a fisherman's guide to FUEL EFFICIENCY

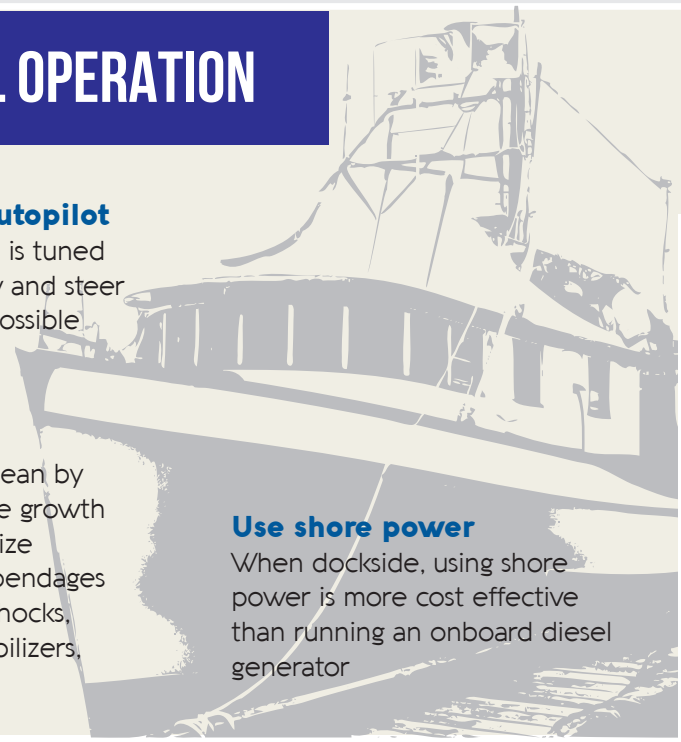
Improving fuel efficiency can help fishermen to save money and reduce their carbon footprint.

HERE'S HOW:

In 2013, the Alaska Fisheries Development Foundation, the Alaska Longline Fishermen's Association, and the Alaska Sea Grant Marine Advisory Program collaborated on a project to conduct energy audits on small Alaska fishing vessels. The energy audits collected baseline data on how much energy various systems on a fishing vessel use and provide context for energy conservation measures.

The information below is based on the Alaska Sea Grant publication "Saving Money with Fishing Vessel Energy Audits", a result of this collaborative project.

GENERAL OPERATION



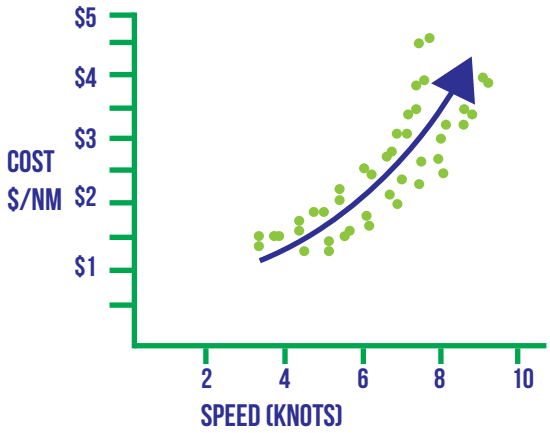
Adjust your autopilot
Ensure autopilot is tuned to minimize yaw and steer the straightest possible course

Reduce drag
Keep the hull clean by removing marine growth regularly. Minimize underwater appendages such as rolling chocks, transducers, stabilizers, and mounts

Use shore power
When dockside, using shore power is more cost effective than running an onboard diesel generator

Plan route
Take advantage of tides, currents, and predicted winds to save fuel

SPEED VS. COST: VESSELS 40-50'



Slow down
Decreasing your speed significantly reduces fuel consumption. This is the **#1** way to save fuel!

ENGINE EFFICIENCY

Check exhaust
Exhaust from a well-maintained diesel engine is almost invisible

Check propulsion
A typical propeller converts only about 50% of horsepower into thrust. Improper sizing or marine growth can make propellers even less efficient

Use diesel engines fully loaded
Diesel engines are most efficient when providing about **40%-80%** of their rated horsepower. At light loads, diesel engines use more fuel/HP

ELECTRICAL

AC LOADS

Get a premium efficiency motor
Over the 10 year life of an average electric motor, using a premium efficiency (Grade IE3) motor could save **20%** of energy costs

Get a motor controller
Variable Frequency Drive motor controllers can save as much as **70%** of energy costs by eliminating standby power and smoothing start-up surges

Use an inverter
Consider using an inverter for light loads instead of running a genset

DC LOADS

Get a premium efficiency DC alternator
Common engine driven 12V DC alternators are only about **45%-55%** efficient. New premium efficiency DC alternators can save **20%** on energy costs

Adjust your belts
Improperly adjusted alternator belts reduce efficiency and increase alternator wear

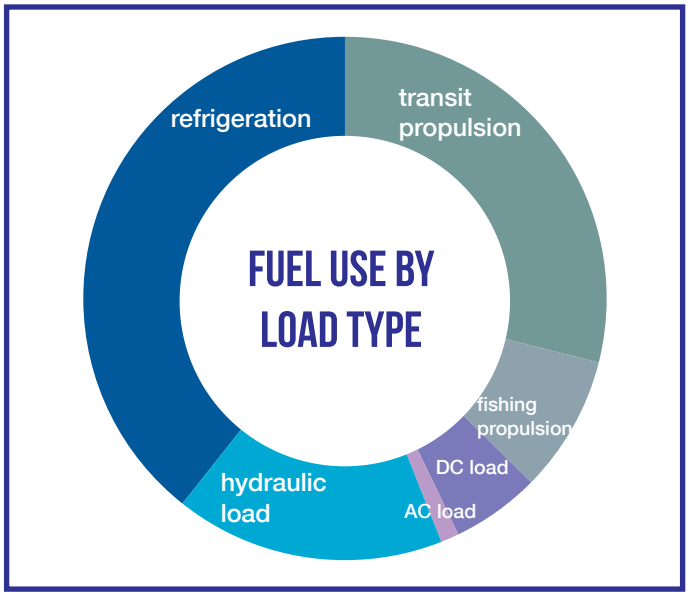
Go LED
LEDs are up to **10** times more efficient than incandescent lights and about twice as efficient as compact fluorescents. Consider using LEDs for deck and spotlights.

REFRIGERATION

Check head pressure
Maintaining too much head pressure wastes energy

Check refrigeration
New compressor technologies with VFD controls can be **30%** more efficient than older models

Insulate
Ensure proper insulation in the hold and around hatches



HYDRAULIC

Limit use
Turn off hydraulics when not engaged

Listen
Whenever a hydraulic system makes noise or heat, it is wasting energy

Maintain hydraulic system
Keep lines short and minimize fittings and sharp corners. Keep fluid clean with 10 micron filters to reduce wear

FIND OUT HOW YOUR VESSEL USES FUEL WITH OUR FREE SELF-AUDIT TOOL AT ALFAFISH.ORG OR AFDF.ORG

Alaska Longline Fishermen's Association · AFDF Alaska Fisheries Development Foundation, Inc. · Sea Grant Alaska

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