FISHING

2002 CFP Reform

more needs to be done!

MAREMED Kick off Meeting
Marseille 22/06/2010

After 2002 CFP Reform

- Overexploitation stocks (86% beyond MSY, 30% are outside safe limits)
- Insufficient supply to European market
- Overcapacity – for many stocks capacity to fish at 2-3 x sustainable level
- Poor profitability - too many boats chase too few fish
- Public management costs exceed landings value in some countries.

VISION 2020 – a dream?

- Healthy marine ecosystems
- Profitable and economically independent sector
- Supply to European market from sustainable fisheries and aquaculture
- Contribution to development of coastal regions
- Simpler and less costly policy with implementation closer to the people

Why a reform?

Need to adapt to changed global context

- Financial crisis
- Volatile fuel prices
- Climate change

CFP reform process

- Adoption of Green Paper 22 April 2008
- Presentation in Council April 2008
- Council discussion May 2008
- Publication (web) background diagnosis of CFP performance
- Public debate until 31 December
- Summary of debate first half of 2010
- Impact assessment
- Proposal beginning 2011
- Adoption end 2012

MAIN OBJECTIVES

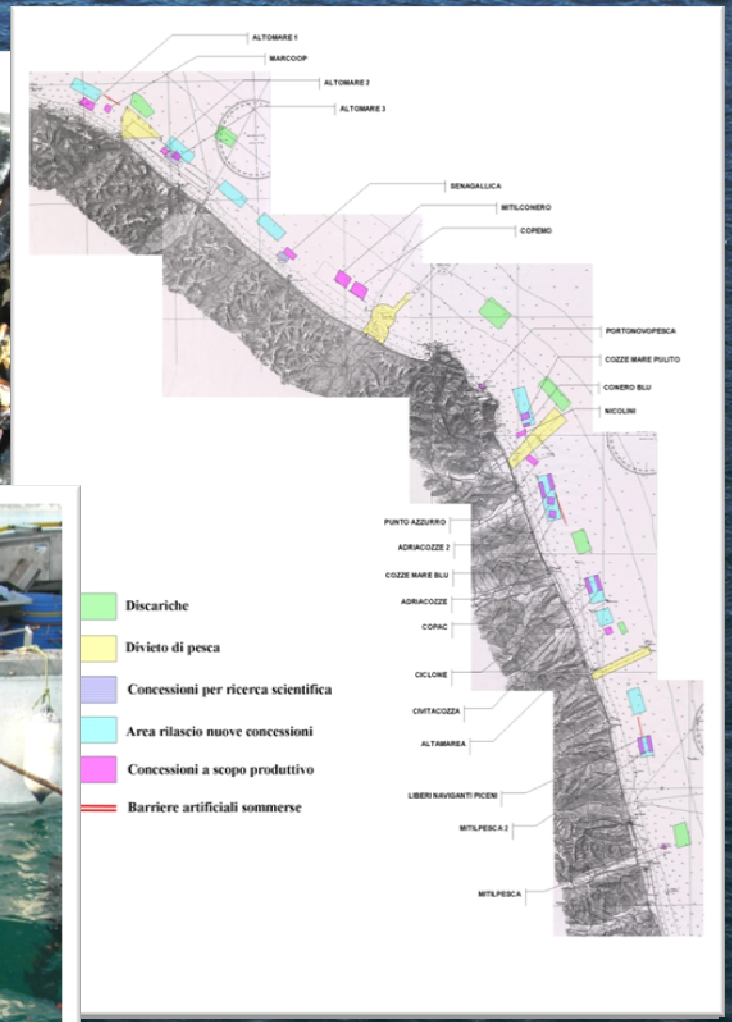
	LEVEL	
Reduce number of vessels/adapt capacity to resources	National	
Promote small-scale coastal fisheries		Regional
Promote aquaculture	National	Regional
Promote profitability:		
- pilot projects	National	Regional
- diversify activities	National	Regional

Promote small-scale coastal fisheries

Local management plan

Art. 37/m Reg. CE 1198 FEP 2007-2013

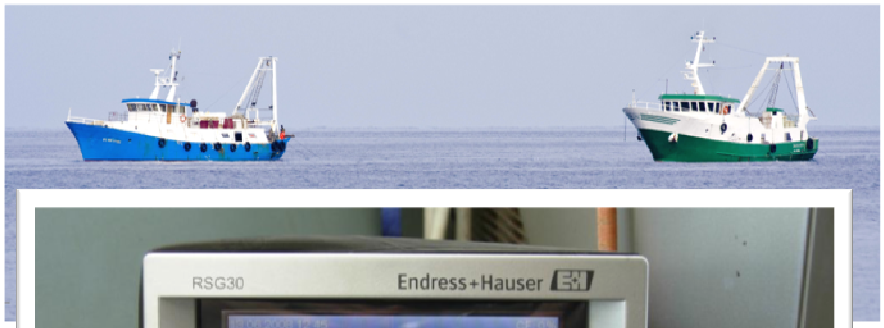
Promote aquaculture



Promote Profitability

Diversify activities
ex. pesca turism

Pilot projects ex. focused on fuel consumption reduction



Coriolis Fuel Mass Flow Measuring System (*CorFu*-m)

The challenge consisted in measuring the fuel consumption of fishing vessels during different fishing operations, and then produce an absolute daily energy consumption. (ENERGETIC OUDIT Reg. CE 744/2008).

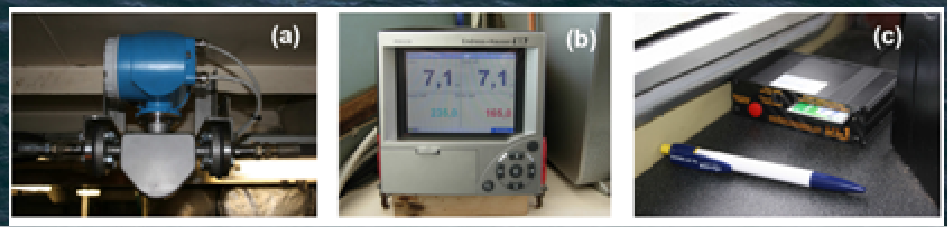
A prototype instrument, named *CorFu meter* (*CorFu*-m), was conceived at CNR-ISMAR Ancona (Italy) and installed on board two semi-pelagic pair trawlers.

The *CorFu*-m system consists of three components:

a) two mass flow sensors. The sensors use the *Coriolis* measuring principle, which permit to operate independently of the fluid's physical properties, such as viscosity and density. It is an economical alternative to conventional volume flowmeters;

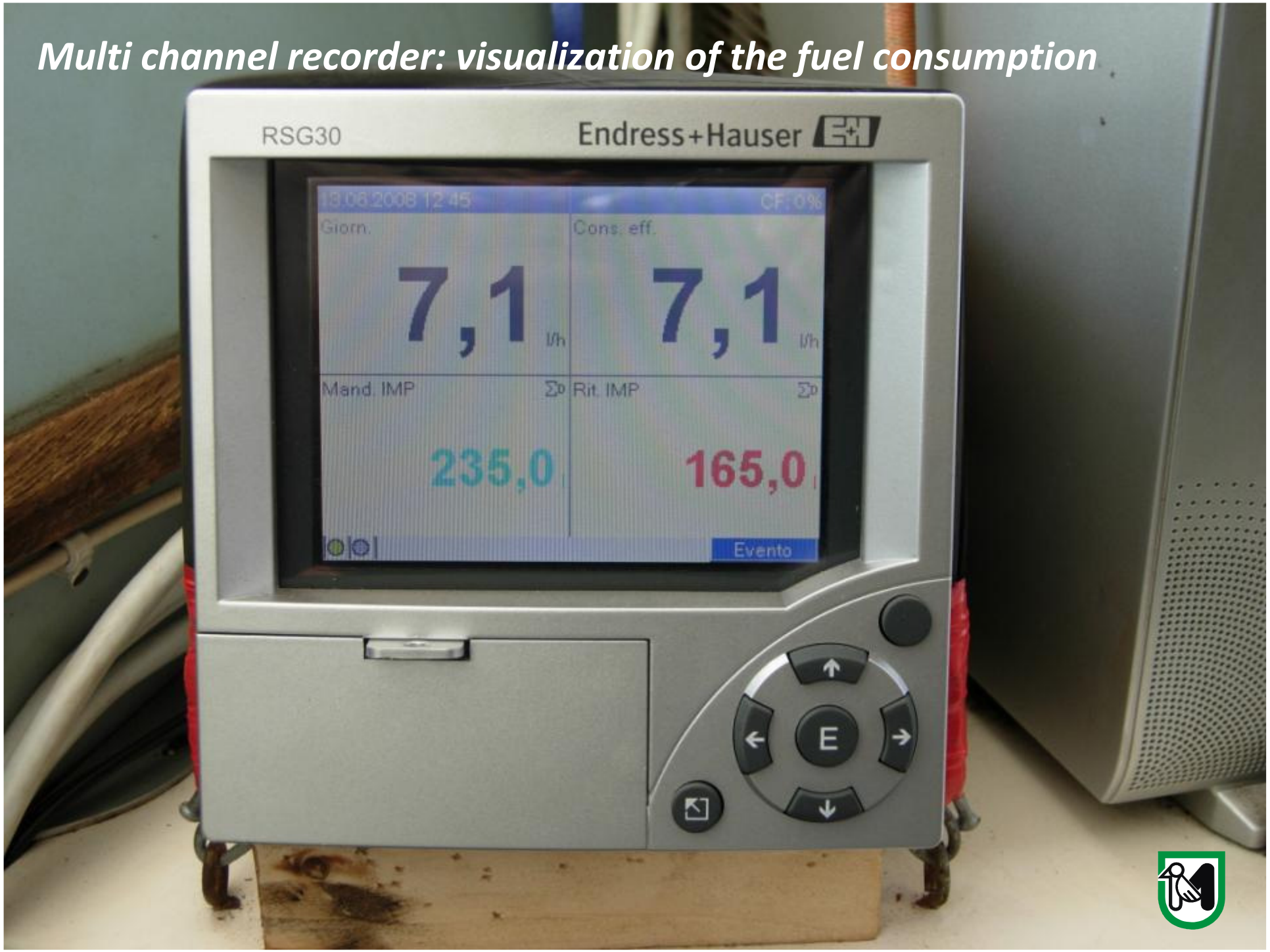
b) one Multi Channel Recorder;

c) one GPS data logger.



Mass flow sensors mounted onboard a fishing vessel for the measurement of fuel consumption

Multi channel recorder: visualization of the fuel consumption



GPS data logger for the GPS data collection

Data available

1. **Fuel consumption rate [l/hr]**

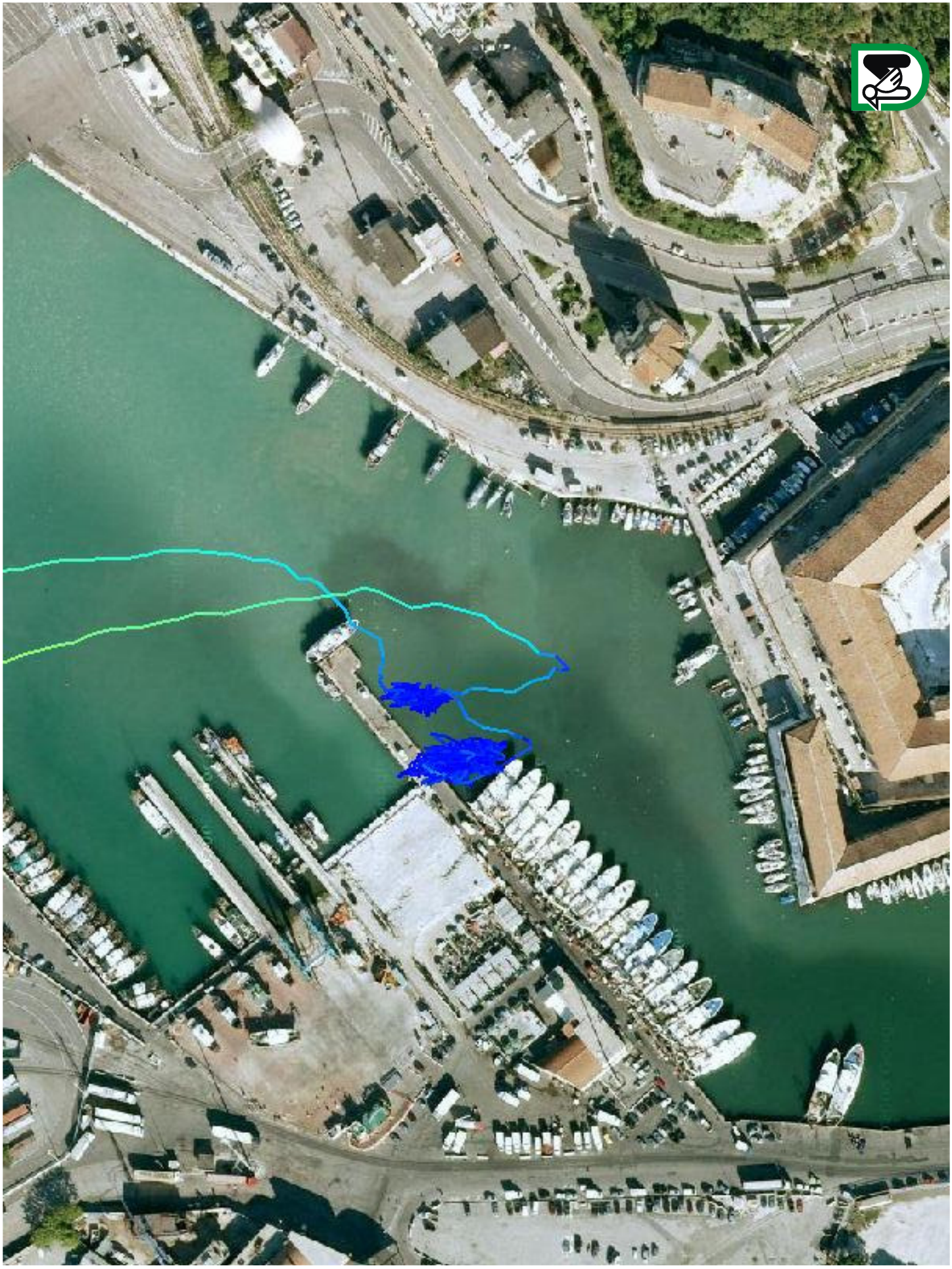
2. **Daily Fuel Consumption [l/Day]**

3. **Vessel Speed, Geographic Coordinates**

4. **Duration of each fishing operation**

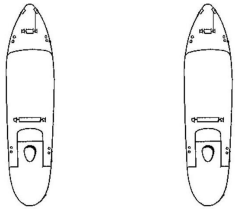
   Cables recovery; Entrance in the harbour; Exit from the harbour; Hauling; Sailing back; Sailing departing; Searching; Shooting; Trawling.

5. **Catch per haul (Species level)**

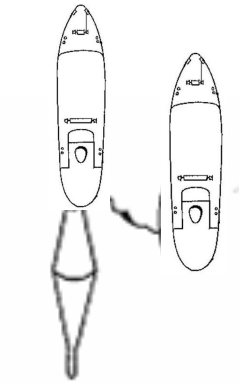



Scale: 2000m
0.05
16.3

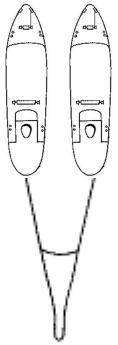
Pelagic Pair trawling strategies: fishing operations



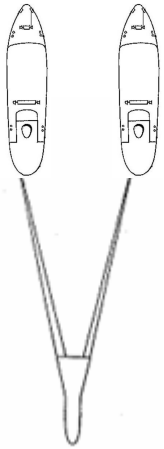
Searching



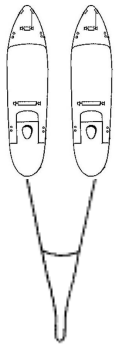
Pre-shooting



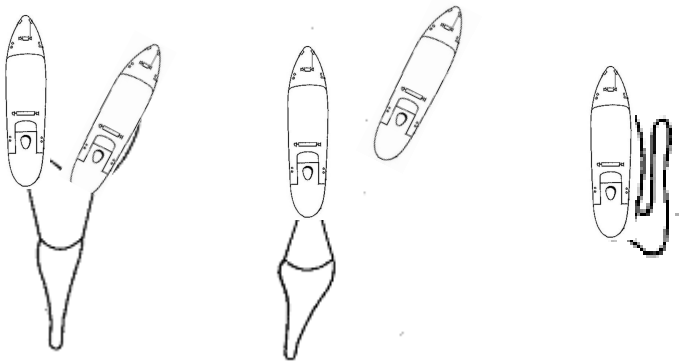
Shooting



Trawling

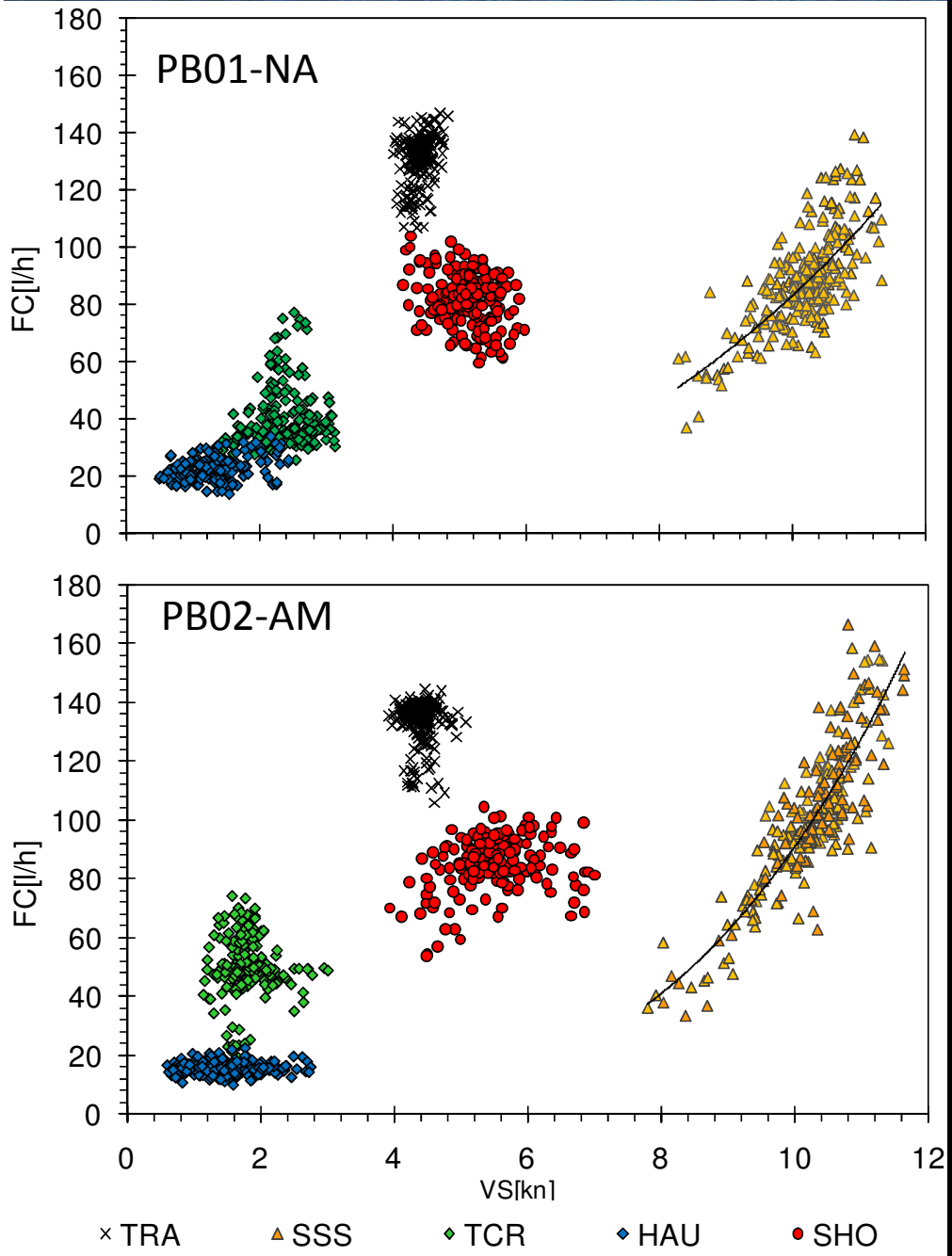


Vessel accosting and cable recovery



Hauling

Fuel rate (FC) versus Vessel Speed (VS) during the main fishing operations



LOA: 27.00 m; GRT: 117.71; Engine power: 809 kW;
Propeller design: controllable pitch.

Sailing departing Sailing back Searching	SSS
Shooting	SHO
Trawling	TRA
Hauling	HAL
Towing cable recovery	TCR

LOA: 28.95 m; GRT: 117.71; Engine power: 940 k
Propeller design: fixed pitch.

Energy Efficiency Indexes

	PB01-NA	PB02-AM
Q[l/day]	**1142**	**1284**
	136	*180*
WFC[kg/l]	**2.907**	**2.296**
	1.541	*1.282*
FCW[l/(kW·hr)]	**0.106**	**0.096**
	0.007	*0.010*

PB01-NA

LOA: 27.00 m; GRT: 117.71; Engine power: 809 kW; Propeller design: controllable pitch.

PB02-AM

LOA: 28.95 m; GRT: 117.71; Engine power: 940 kW; Propeller design: fixed pitch.

Q[l/day]: Daily fuel consumption; *WFC*[kg/(l·hr)]: total catch of fish per working hour per litres of fuel; *FCW*[l/(kW·hr)]: litres of fuel per working hour per engine power installed. Mean (in bold) and Standard Deviation (in italics).

Conclusions

The main objective of this study was to identify the potential for fuel-saving in the Mediterranean pelagic trawlers by improving vessel's operating conditions.

Semi-pelagic trawlers were chosen for the study since they spend most of their time in searching the fish schools and steaming to- and fro- the fishing grounds.

In this study we demonstrated that a significant improvement in fuel consumption could be obtained in the short-term for two Italian trawlers.

Gains in propulsive efficiency during free navigation might be attained using a controllable pitch instead of a fixed pitch propeller, which can permit an optimum combination of pitch ratio and propeller revolutions for each operating condition.

Nevertheless, in the steaming conditions the different fuel consumption, also could have depended on different hull geometry and on the power engine installed.

Investment required for the adaptation

The financial investment for one complete *CorFu-m* system, which is made up of two mass flow sensors one Multi Channel Recorder, including the electrical and mechanical fittings with installation and system tests is estimated around 9 kEUR.

Fuel savings of up to 5-10% were obtained by bringing the navigation speed close to the best running point, which is the vessel's operating speed that maximizes efficiency.

Assuming that the total catching power will not change, the payback time for such investment will be less than 18 months. This benefit could be obtained without the need of major changes in overall vessel technology.

Description	Qty Nr.	Cost Unit. (k€)	Total Cost (k€)
Mass flow sensors	2	3.50	7.00
Multi Channel Recorder	1	1.30	1.50
Electric fitting	1	0.40	0.40
Mechanic fitting	1	0.25	0.25
Total			9.15

Future works

1. Improve the *CorFu*-m;

2. Energy audit (use a portable fuel monitoring system):

Portable Ultrasonic Flow Measuring System

3. Analysis of potential fishing gear design and engineering topics:

- Ways to decrease gear drag by fishing gear design optimisation;
- Ways to decrease gear drag by hydrodynamical optimisation;
- Ways to decrease gear drag by gear replacement.

4. Collection of new, detailed information by fishery (métier) and by type of vessel.