How we do research and innovation in SIMRAD

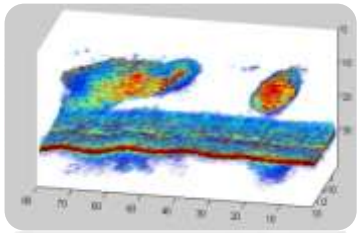
Agustín Mayans

EFTP Meeting sept. 2012, Madrid

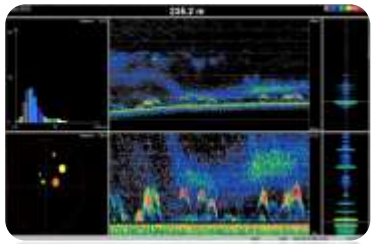
KONGSBERG

Kongsberg Subsea

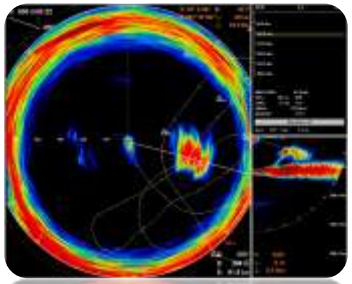
FISHERY & FISHERY RESEARCH (SIMRAD)



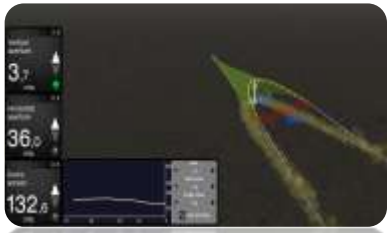
MULTIBEAM SONAR & ECHO SOUNDER



ECHO SOUNDERS



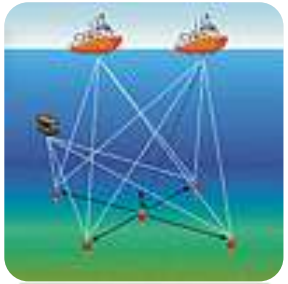
OMNI SONARS



TRAWL MONITORING SYSTEMS

TRAWL SONARS

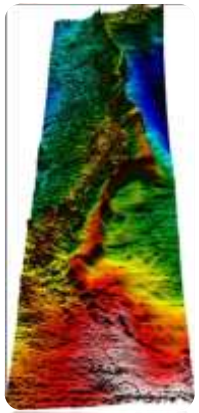
UNDERWATER NAVIGATION



CAMERAS

SURVELLIANCE

HYDROGRAPHY

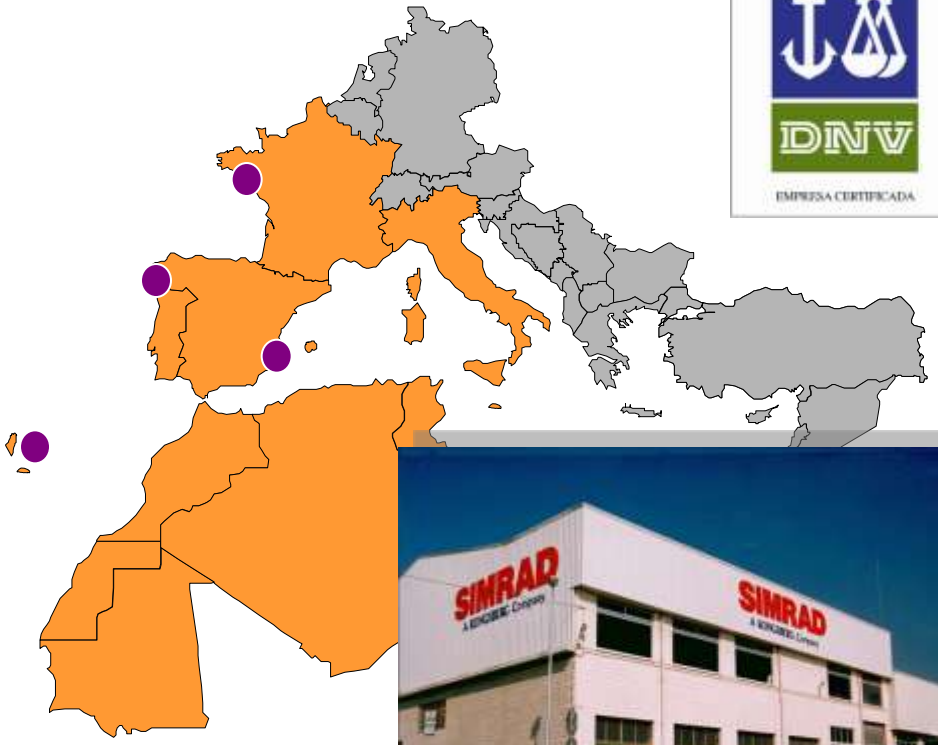


A.U.V.

DYNAMIC POSITIONING

Simrad Spain

- South Europe*
  - Fishery
  - Fishery Research**
  - Hydrography***
  - Defence***
- 36 employees
- 4 Offices
  - Villajoyosa (Alicante)
  - Vigo
  - Las Palmas
  - Lorient (France)



* Portugal, France, Spain and Italy
** Only Spain and France
*** Only Spain

research and innovation

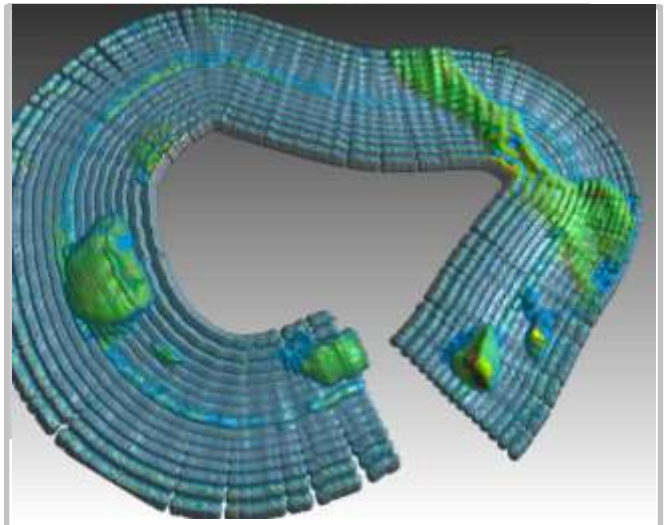
- In the scientific world research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue
- From a manufacturer point of view, the research is oriented to develop products or methods to trade, performing a work or solving a problem

Challenges

- The systems developed by Simrad in Norway and Canada cannot compete in price with other Asian manufacturers, so;
  - We need to be innovative
  - We need to offer something else

- Our products must fit into different markets. We must please both fishery research and fishery customers.

Fishery research



- Developments must provide accurate and reliable tools to investigate
  - Creating the most innovative products in cooperation with scientists
    - Echo sounder with the ability to do biomass estimation, size distribution and species identification
    - Scientific sonars and multi beam echo sounders to analyze the composition of the fish schools
    - Trawl systems with live video camera to see the fish behavior in real time
    - Oceanographic environmental monitoring systems
    - Onboard data loggers with real time communication to shore

Evolution…

Fishing, hunting, culture

- Fisherman's biggest motivation at sea is to be the best hunter
- When fishing becomes a business, a good hunter can be too much effective
- If we are talking about the need of sustainable fisheries is because the hunter/business motivation is over the resources management, **what to do then?**

What to do

- **We** need to create a fishing culture where:
  - Catch volume doesn’t exceed the sustainable limit
  - Discards are limited to the minimum amount
  - Activity is profitable for fisherman
  - Environment care is important

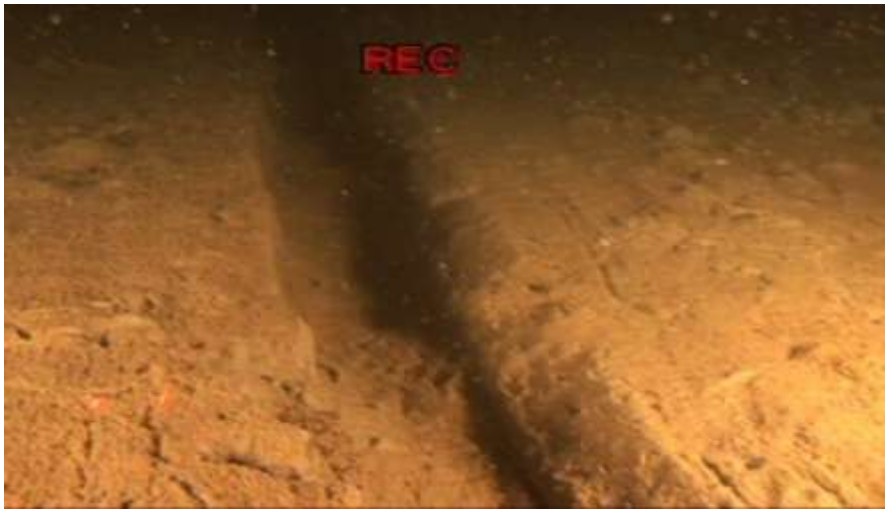
- When we say that fishery must be sustainable, we must take care of the resources, but also the fisherman

How to do innovation for fisherman

- We need to be as close as possible to them
  - We have created a multi disciplinary team composed by fishermen, net designers, trawl doors designers and electronics engineers
  - Our technical sales people spends time at sea, learning about the needs of each type of fishery
  - Then we develop or integrate systems to provide a solution to the market
  - Next is to test the solution onboard in real fishing operations, skipper must see the improvements in their own vessel or they will be reluctant to believe it works
  - Once we now that the concept is valid, we try to get the scientific approval through research programs, then we validate the method
  - Then we can promote and sell it

Examples – The flying trawl doors

- Reduces impact on the seabed
- Reduces fuel consumption
- Increases the security

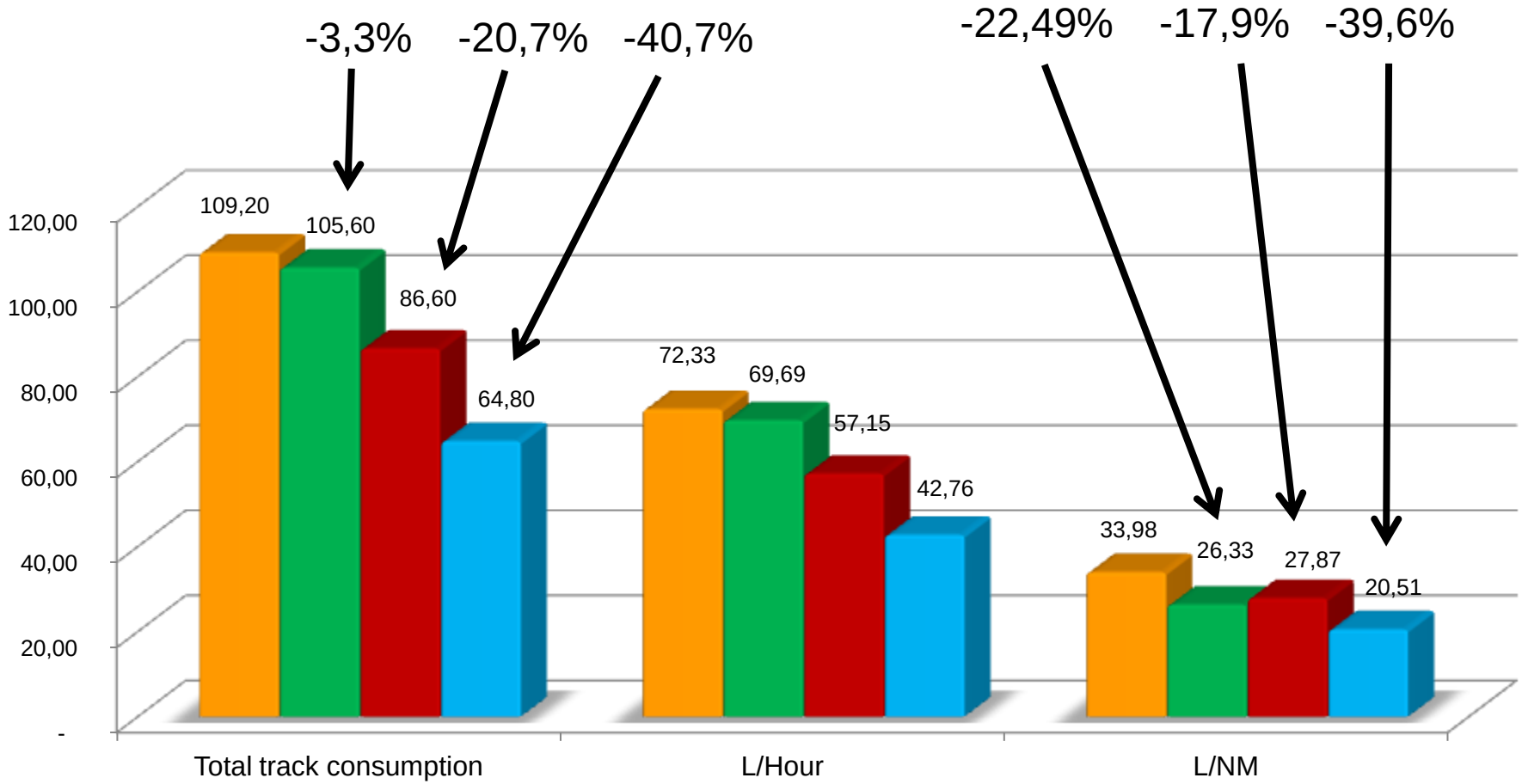


Picture courtesy of C.S.I.C. Spain

Flying trawl doors

- Old concept, from the 70's, but never worked
- We cooperated with the trawl door manufacturer to see how can we control the door
- Private testing period to convince ourselves about the benefits of the solution
- Research programs
  - Projecte de millora de l'eficiència, la sostenibilitat i el benefici de la flota pesquera d'arrossegament – Generalitat de Cataluña, 2009
  - E-Fishing, CNR Ancona, 2010
  - Portes – IEO Baleares, 2011
- Market introduction

Flying doors - Results



CNR conclusions – A. Sala

Consiglio Nazionale delle Ricerche

- The VF15 otterboard produced horizontal openings much greater than those obtained with the VEE otterboard, but with less fuel demands.

- The greater horizontal openings obtained with the VF15 have surely increased the net drag, therefore improvements of around 18% in the fuel saving, due to the change of the door, might have been underestimated.

- Monitoring the height of the otterboards above the bottom has required appropriate acoustic instruments which have been used to adjust the door height by altering the towing speed and the trawl warp length.

- The investment for two VF15 otterboards, including all the rigging components (weight, backstrops chains, etc.) is estimated at around 7.0 KEUR. A lower investment of 3.5 KEUR is required for the VEE otterboards.

- Assuming that the catching power is equal for the two doors, the payback time for the new door investment will be less than 4 months.

Portes – E. Massutí - IEO

Estació La Mola (Menorca) , 3-4/11/11

RESULTADOS

El consumo de combustible mostró diferencias significativas entre artes en ambos estratos de profundidad (Tabla 15). En la plataforma (Figura 70), el consumo medio fue 6.4 l/h menor (~14%) con el arte experimental (40.8 l/h) que con el tradicional (47.2 l/h). En el talud (Figura 71), el consumo medio fue 2.2 l/h menor (~4%) con el arte experimental (47.3 l/h) que con el tradicional (49.5 l/h).

Portes, the customer after a while

No sólo lo estoy utilizando, sino que después del proyecto lo fui ajustando y he conseguido una reducción mayor de combustible, el esfuerzo en arrastre ha bajado a 210 CV. De media, un consumo impensable utilizando los mismos artes y malletas. Cuando empezamos con el barco nuevo consumía alrededor de 700 litros al día, ahora estoy en 470 litros, ¡no hay más que decir!. La captura es igual o mejor ¿no son estos motivos suficientes para seguir con este sistema? Para mí sí ¡¡y para el armador también!!.

Examples – Gas pipeline interference

VALENCIA:
Cullera
Gandia

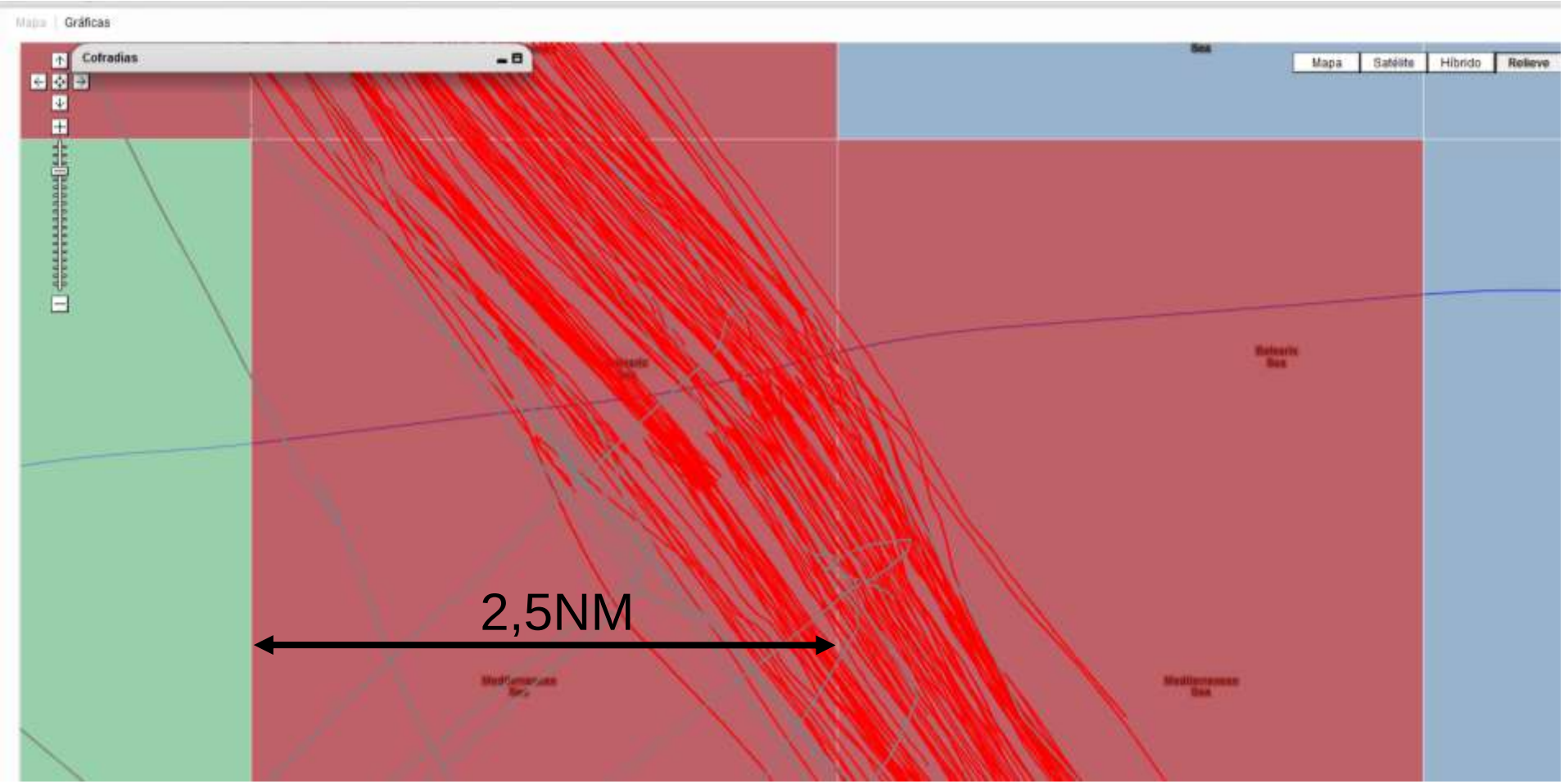
ALICANTE:
Denia
Javea
Calpe
Altea
Villajoyosa
Santa Pola

IBIZA
San Antonio

MALLORCA
Palma
Andraitx

TOTAL 115 Trawlers

Crosses over the pipeline in one month



The solution

- Use of an old trick to solve the problem, jump over the pipeline
- This is a normal procedure to clean the trawls of mud when fishing on deep waters

The next step

- Enagás project allowed us to develop a remote logging system which provides us daily the telemetry from each vessel
- The data analysis showed us that we can develop a system to measure the real fishing effort, independently of the engine power or the size of the vessel, and the system is running already
- It will be continued…

Thanks for your attention

Questions?