



Future Fishing Vessel Technologies: Challenges for a Sustainable European Fishing Fleet

Session 4: Fuel efficiency

Index



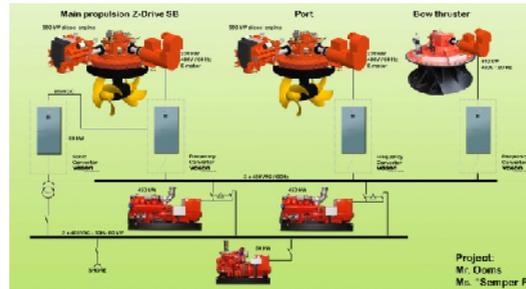
- 1.- Current Situation
- 2.- Improvement possibilities
- 3.- Actual operational situation
- 4.- New designs



1. Current Situation

Majority of fishing ships designed when fuel price was lower (depending on countries, fuel cost in the time of fleet renewal up to 3 times lower). Not designed with fuel efficiency in aim.

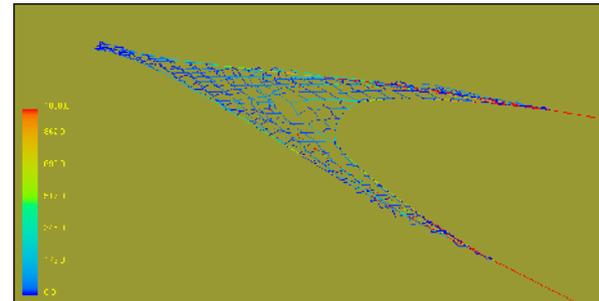
Fuel price increasing.
Environmental pressure in CO₂ and pollutant gas emissions increasing.
Low investing capacity of fishing sector to adopt technical improvements.



2. Improvement possibilities

The fishing fleet fuel efficiency improvement may come from reduction of energy consumption and/or increase of energy efficiency in generation (prime movers and auxiliary engines).

Energy consumption reduction could come from operational changes and technical improvements. Increase in generation efficiency requires technical improvements.



3. Actual operational situation

Fishing vessels are very difficult to modify. Space constraints and regulatory constraints.

Fuel consumption from propulsion, fishing gear and auxiliary equipment.

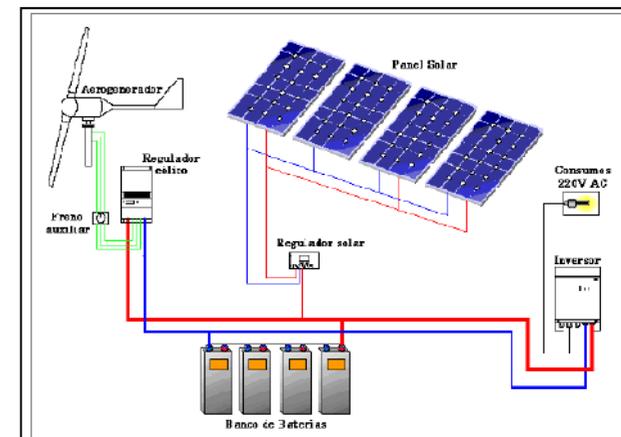
Improvements in propulsion and generation on board

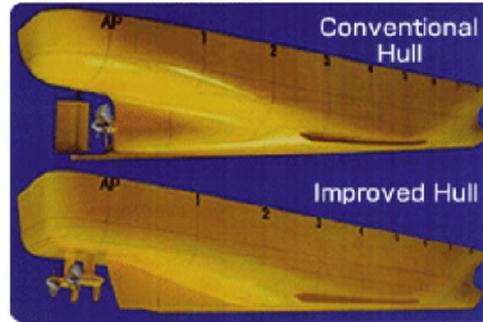
- Increase prime mover efficiencies (engines, propellers, rudders...).
- Increase electric power generation efficiency.
- Alternative energies.
- New fuels.
- Evaluation of technical solutions (are the offered fuel consumption reductions real?).



Energy consumption reduction

- Operational changes.
- Technical modifications in energy consumers (low energy consumption lights, frequency converters, anti-fouling paints...).
- Lower Energy consumption fishing gears.
- Reduced energy dependent fishing gears and techniques.
- Energy management tools on board (fleet management tools).





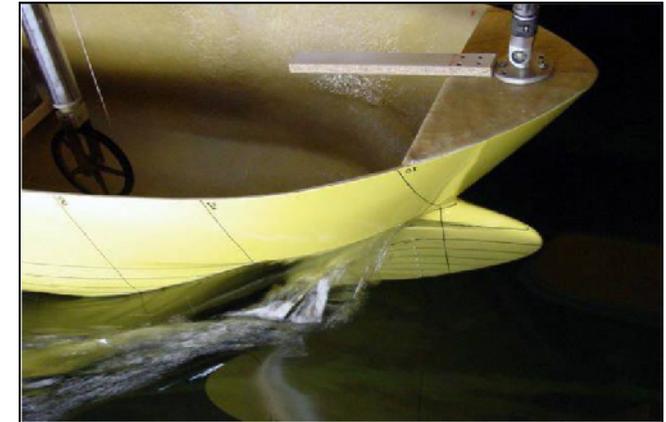
4. New designs

Fishing vessels are very different depending on country and fishing activity. There are few common solutions.

New designs considering new technical solutions for energy saving; but also considering fishing activities and safety requirements. New designs permit the introduction of technical solutions in ships from the beginning, avoiding constraints existing in old ships.

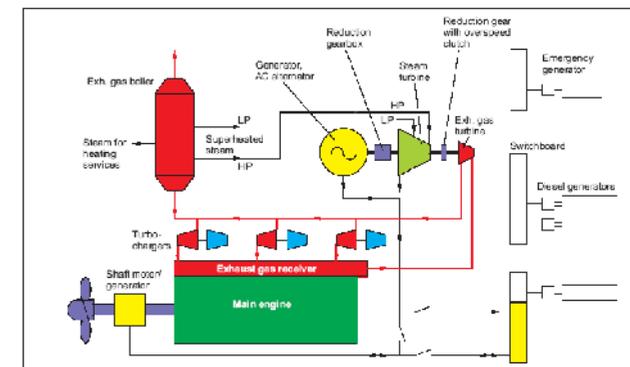
New systems for propulsion and generation on board

- Alternative prime movers (diesel-electric, sails, ...).
- Heat recovery systems.
- Alternative energies (wind, solar...).
- New fuels.
- Very low power demand for ship propulsion.
- Evaluation of technical solutions (pilot projects).



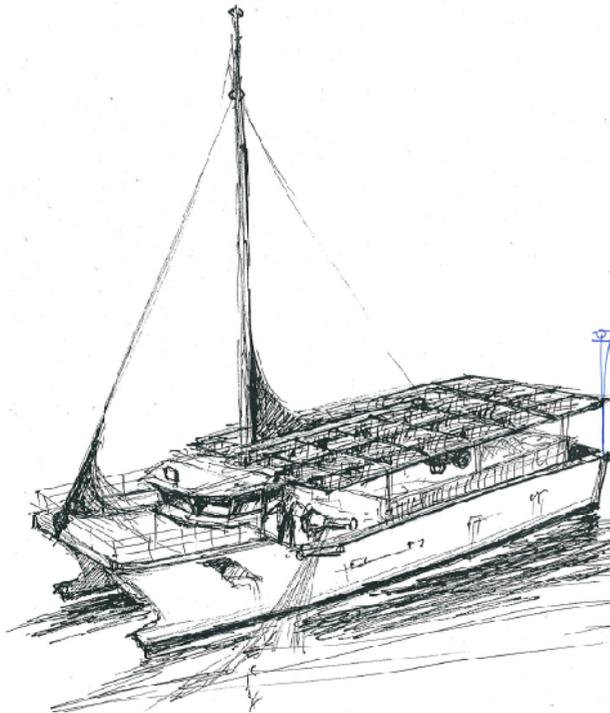
Energy consumption reduction

- Technical modifications in energy consumers (low energy consumption lights, frequency converters, anti-fouling paints...).
- Lower Energy consumption fishing gears.
- Reduced energy dependent fishing gears and techniques.
- Energy management tools on board (fleet management tools).



Workshop discussions topics

Thanks for coming and let's discuss about present and future in fuel efficiency topics in fishing ships!!!!!!





Marine and food
Research insitute
www.azti.es