



CNR-ISMAR, Ancona (Italy)

Information Collection in Energy Efficiency for Fisheries (ICEEF2011)

International Fishing Fair 2011 - Ancona, Italy - Visit report

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1. Topic: “engines, auxiliar power”

Hybrid Propulsion system by Pronaves

The hybrid system presented at the fair of fishing Ancona consists of a diesel engine and an electric motor with high torque and low speed, keyed directly on the propeller. This electric motor can function as a propulsion engine or electric generator, so at sea, with the internal combustion engine, it will provide electricity on board, allowing to keep off the traditional generator, saving in maintenance, fuel and pollution. The electric motor used as propulsion engine can be used to navigate at low speeds using conventional generators and / or batteries. In this case it creates a propulsion system or a reliable emergency power system, additional to the main engine.



Fig. 1. Hybrid system installed onboard a 25 m lft yacht.

The system presented at the fair is capable of 100 kW at 400 rpm, sufficient to produce a continuous torque of 2400 Nm The mechanical connection with the joint axis is accomplished by a chain.

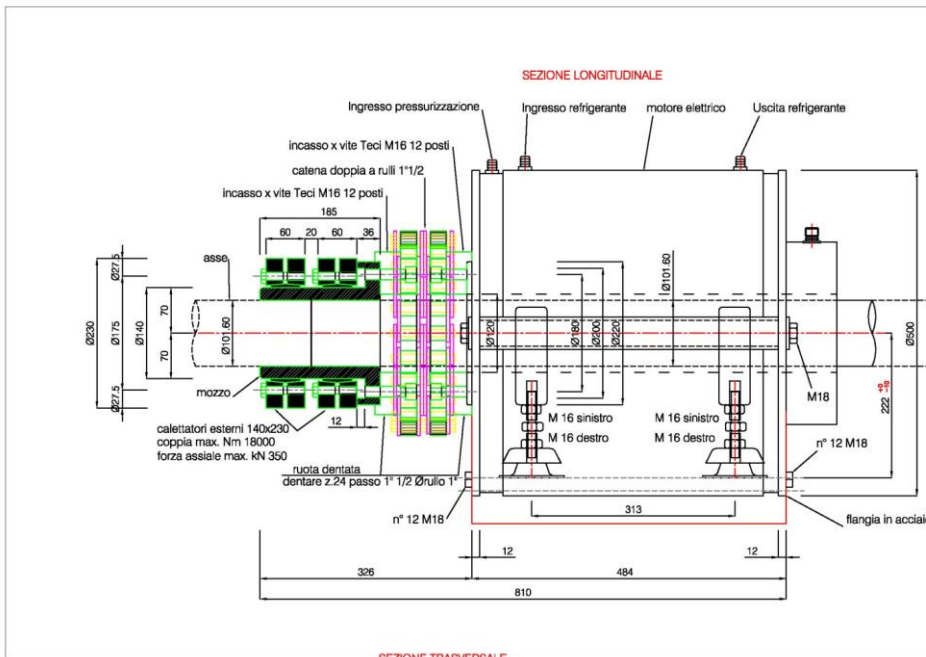


Fig. 2. Joint chain.

In summary:

- Possibility of installing the system on existing vessels (retrofitting).
- Abundant availability of electricity during navigation without the use of auxiliary generators.
- Propulsion emergency in case of failure of the main engine.
- Increase of the propulsive power of the vessel, might add a hint of power coming from the hybrid propulsion system.
- Possibility of electric-only navigation using suitable battery pack.
- Decreased fuel consumption.

More info at: <http://www.pronaves.it/english/>

2. Topic: “efficient fishing gears”

Grilli sas

Energy efficient otter boards

Stainless steel and polyethylene otter board have been designed and built especially to counter the problems encountered on the seabed irregular with mountains of sludge to be back in the presence of such a normal divergent, tends to pierce.

To address these issues work has been done on the classic model, AR, without affecting its performance. replacing most of the sheet steel with polyethylene, a plastic material highly resistant but little weight. we obtained a weight reduction of 35% in water reaches 60%.



Fig.3. AR otter board with polyethylene.

B Side otter boards

In order to contain the costs of fisheries management has been developed divergent suitable for both deep water than low ones with the particularity of being able to use this divergent on both sides, ie being able to turn it over to the direction of use. This can be done when the back of the sled is consumed, thus avoiding new shoeing, which in turn reduces maintenance costs.



Fig. 4. B-Side otter boards.

More info at: www.grillisas.com

3. Topic: “initiatives, ”workshop

Ecofishman meeting

EcoFishMan has been invited to the 71st Ancona International FISHING Fair to be held in Italy 27th-29th of May. Several speakers from EcoFishMan will introduce the project to the meeting attendees. The EcoFishMan project is a new EU FP7 RTD project, which will play an important role in the development of a holistic fisheries management system, which takes into account all aspects of sustainability.



The €3.8 million project has been funded under the EU FP7 (EU seventh framework programme) and has a duration of three years. The kickoff meeting was in Reykjavik, Iceland in March 2011. The EcoFishMan consortium consists of the following 14 members: Matis (IS), Eurofish (DK), CETMAR (ES), The Bitland Enterprise (FO), University of Iceland, National Research Council / Institute of Marine Sciences (IT), Nofima Marin (NO), University of Tromsø (NO), Centro de Ciências do Mar (PT), IPIMAR (PT), MAPIX technologies Ltd (UK), Marine Scotland Science (UK), Seafish (UK), and University of Aberdeen.

The aim of **EcoFishMan** is to develop and contribute to implementation of a new integrated fisheries management system in Europe based on increased stakeholder involvement: an ecosystem-based sustainable management system under a precautionary framework that will define maximum acceptable negative impact, target elimination of discards and maintain economic and social viability.

The outcome of this project will be a fisheries management system, developed in collaboration with the important stakeholders in fisheries. The design of the system will take into account ecological, economical and social factors. It will be based on the requirements of the stakeholders themselves and utilise modern technology for surveillance, assessment of stocks and decision supports. This will enhance implementation of the system and improve cooperation and mutual understanding between policy makers and stakeholders.

Technical innovations in fisheries

“Precise registration – Trustworthy documentation”

Henning Skjold-Larsen, SCANMAR, Norway

For more than 30 years Scanmar as, Norway, has developed and manufactured Catch Control and Catch Monitoring systems for commercial fishing vessels and Fishery Research vessels. More than 250 Fishery Research vessels and thousands of commercial fishery vessels all over the world are equipped with Scanmar equipment.

The system presents all data real time for immediate action, and logged data for later analysis. The system is developed for best possible control of fishing gear performance at any time, independent on fishing condition. Extensive logging functions are provided for later analysis, correction of gear, documentation and planning of further activities.

The Scanmar systems monitor and log data from:

- **Gear performance** (such as trawl gear geometry, trawl door efficiency, trawl functionality, towing speed and direction, and the functionality of gear, sweep lines etc).
- **Environmental data** (such as exact position of influx, water temperature, included temperature profile of water column, underwater currents).
- **Catch** (influx and continuous detailed volume registration).

Scanmar equipment is widely used by Fishing Research vessels to monitor quality of each haul, documentation and analysis. Documented results are; improved overall economy due to increased efficiency (reduced fuel consumption, reduced repair and wear and tear on fishing gear and vessel) and improved quality of the catch.

In addition comes better planning of trips and seasons, and less harm to the environment due to correctly adjustments of fishing gear.

There is little doubt that use of Scanmar equipment contributes to sustainable fisheries by better control, reduced operational costs and better planning.

“e-Audit: energy evaluation onboard Italian fishing vessels”

Emilio Notti, CNR-ISMAR, Italy

Overfishing and the excess of products in the market with the consequent decrease in their price as well as the rise of fuel price have contributed to diminish profitability in the fishing sector where fuel expenses can go over 50% of the total income. As the price of fuel increases, it becomes more difficult for vessel operators to maintain sustainable profit levels. There are only two possible ways for vessel operators to increase their profits: decrease operating costs, or increase the amount received for their product. Most operators are not able to influence the price they can receive for their catch. As a result, it is very important that they find ways to decrease operating costs and first of all fuel costs, reducing fuel consumption. Large number of fishing vessels is not energy efficient usually because of outdated technology. The reduction of fuel consumption can be achieved by improving energy efficiency of fishing activities.

To identify feasible ways to reduce energy consumption is necessary a methodical approach and the Energy Audit represents the instrument of this.

In the current experiment some fishing vessels, representing the various fleet sectors of the Italian Fisheries, were selected for an energy audit. Vessels were divided on the basis of type of fisheries and vessel size. An energy audit template was developed to assess the main vessel and equipment

features: engine usage, trip scheduling, propeller, etc. Onsite visual inspections were performed during the audit. Using an appropriate acquisition system few parameters were recorded, offering a real-time dynamics. On the basis of the raw data acquired, detailed analysis of energy usage was carried out. Energy performance indicators were developed to display the effective energy efficiency of each vessel, relating to the energy usage and the effective fuel consumption.

“Fuel saving otterboards”

Antonello Sala, CNR-ISMAR, Italy

A new otterboard has been designed by the Danish Thyboron door manufactures to reduce hydrodynamic drag coefficient and impact on the seabed, as well as to increase door spread. The results have been compared with a traditional Vee door commonly used in the Mediterranean commercial demersal trawl fisheries. The purposes are to discuss the differences between doors, observed during the engineering sea trials. The main results show that it is possible to design new otterboards with up to 15-20% less fuel consumption and up to 40% more door spread.