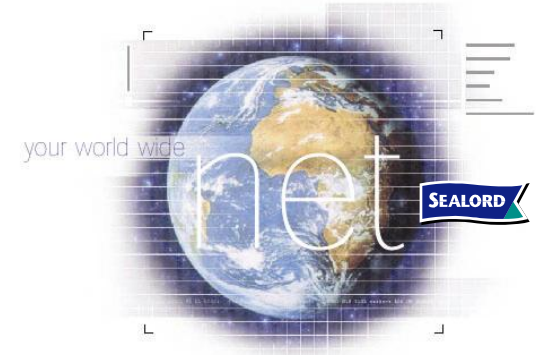




Energy Savings at Sealord

Have they occurred?

Presentation aims



- Peer review of energy savings activity success
- Learnings
- Scope
 - Thomas Harrison fuel monitoring initiative
 - Vickerman Street electrical audits and efficiency initiative

What are we trying to achieve?

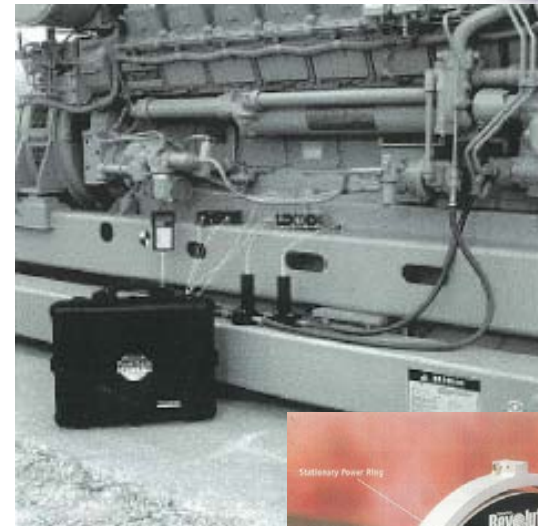
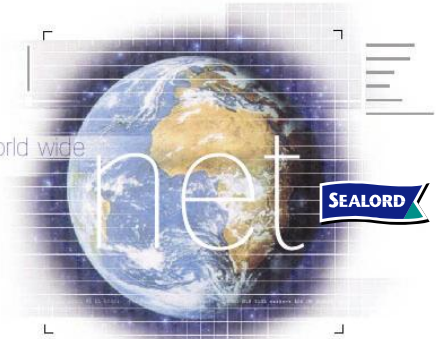


- Obvious - reduce cost
 - ...while maintaining catch rate / productivity
- How to measure success?
 - Total usage?
 - Real time monitors – gross consumption
 - Invoices
 - Usage per level of *activity*
 - Catch? $CPUE_{\text{energy}}$
 - By type of activity (steaming, fishing, weather, products)?
 - Fixed / variable portions of use..

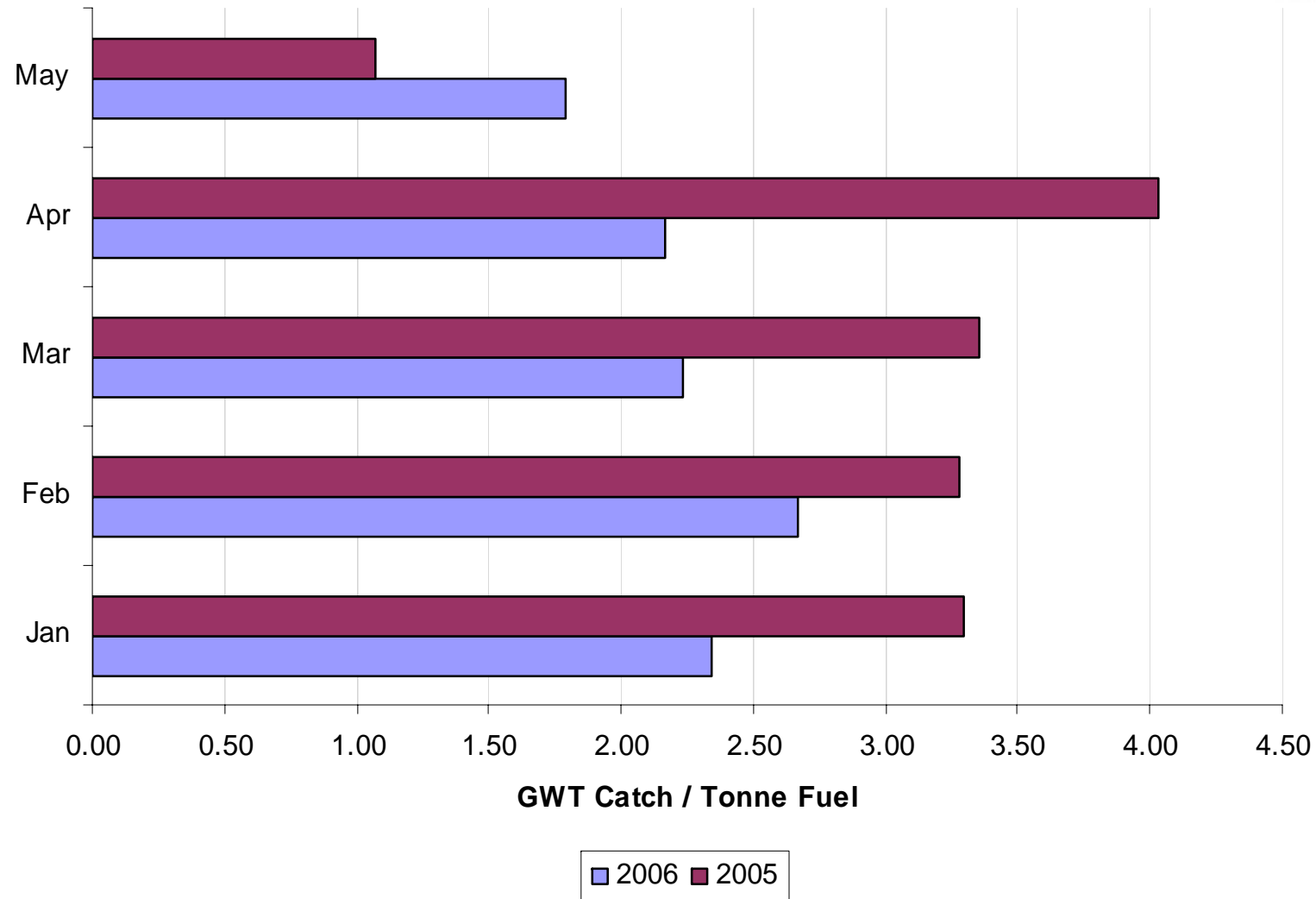
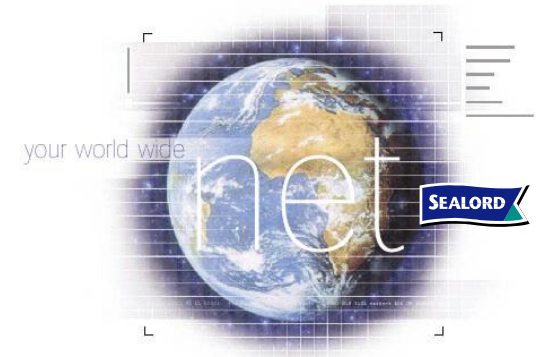
Marine fuels

Thomas Harrison Fuel Monitoring Work completed?

- Flow monitor installed
- Torque monitor installed
- Understanding of engine efficiency
- Behavioural change in bridge

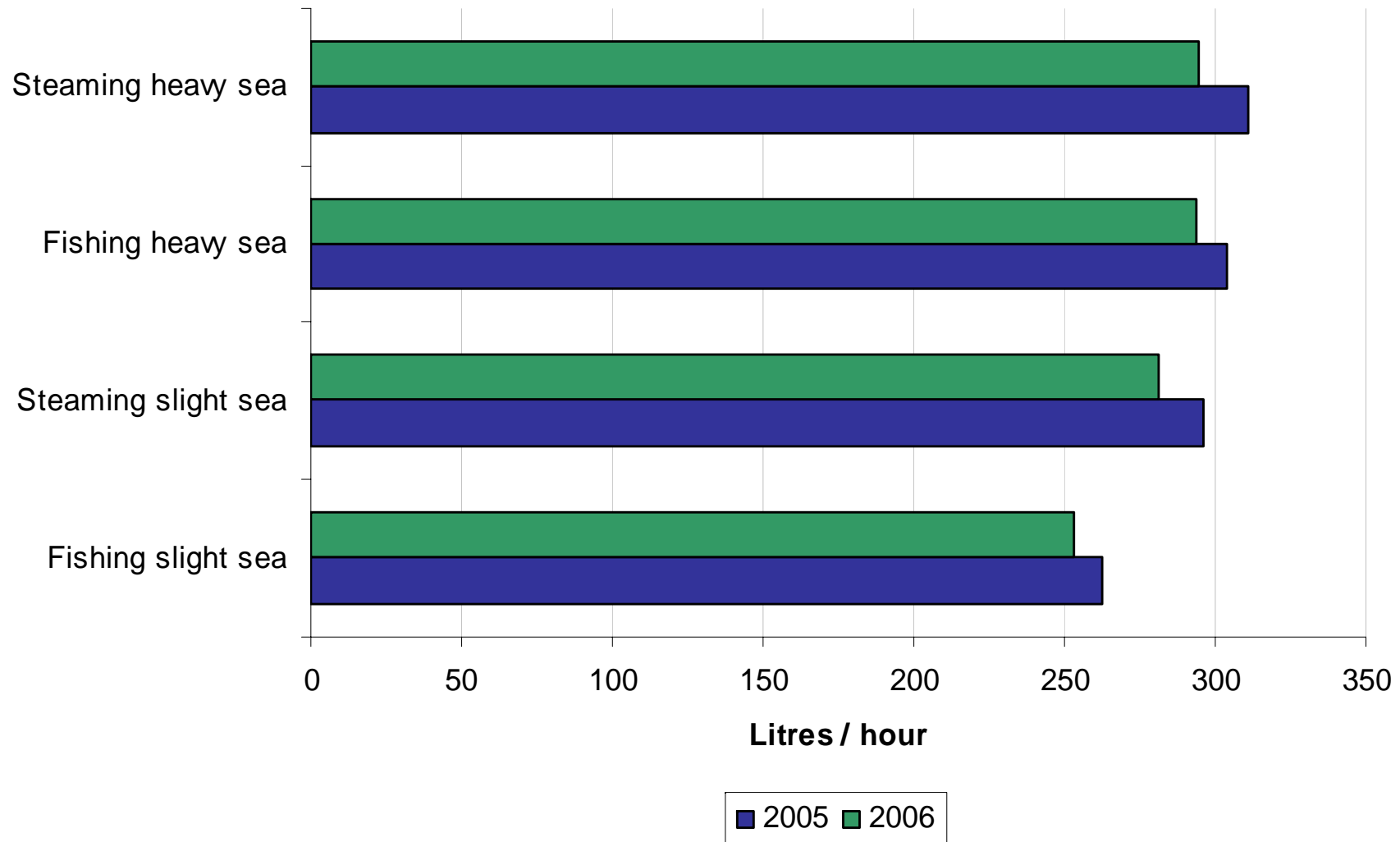
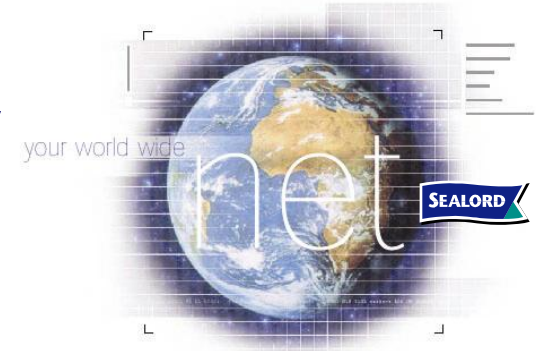


Thomas Harrison
CPUE_{energy}



Thomas Harrison

Fuel usage by activity before/after flow meter, same study period



Marine fuels

Thomas Harrison

Gross fuel usage

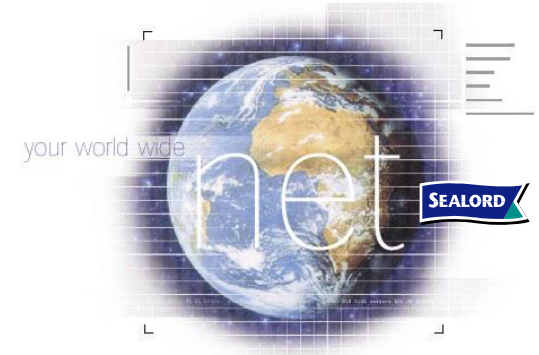
- Jan – May study period
 - 2005 - 767 tonnes
 - 2006 - 683 tonnes

- When adjusted for sea-days
 - 2005 - 4.7 tonnes/sea-day
 - 2006 - 4.3 tonnes/sea-day



Thomas Harrison

Summary

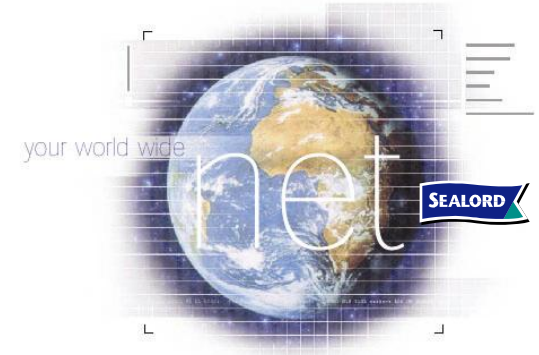


- If measured by activity 3-5% saving
 - If measured by $CPUE_{energy}$ 2% worse
 - If measured outright 11% saving
 - If measured by sea-day 9% saving
-
- Vessel was converted to LFO so flow monitor now on Otakou
 - Will savings continue?

Electrical Audit

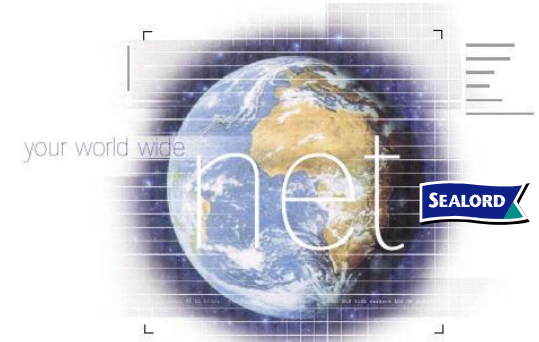
Work Completed

- Audits suggested
 - Air leaks
 - Variable speed motors
 - Compressor motors upgraded
- Behavioural change
 - Friday night freezing
 - leave over weekend
 - now on back off controls
 - Fill plates / blast where possible

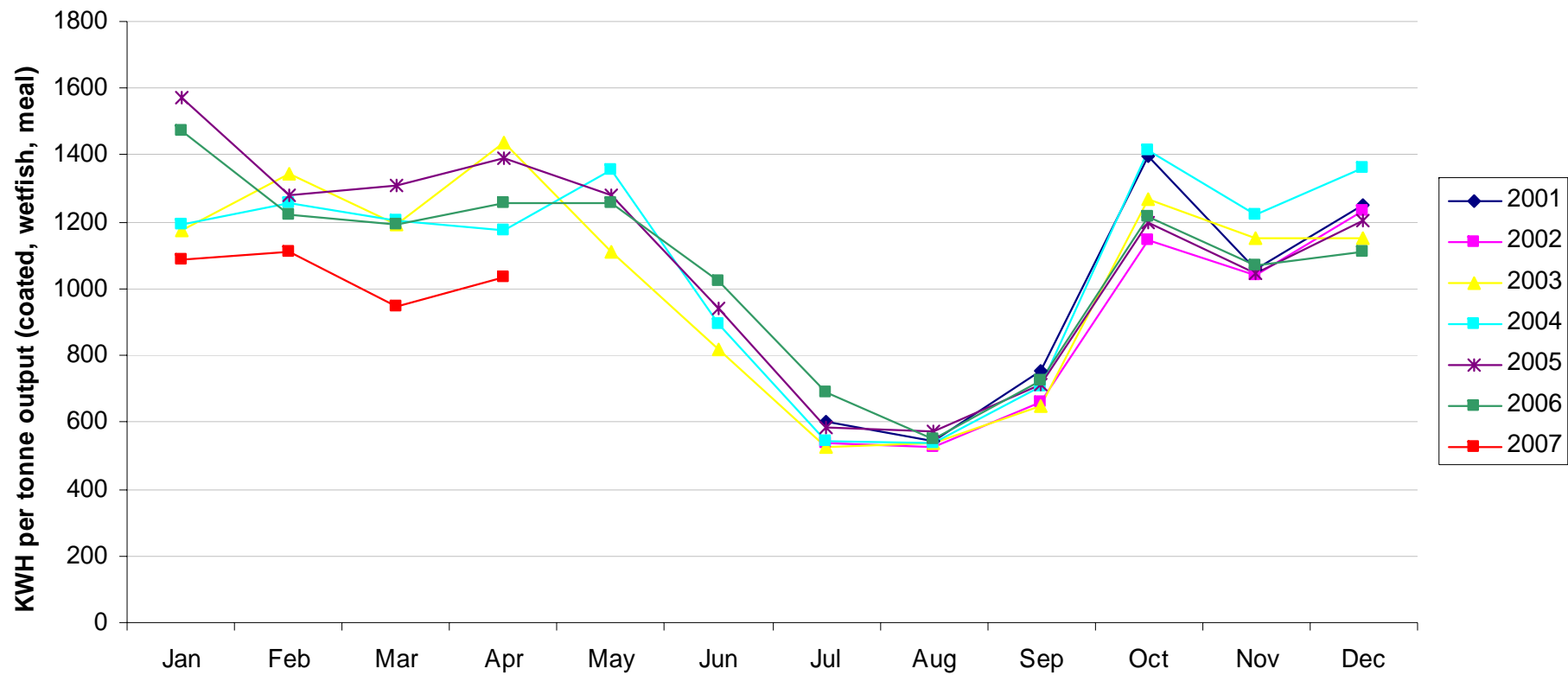


Electrical Audit

Consumption per unit of production



Electricity use per Tonne Output - Vickerman Street Site



Take Home Message



- Need operational champion (Engineer, Skipper)
- Find metric that includes activity
- No metric perfect, select least worst
- Need measurement at shortest interval possible
- Need *localised* reporting
- Audits great but then monitoring equipment removed
- Fuel monitoring + improved behaviour cost effective on MDO vessel, should translate to LFO vessel
- Electricity savings seem real