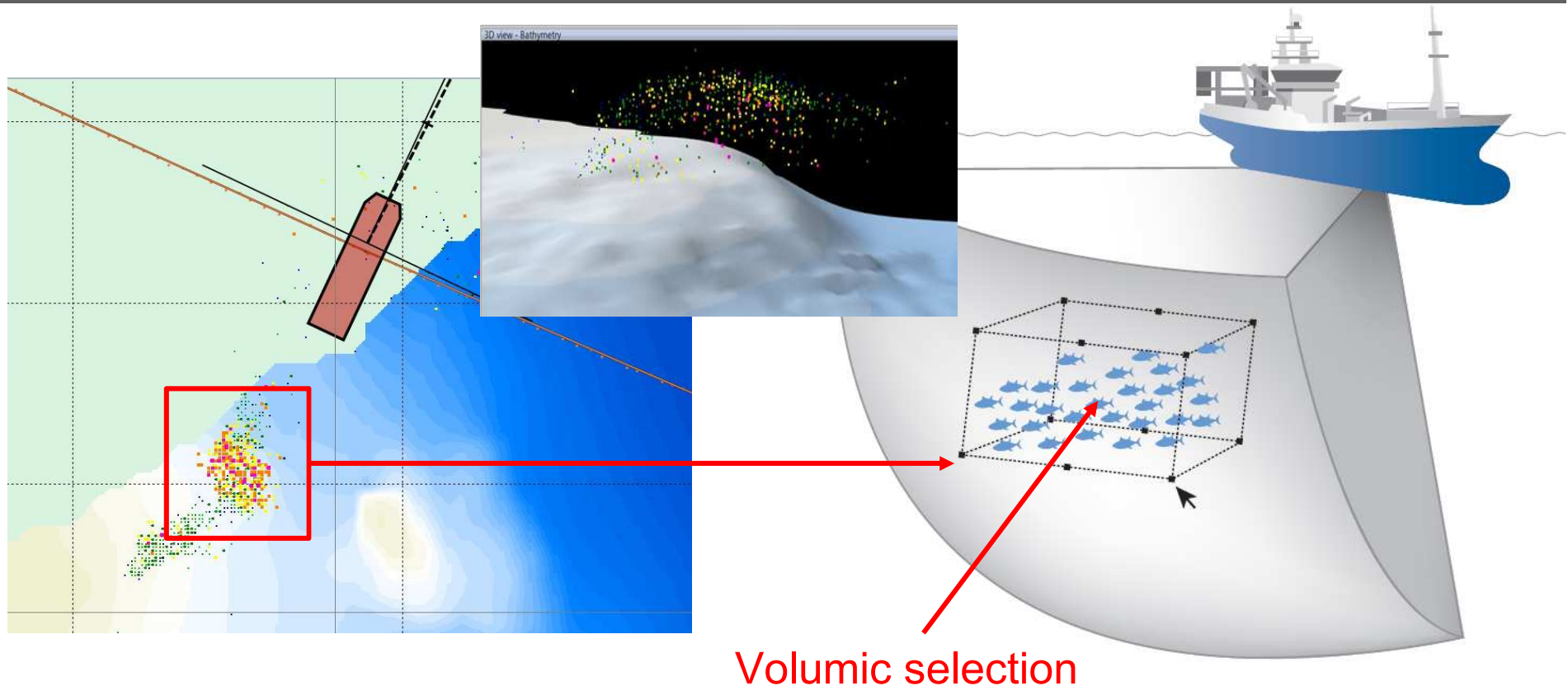
2D and 3D biomass mapping into Navigation chart system

## Biomass processing → GBA Geographical Biomass Analyzer

### GBA Fish Class processing

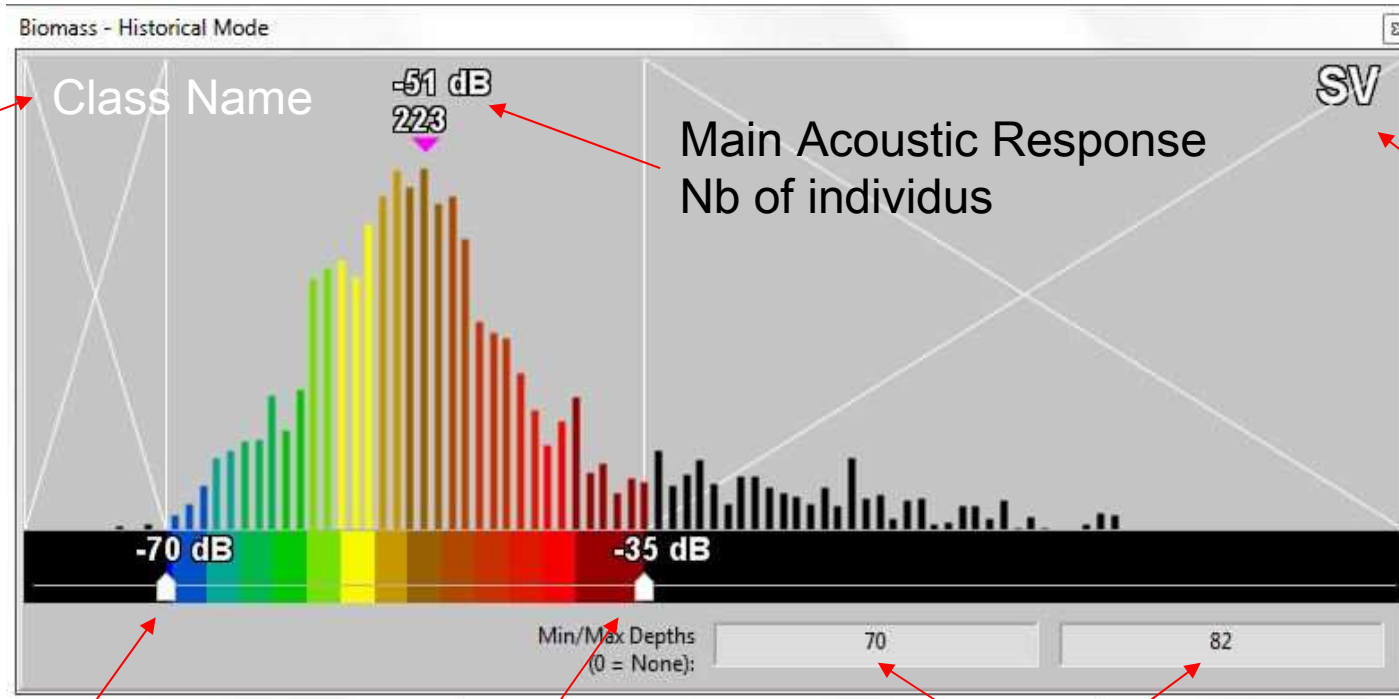
#### Geographical Selection

- Area
- Water depth



# GBA Fish Class processing

# Fish Class Editor

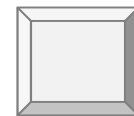
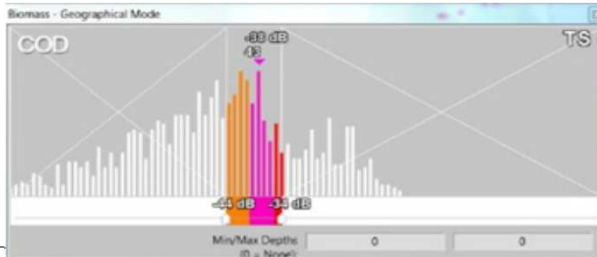
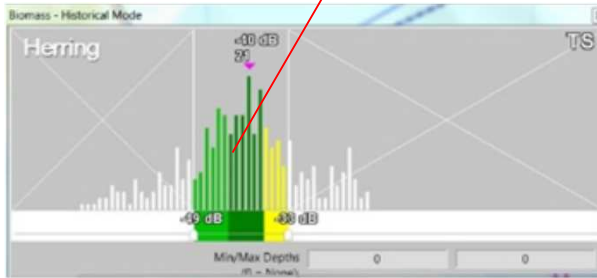
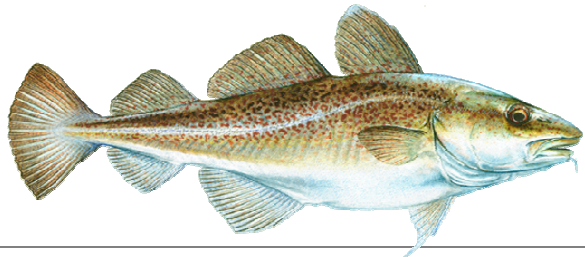
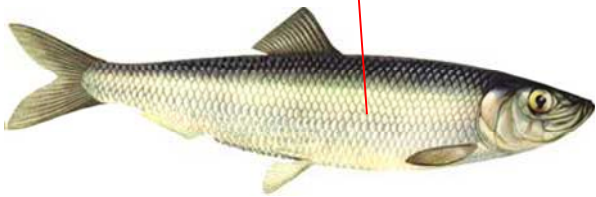
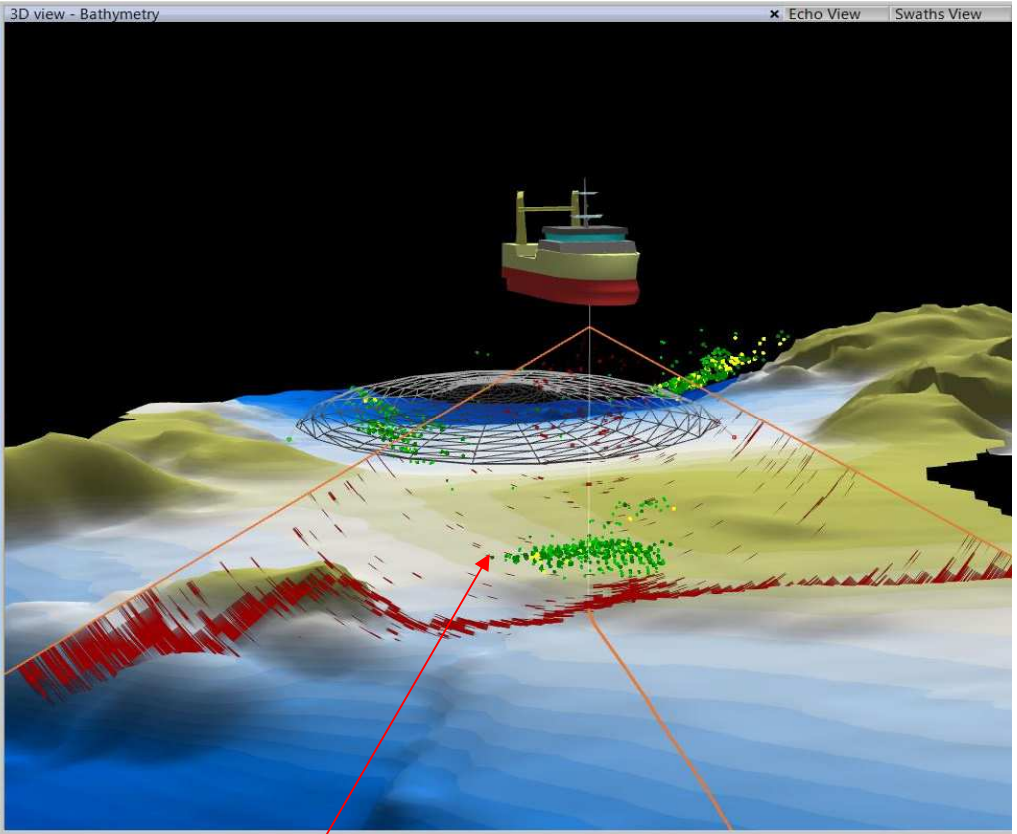
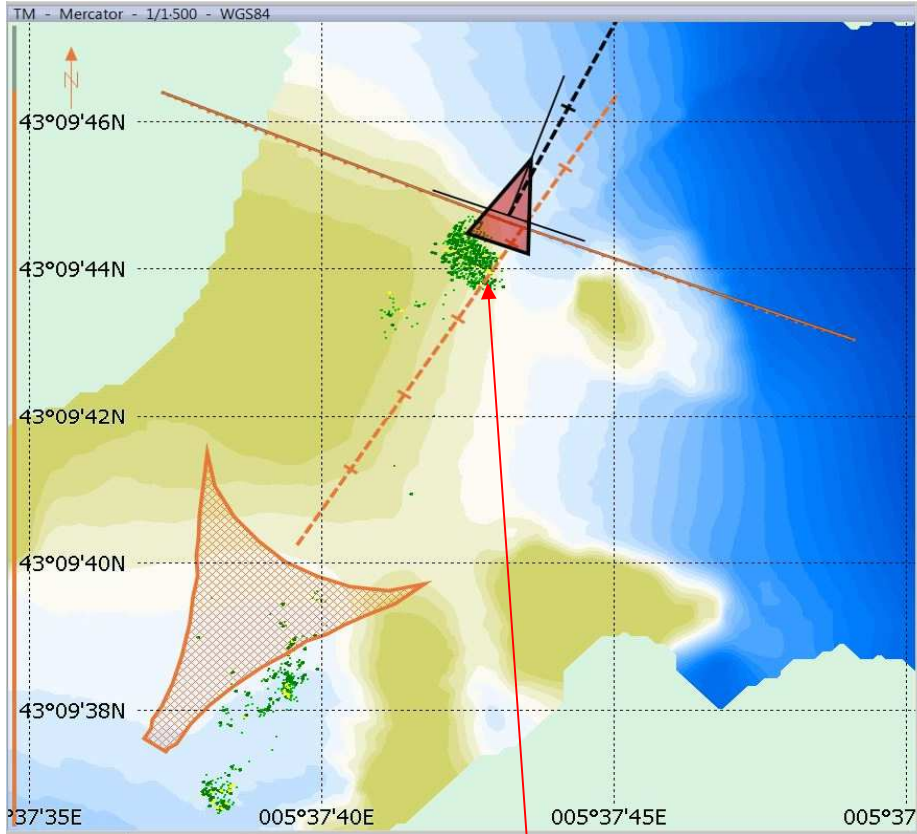


Class Name

Min level Filter

Max level Filter

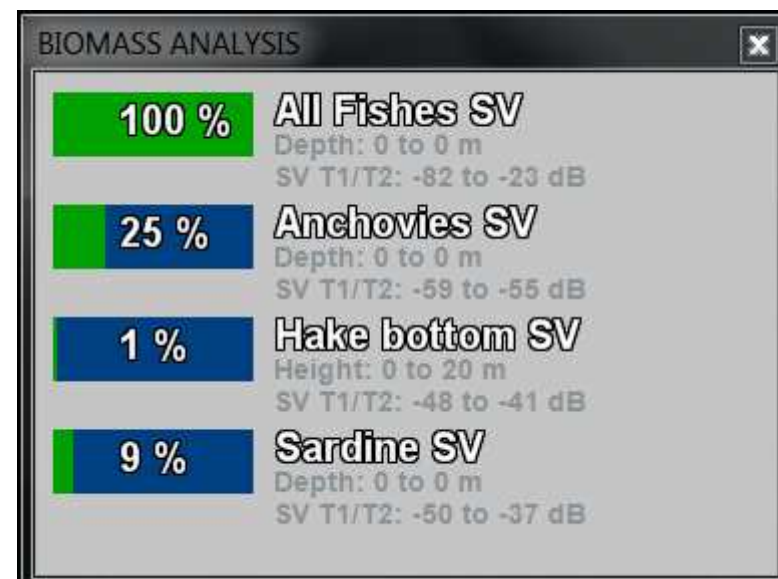
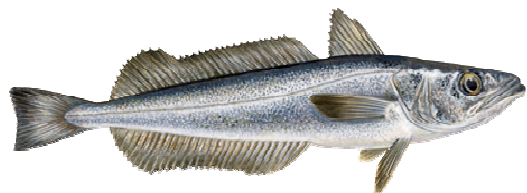
Water Layer depth



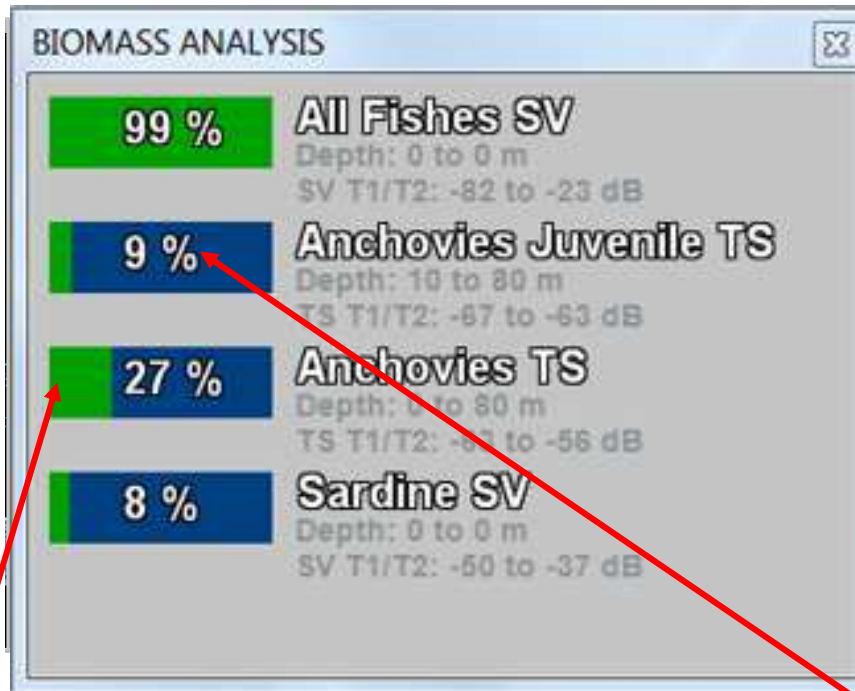


# GBA Fish Class processing

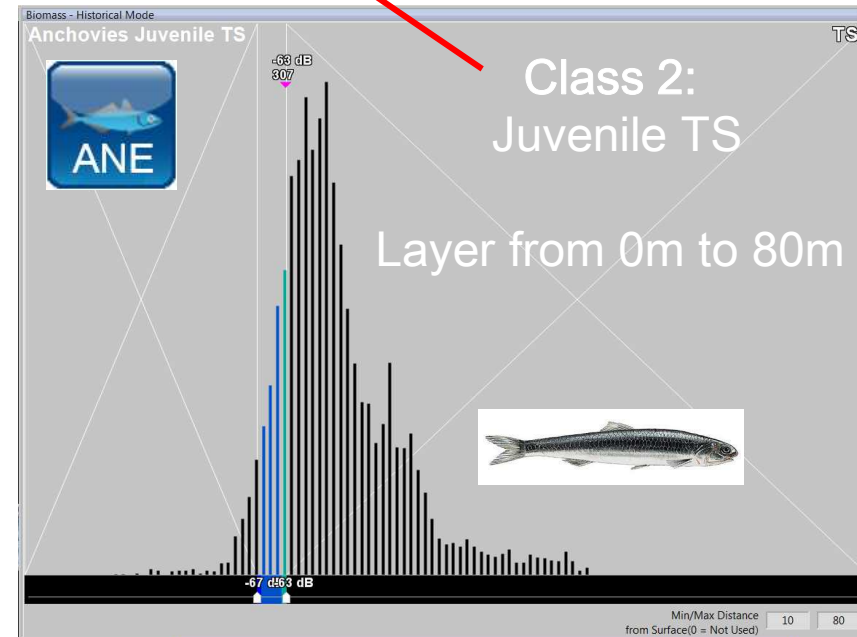
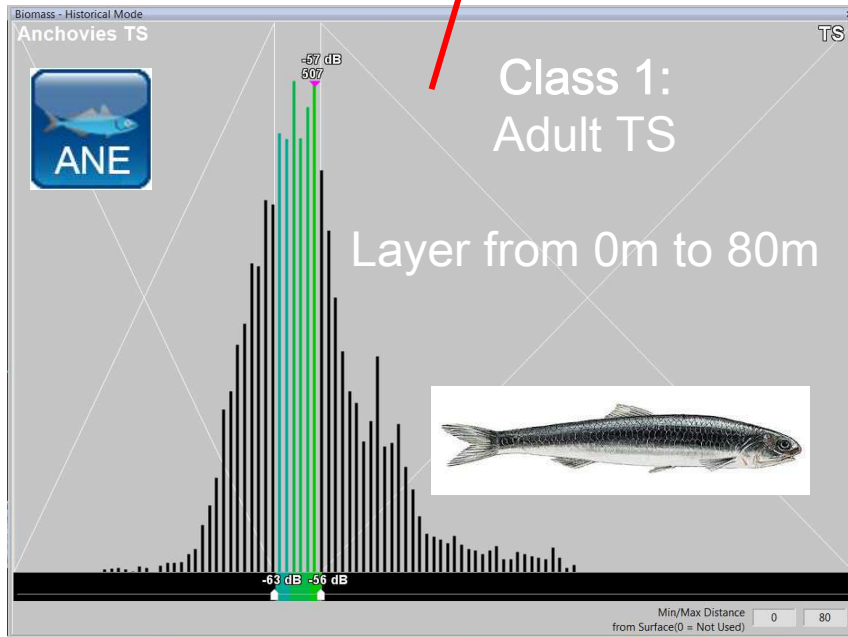
# Fish class ratio



**GBA**  
**Anchovie**  
**application**

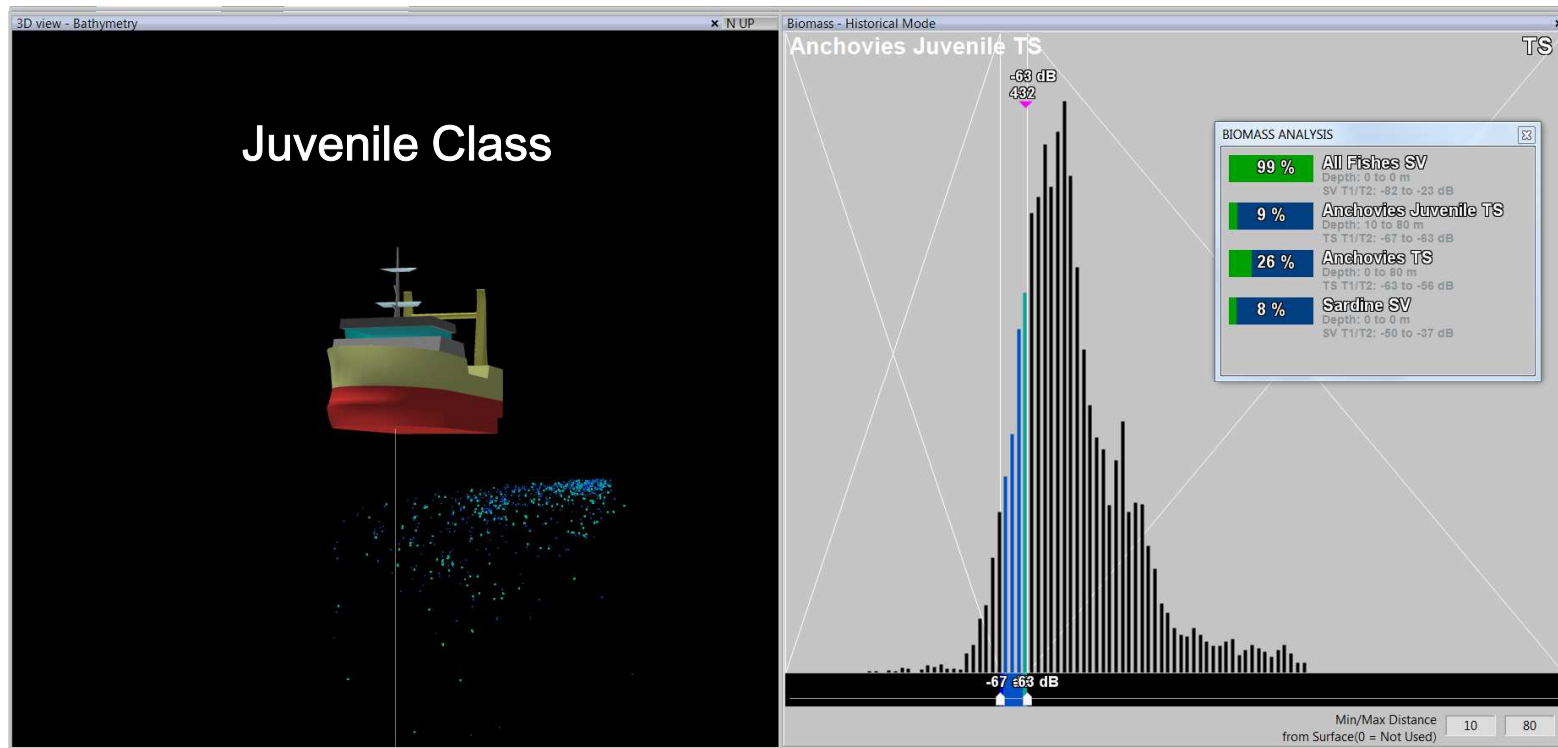


Ratio of Class 1  
Ratio of Class 2

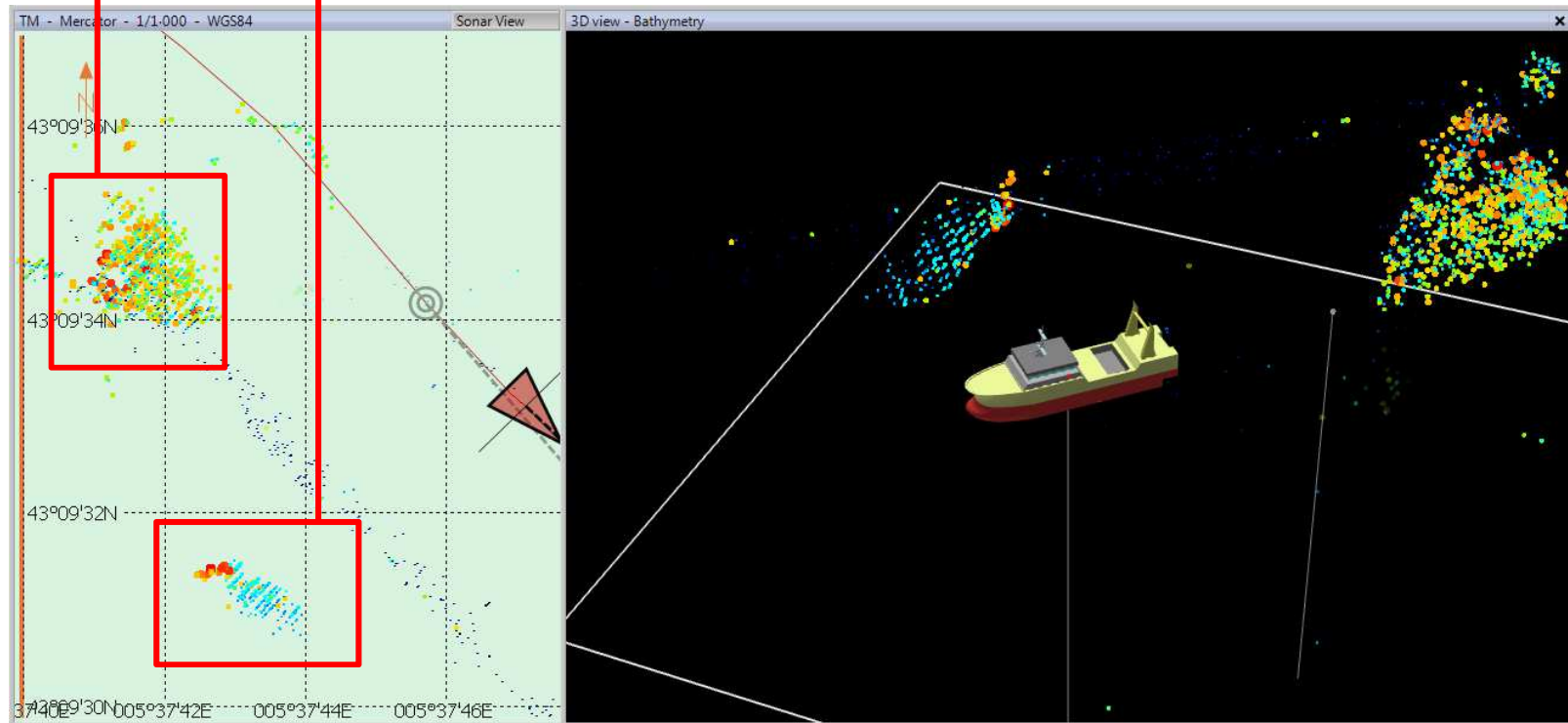
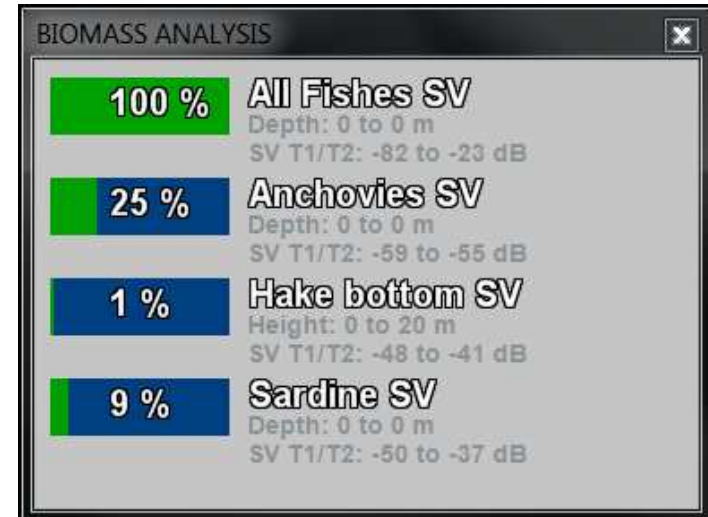
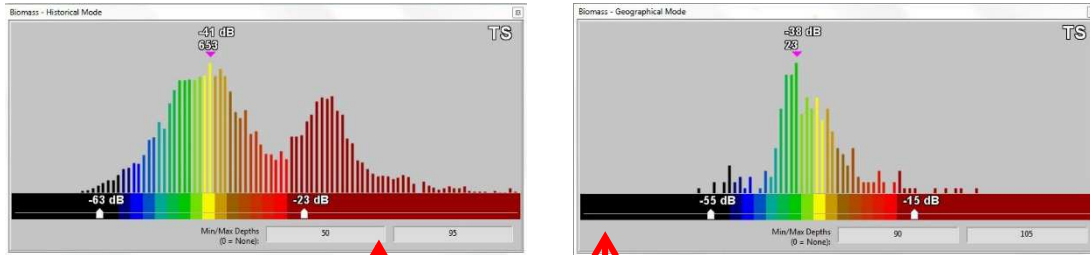


# GBA Anchovie application

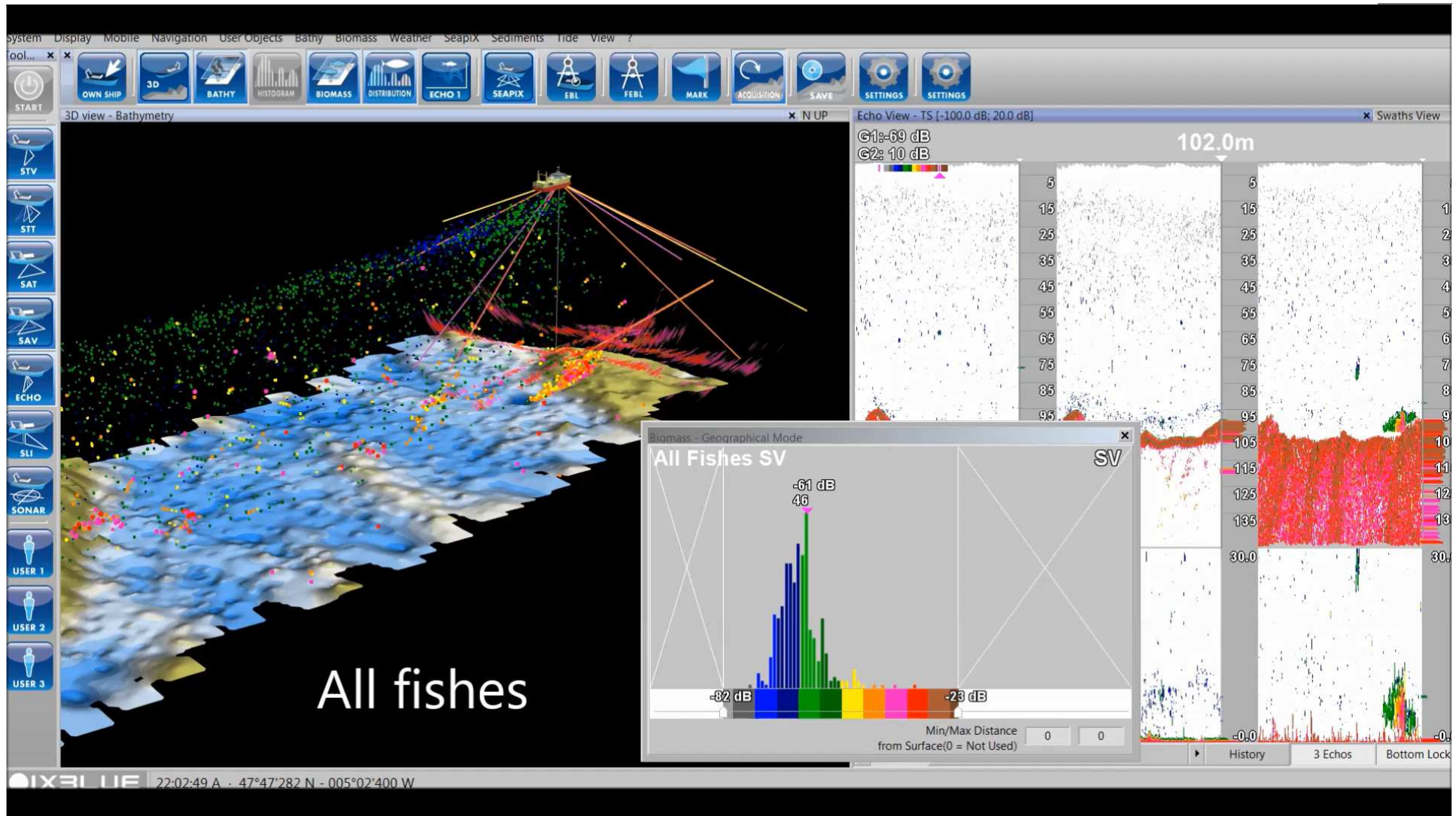
## 3D spatialization Adult and Juvenile



## Shoal response comparison

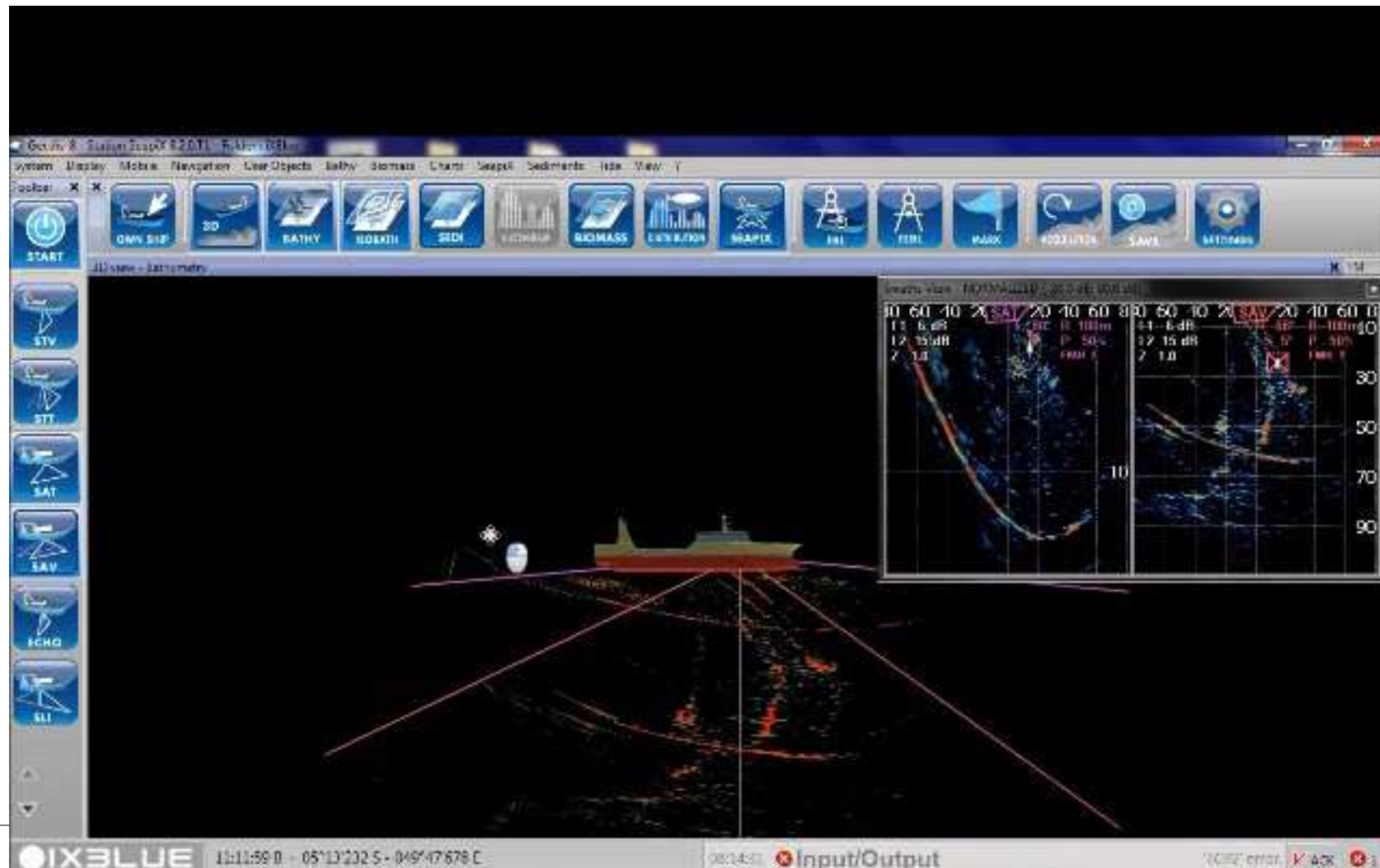


# Biomass processing → GBA in action...



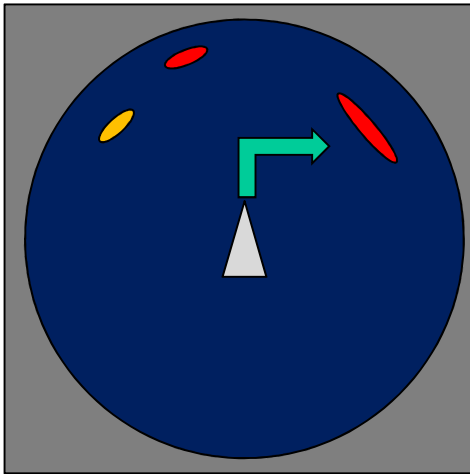
## Shoal control when Hauling seine

- ▶ 5 T Sardine in the Seine, cables & ropes shown in 3D,



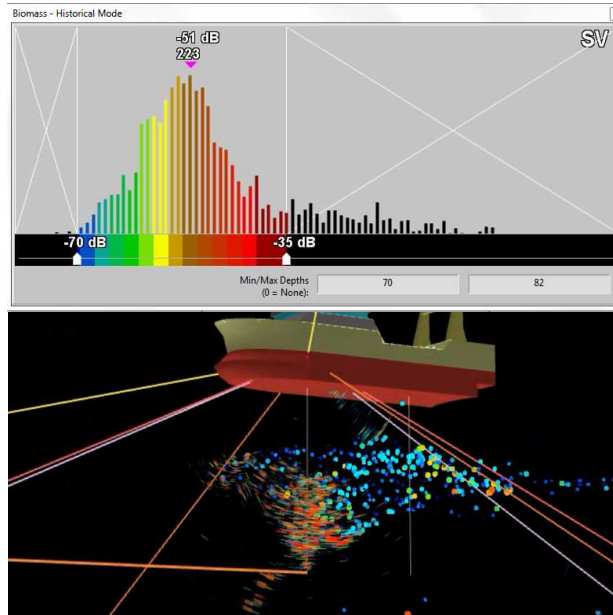
# Smart fishing strategy

Omni Sonar



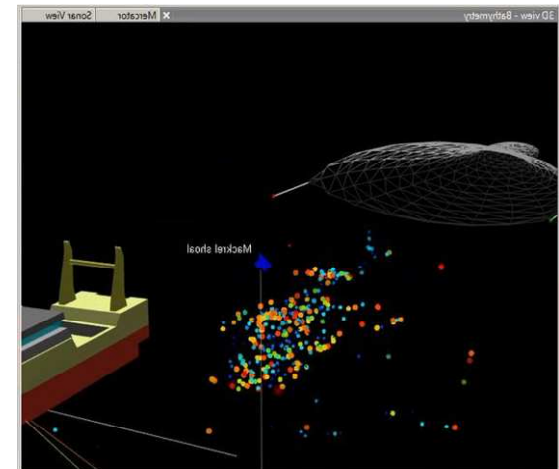
1/ Navigation to target

SeapiX

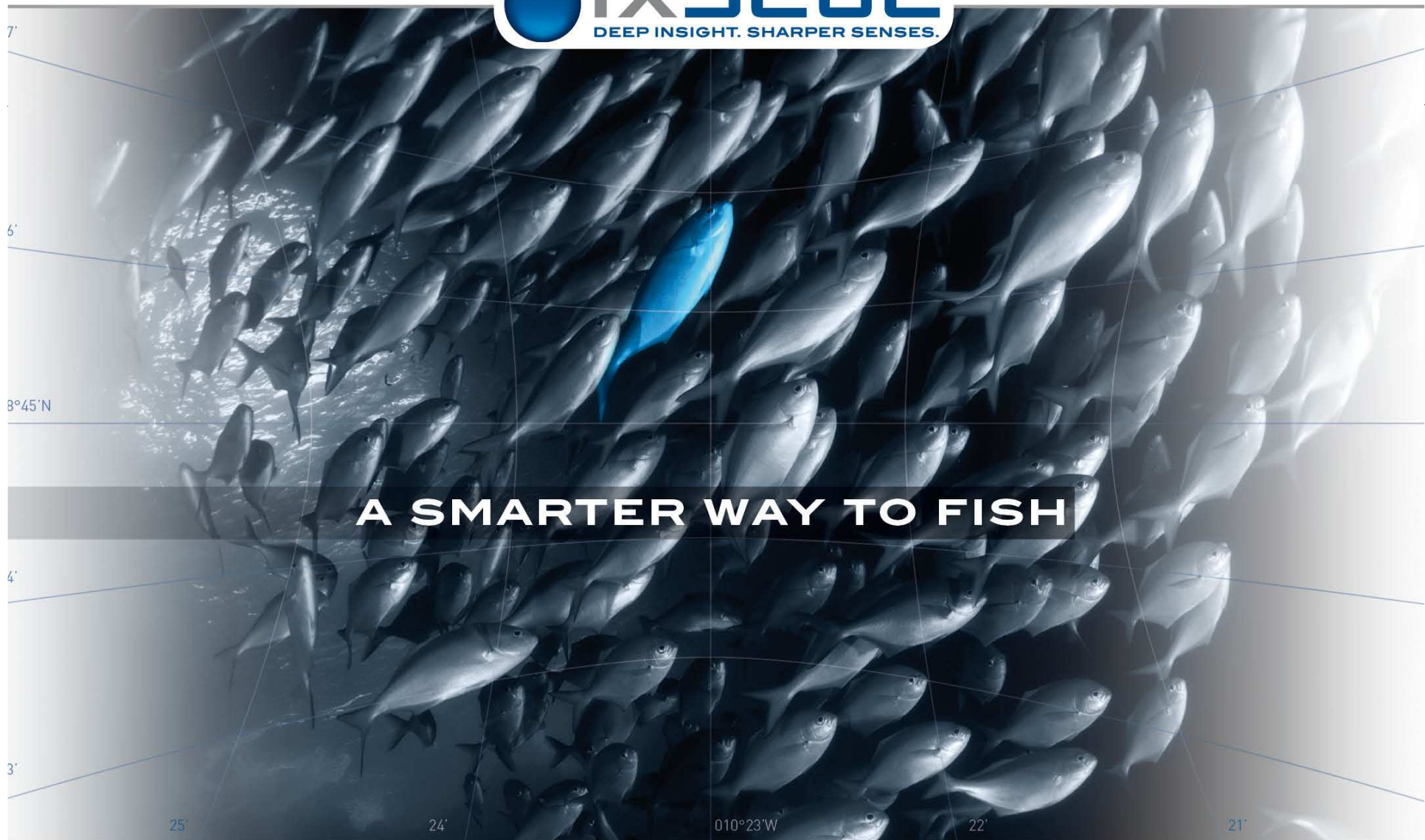


2/ Analyze / Selection

SeapiX



3/ Gear control to target



**A SMARTER WAY TO FISH**