HF radar data for assessments of distribution and abundance of egg and larvae of small pelagic fish in the Malta-Sicily Channel

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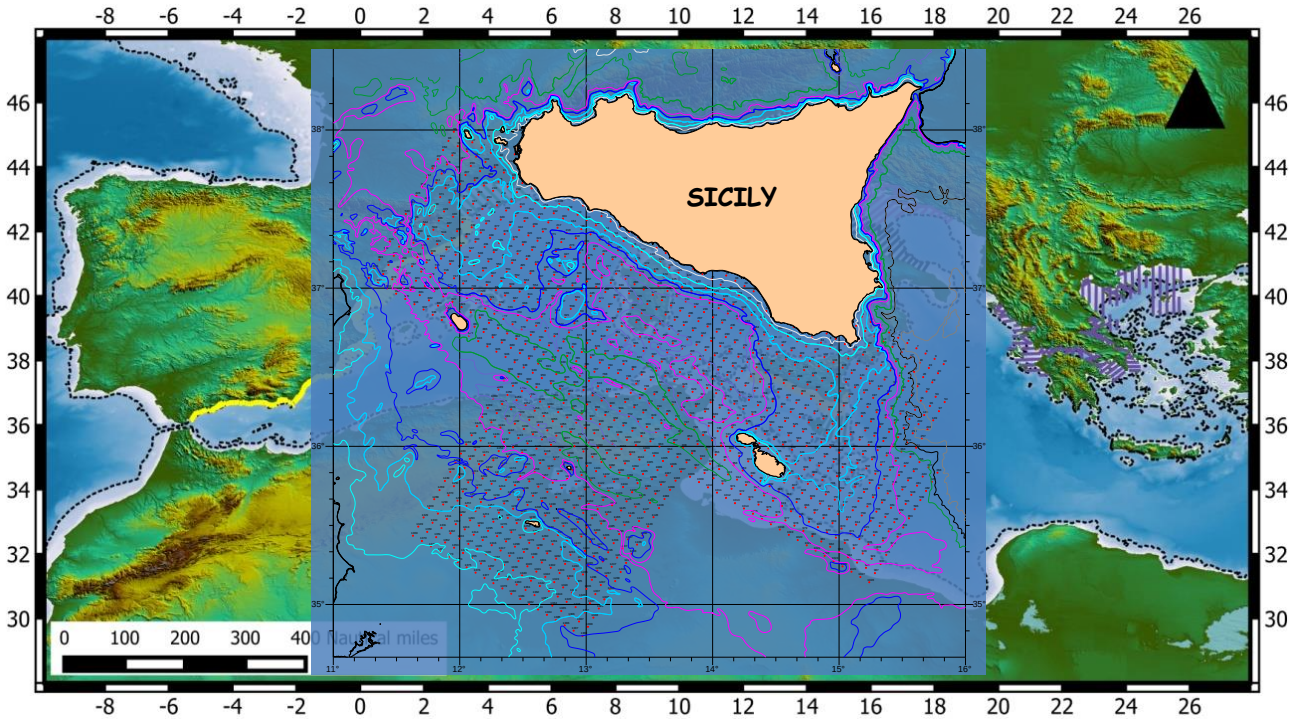
Consiglio Nazionale delle Ricerche

Interreg Italia-Malta Calypso South

MEDIAS
MEDiterranean International Acoustic Survey

MEDSUDMED



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Interreg Italia-Malta Calypso South

Some details of the research vessel

R/V "G. DALLAPORTA"

Gross tonnage	199.46 ton
Total length	35.00 m
Width	7.00 m
Max depth	3.65 m
Max speed	14 knots
Engine power	1000 hp
Scientific personnel	11
Crew	7

Pelagic resources ⟷ **Environment**

Small pelagics Eggs and larvae

Small pelagics Adults

Echo-survey

Ichthyoplanktonic Survey

Acoustic data and Fishing samples

Evaluation of distribution and biomass of small pelagics and ichthyoplankton

Marine Environment

Physical Oceanography

Geochemistry of nitrogen and carbon stable isotopes in sediments and in the water column

Bio-acustics

Study of the relationships between physical parameters and populations of small pelagics

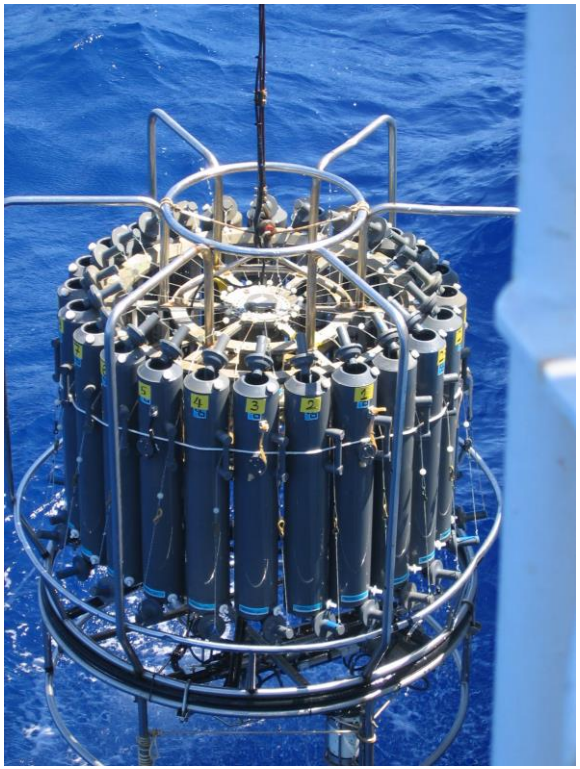
Ichthyoplanktonic sampling

Bongo 40 Net

Oceanographic data

CTD SBE 9/11 with additional sensors

- **CTD**
- **Fluorescence**
- **Oxygen**
- **ADCP**
- **Nutrient contents in the water column**



- Multifrequency Scientific Echosounder EK60, pulsing at 38, 70, 120 and 200 kHz with split-beams technology;

- Pelagic trawl net for control catches with the following characteristics: horizontal opening 13-15 m, vertical opening 6-8 m, mesh size in the cod-end 10 mm;

- Simrad Acoustic Trawl Control ITI with Trawl Eye, Temp/Depth and spread sensors

- Calibration procedure using the standard sphere method;

- Only data acquired by the 38 kHz transducer were used for the NASC (nautical area scattering coefficient, $m^2/nmile^2$) and biomass estimates. The echo-integration interval was constant, i.e. 1 nautical mile (=1,852 m).

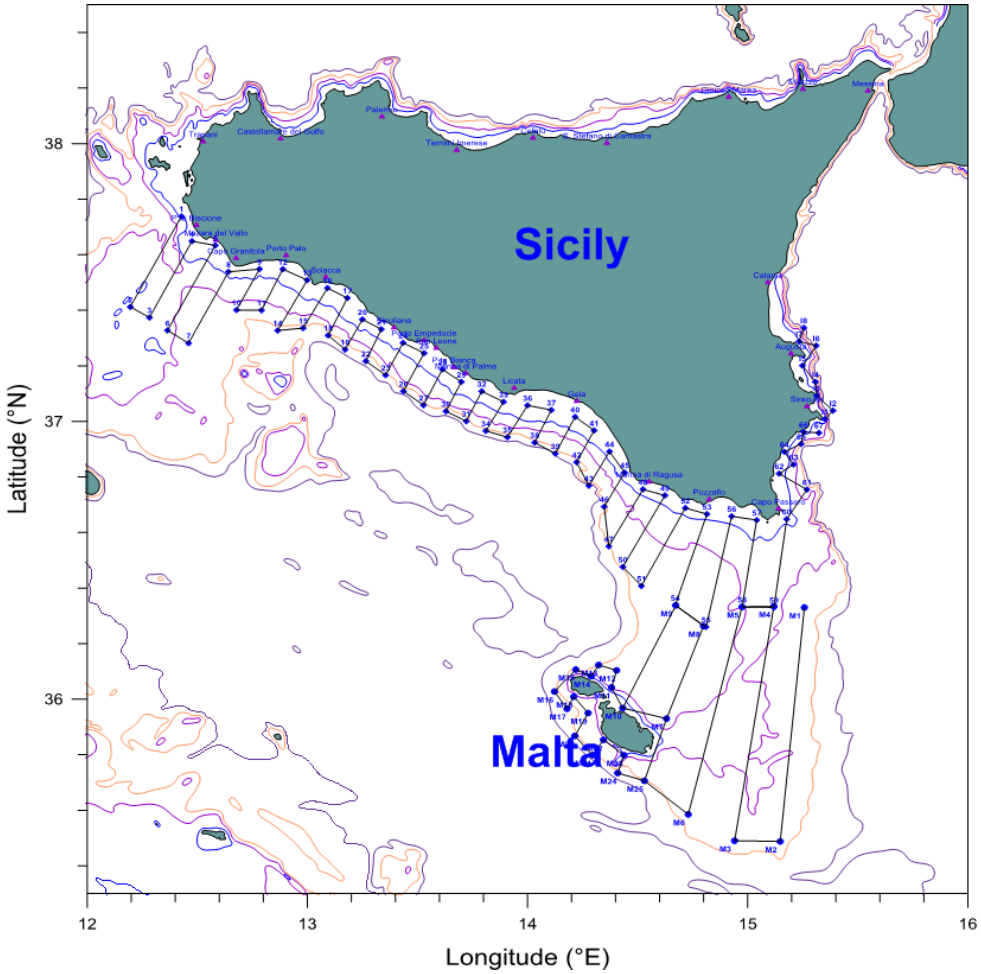
- Distributions were obtained by interpolating echo-integration values, taking into account the species composition and size frequency distribution resulting from the control hauls and applying for each species the appropriate relationship between Target Strength (TS) and individual length of single specimens.

Echosurveys MEDIAS 2013

Survey period
10 – 27 June 2013

GSA15
Track lenght 333 nm
Area 1861 nm²

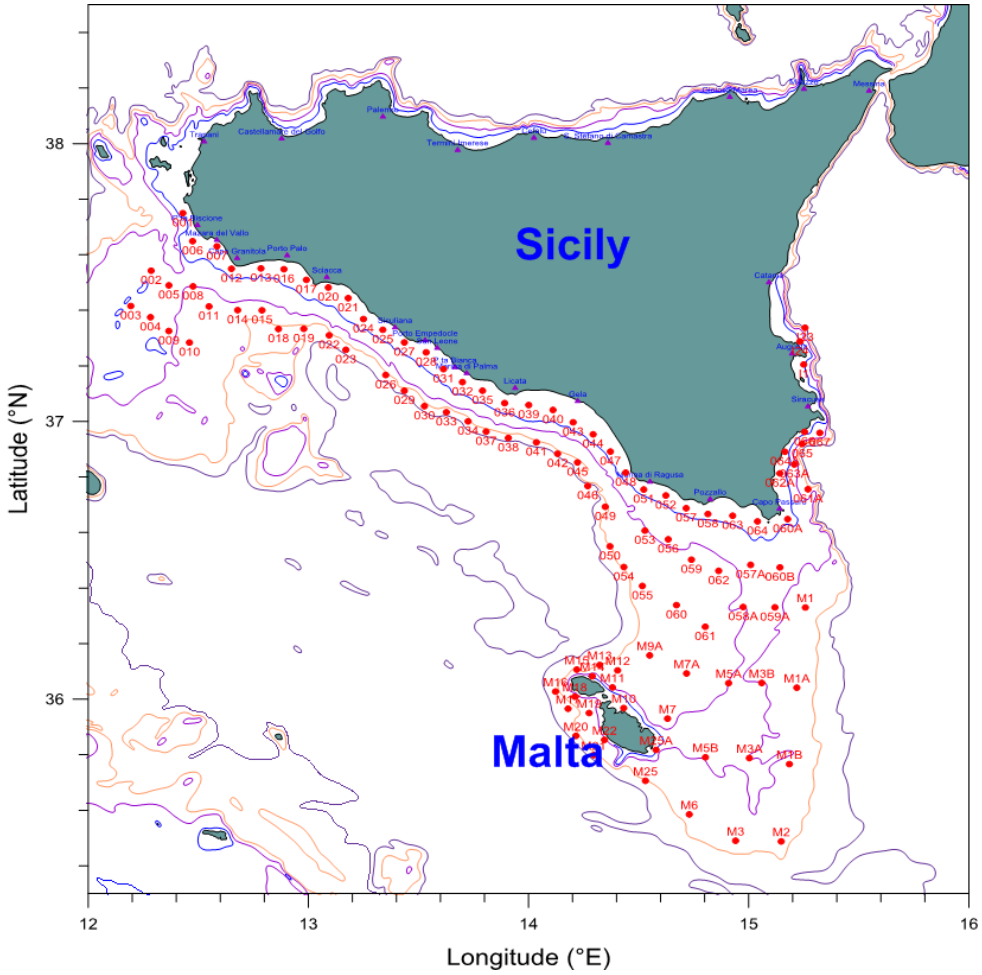
GSA16
Track lenght 579 nm
Area 2382 nm²



Echosurveys MEDIAS 2013

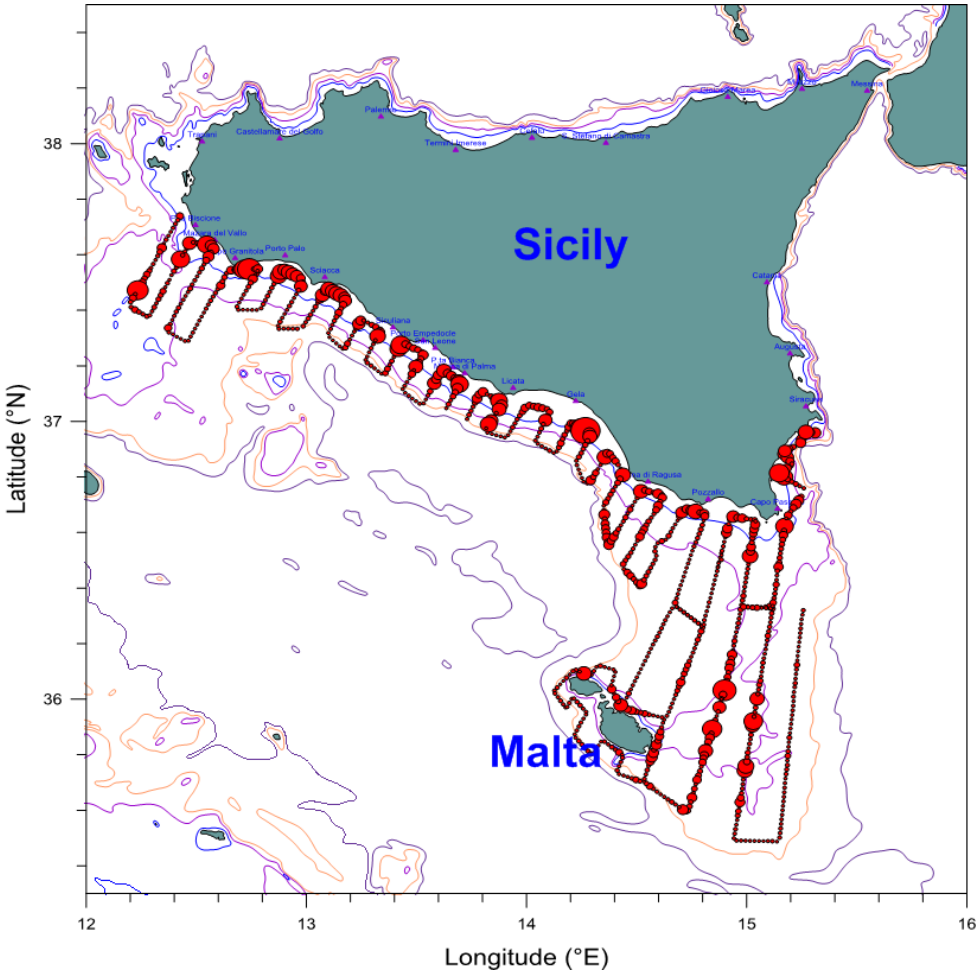
GSA15
28 CTD stations
7 Pelagic hauls

GSA16
79 CTD stations
19 Pelagic hauls



Echosurveys MEDIAS 2013

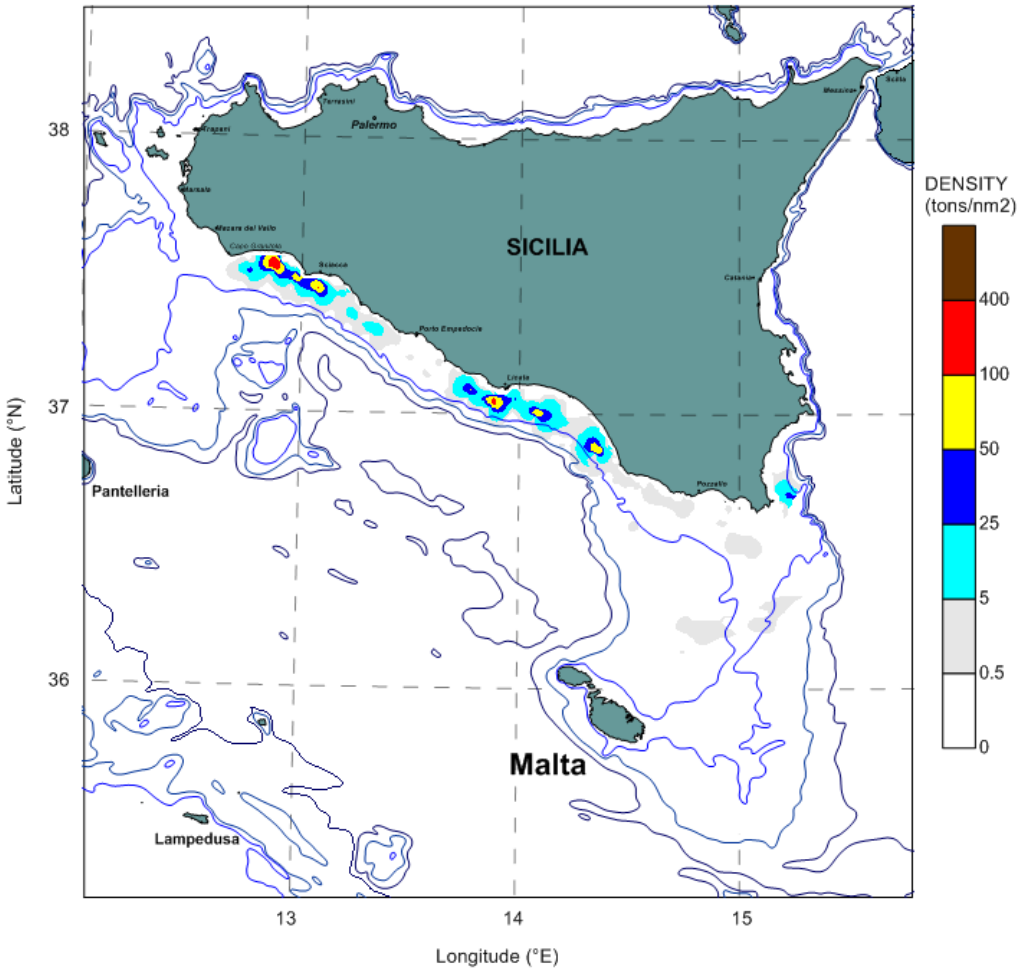
Fish NASC distribution



Anchovy Biomass

GSA 15
Maltese waters
2.1 t

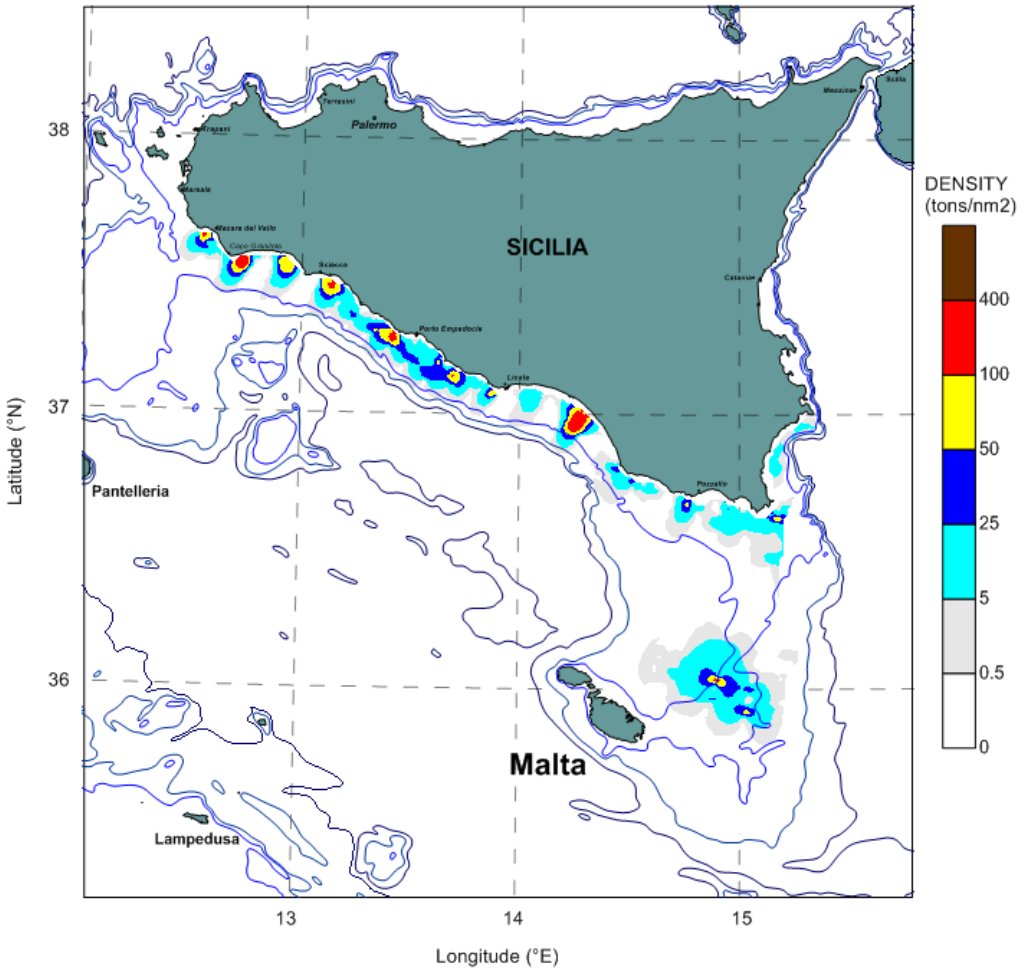
GSA 16
South of Sicily
8466 t



Sardine Biomass

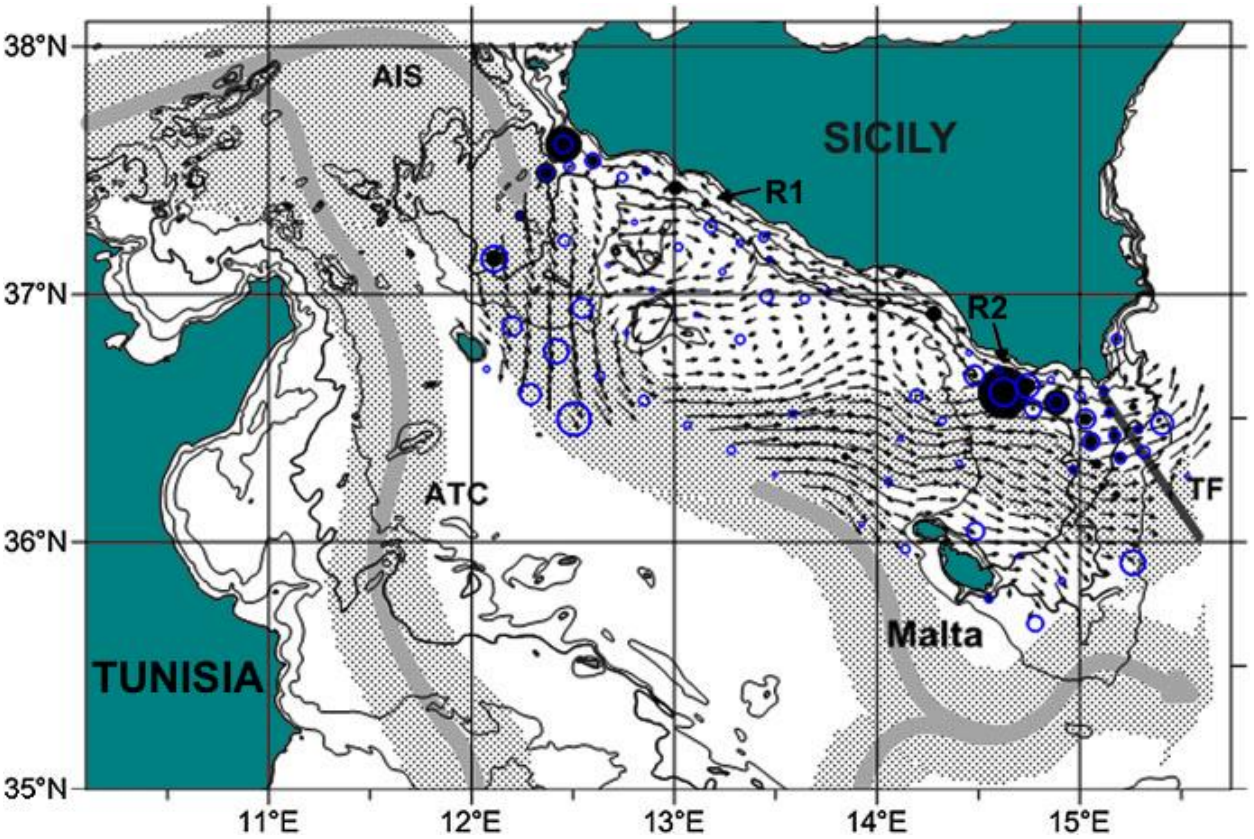
GSA 15
Maltese waters
4763 t

GSA 16
South of Sicily
18165 t

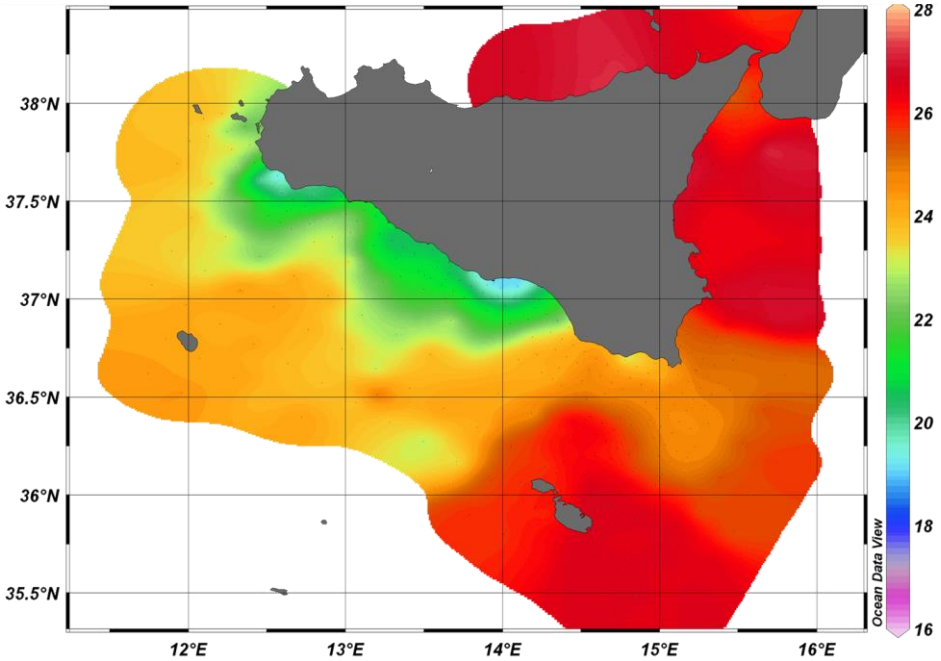


Eggs and larvae distribution

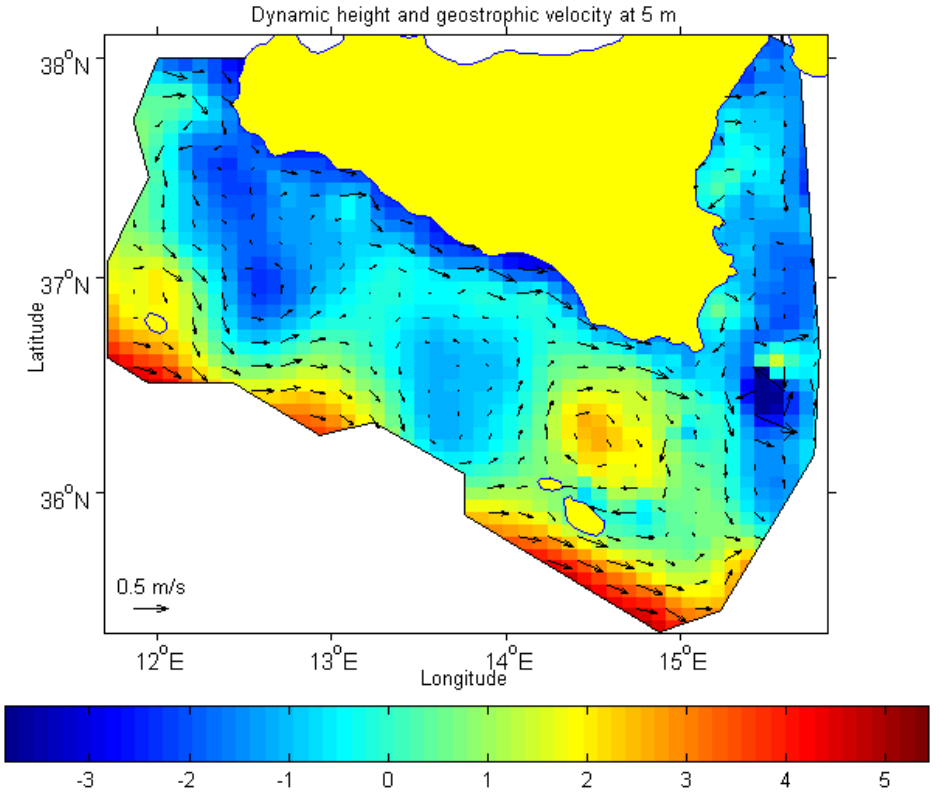
Densities of:
- **Eggs (black dots)**
- **and larvae (blue circles)**



Sea surface temperature from CTD casts



Dynamic height and geostrophic velocity

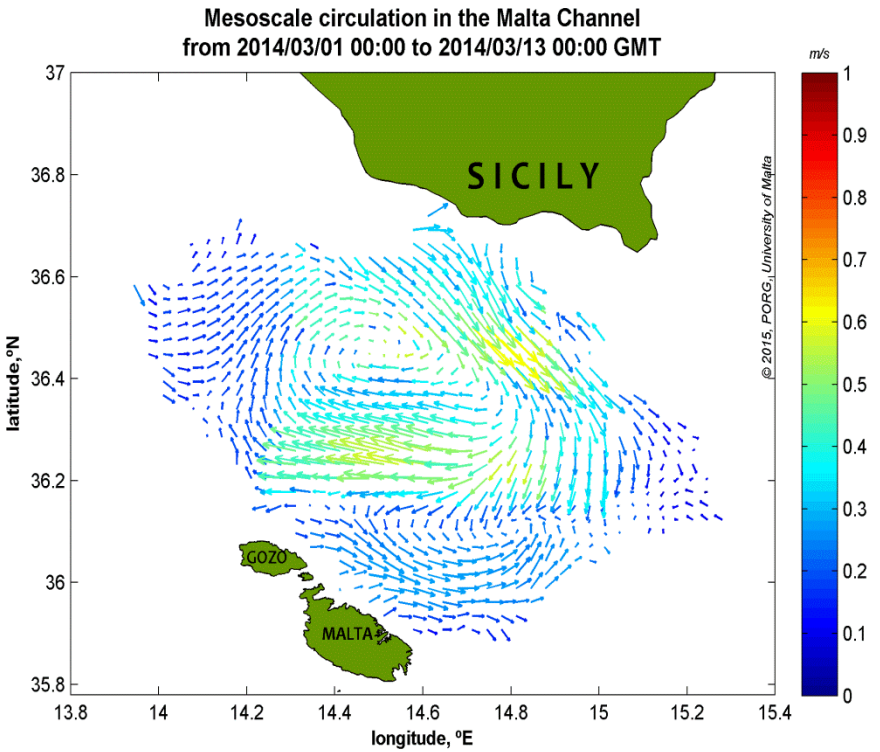


HF RADAR DATA

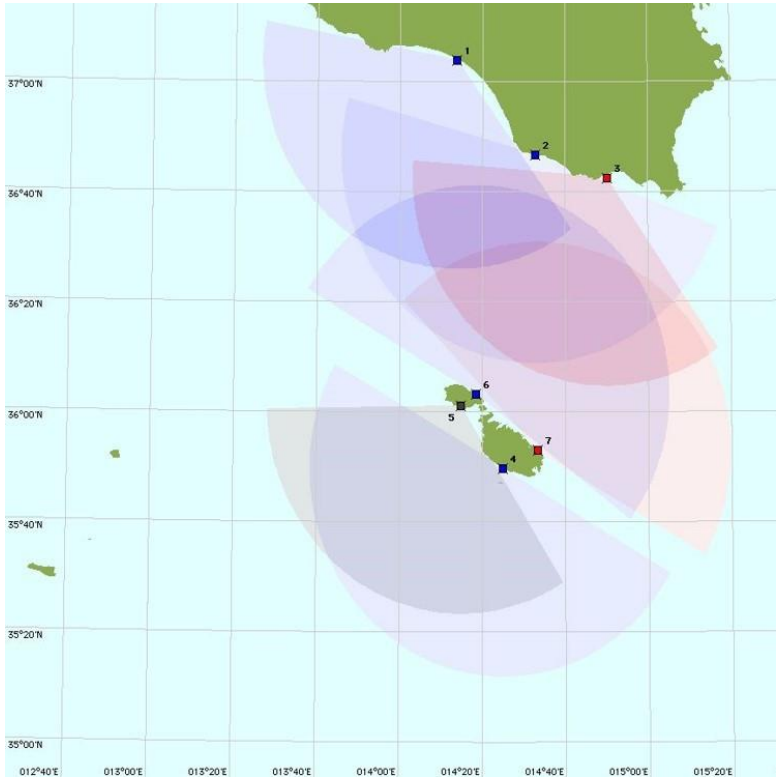
Mapping *sea surface currents*
in real-time
with hourly updates

at 3 km of spatial resolution

***in the* Malta-Sicily Channel**



Next extension of the HF Radar Network



Activities planned for the next future:

- Oceanographic survey for the evaluation of the chimacal and physical paramters of the sea water, abundance of eggs, larvae and adults of small pelagic fish in the Maltese-Sicilian platform
- Oceanographic survey to evaluate the soundscape in the same waters;
- In situ measurements of submarine noise and simultaneous measurements with HF Radar in Malta
- Preliminary analysis of the data collected in the three survey mentioned above.

Thanks for Your attention