

TAFI

Tasmanian
Aquaculture
and Fisheries
Institute



Electronic data capture in the Tasmanian abalone fishery *Automatic depth loggers*

Craig Mundy

Marine Research Laboratories, TAFI
CSIRO-UTAS joint program in quantitative marine
science

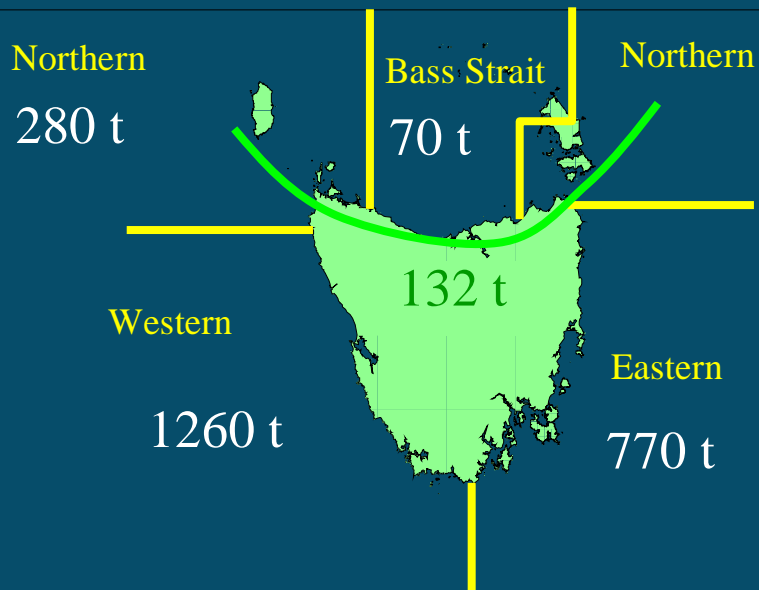


Overview – Tasmanian abalone fishery

- two species – *Haliotis rubra*; *H. laevis*
- ~ 123 divers
- 3500 quota units (~740kg/unit)
- substantial management change since mid 80's
- shift in market from canned to live (~60%)



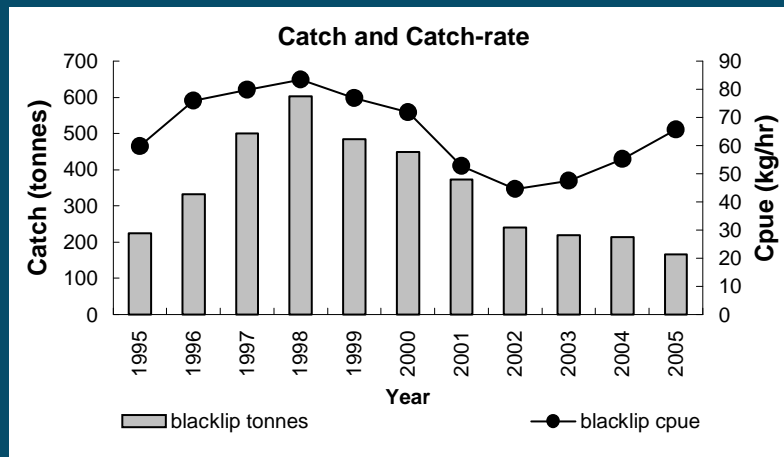
Fishery Zones (2005)



Stock Assessment by Past Experience

- Advantages
 - Intuitively reasonable
 - Easily understood
- Disadvantages
 - Things may no longer be the same
 - Predicting/forecasting the future is really difficult.
 - Can't evaluate alternate strategies

Past Experience



GIS tools and Tasmanian abalone fishery

Two Key Issues – data reporting

- Scale of fishing effort vs scale of reporting
- **Effort** is not recorded accurately
- Catch weight IS recorded accurately ??

→ Effort data recorded by diver at days end;

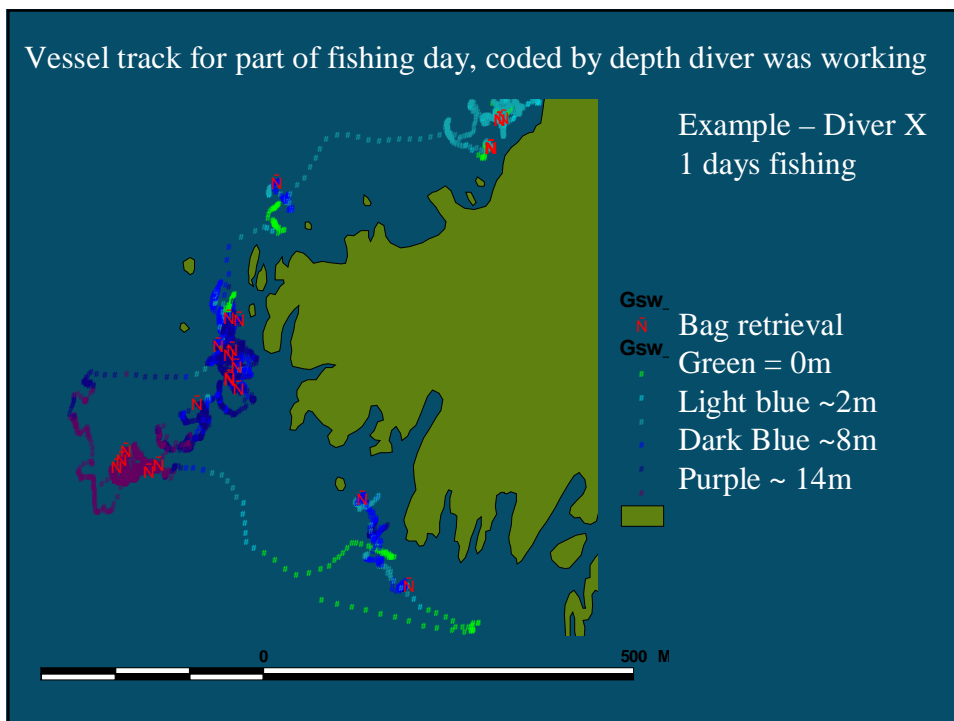
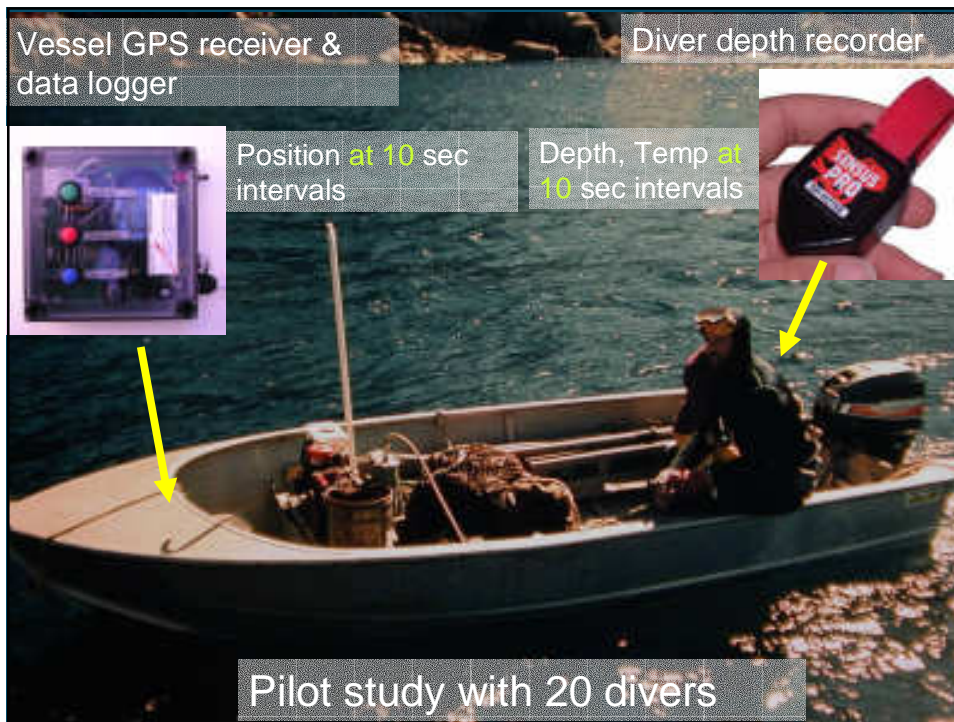
→ Hours spent fishing at

- <10m,
- 10m – 20m,
- & > 20m

→ Number of drops (dives)

→ Sub-block fished





Using Depth loggers to capture effort

- *Suggested benefits*
 - Cheap
 - *Accurate*
 - Robust
 - Simple process
- Flexible
 - Set recording interval (1 - 100 sec)
 - Set start depth (e.g. 1m)
 - Set “end dive” parameters
 - Provides temperature data

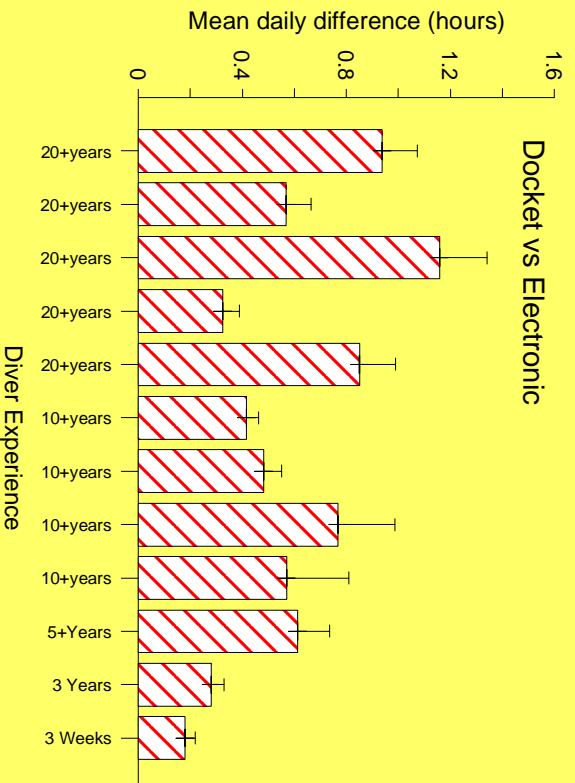


Using Depth loggers (DTR) to capture effort

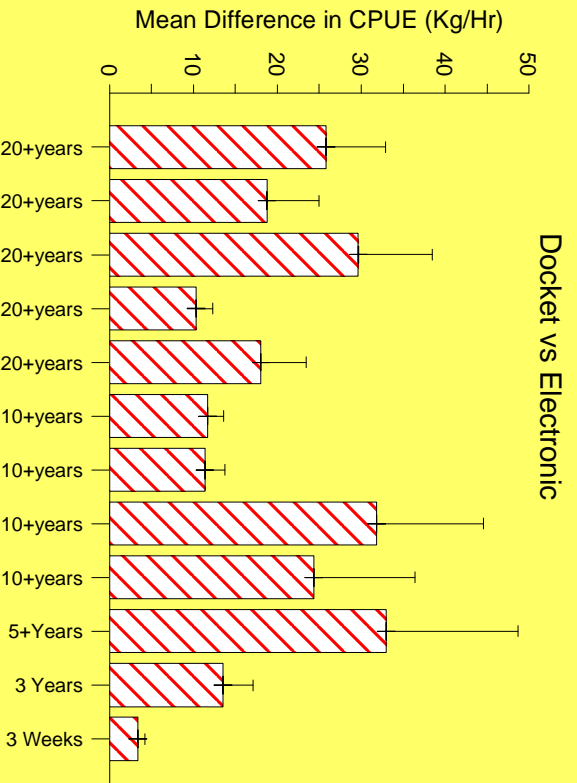
- *Key Question: is the data collected with DTR's comparable to normal data?*
 - Compared docket data with DTR data for 12 divers (range of diving experience)
 - Number of hours worked
 - CPUE (Kg/Hr)
 - Estimate of time at depth



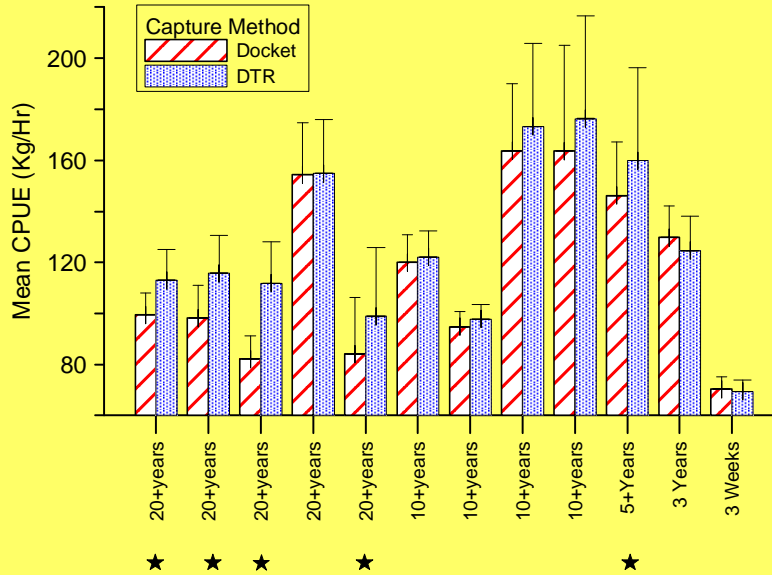
Using Depth loggers to capture effort



Using Depth loggers to capture effort



Using Depth loggers to capture effort



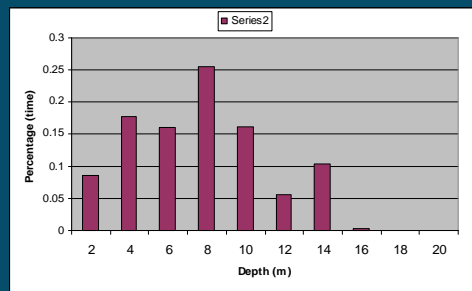
■ Accuracy of reporting time@depth Example – Diver X, 1 days fishing

Docket book – 6 hours
(4hrs@ ≤ 10m)
(2hrs@ > 10m)

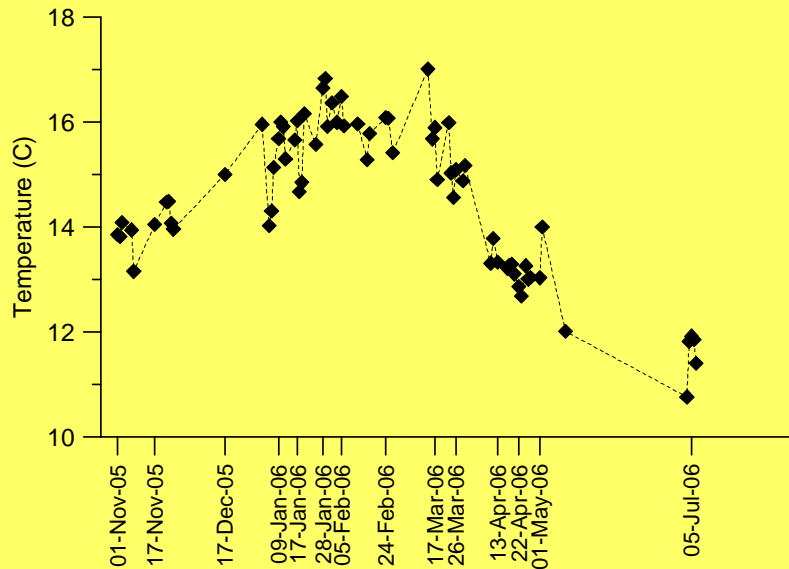
DTR – 6.5 hours
(5.5hrs@ ≤ 10m)
(1hr@ > 10m)

Diver under estimated
Proportion of time < 10m

DTR also provides
detailed depth data for
each dive (or each drop)



Using Depth loggers to capture effort



Summary of evaluation so far

- DTR units provide comparable data overall - needs more investigation
- Variability among divers in accuracy of reporting
- Provides more detailed and accurate data on depth
- Integrating the DTR data with the old system is problematic
- May work better in a NEW system for capture of effort

