environment
& tourism

Department:
Environment Affairs and Tourism
REPUBLIC OF SOUTH AFRICA

Management of Hake Longline Effort

June 2008

Consultation

- Various meetings held with right holders to:
  - explain the rational in managing capacity in the Hake Sectors.
  - request Associations to submit proposals on Models that can be used.

- Road map for managing capacity in the Hake fishery was developed.
  - First leap with the Trawl Sector, trials conducted 1st Sep 2008 and full implementation in 1st Jan 2008
  - Slight delays in the Longline Sector. It is envisaged that the same plan will be followed for the longline sector i.e Trial Period followed by Implementation Phase
  - Right holders should familiarize them selves with the model so as they can:
    - Understand economic implications
    - Submit necessary input parameters to Associations
  - Associations to very information then submit to the Department.
  - During trial period, Catch Permits might be amended.

Method Used

- The assessment has been based on three primary data set:
  - Historical (Experimental) Data
  - Commercial Log Book and Landing Returns from 2002-2007 (19 153 line set)
  - Observer Reports from Mid 2002 – March 2007 (59 boats, 2 442 line set)

Analysis of Data

- Data was split in to three groups:
  - Total sample i.e all areas
  - Data North of 33°S i.e longline grounds north of Cap e Town
  - Intermediate – data south of 33°S line and east of 2 0°E

- Average trip length was established
  - This includes estimating the average trip length assuming vessels depart from different ports.
  - Also required apportionment of effort between fishing days.
  - Time spent steaming to fishing grounds.
  - Port turn around times.
  - Lay-up periods expected.
  - **This is very important in the conversion of fishing days to calendar days.**

Analysis of Data (cont..)

- Identifying appropriate Effort Units and determine if there is a relationship between this unit and vessel size/capacity.
- Determining historical, seasonal and current catch rates so as appropriate catch volumes can be allocated to effort unit.
- Consolidating trip length estimates, fishing and calender days, effort units in to a practical effort management regime.

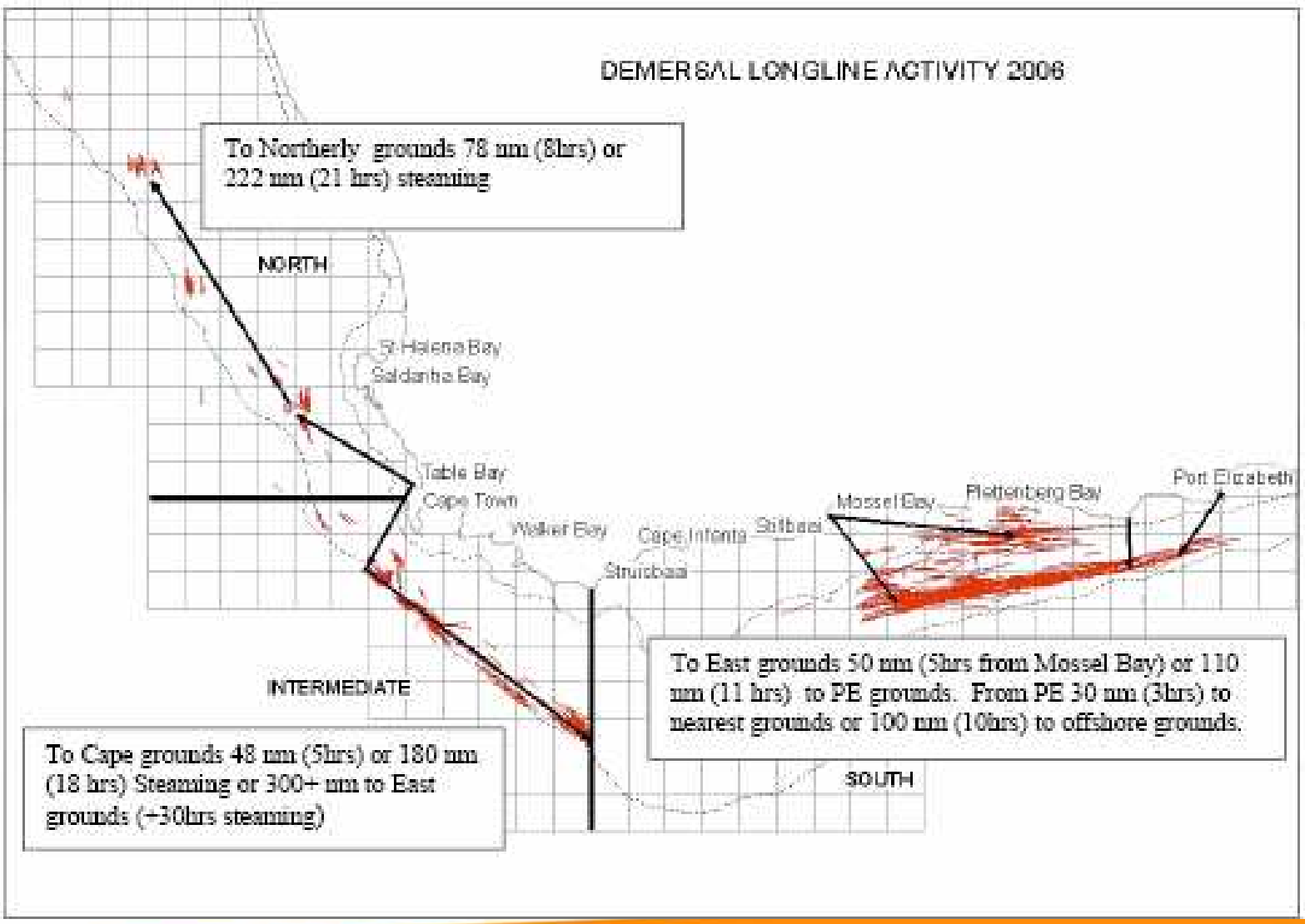
Results – Trip lengths

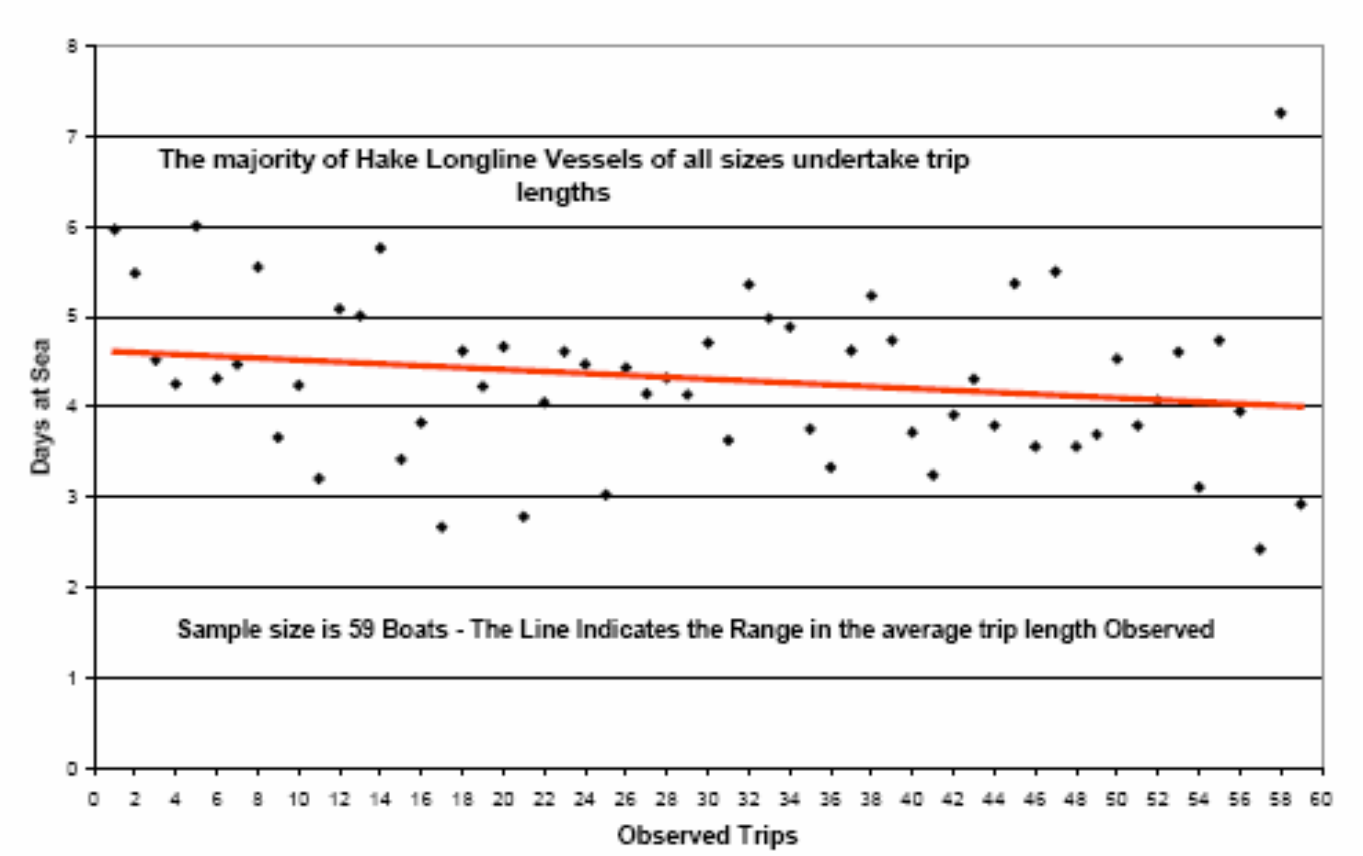
- Vessels sailing from East Coast targeting grounds off Cape Point
  - Steaming time short – vessel depart afternoon, lines are set between 2-3 am and hauling between 8-9 am till 17h00. returning vessels haul during the day & return to port at night.
  - Mostly 4 line set are completed – 4 fishing days, 3 days steaming to and from the grounds, discharge, re-provisioning and returning to the ground.

- Vessels Sailing for the North West Coast Grounds
  - Operational characteristics same as above but slightly longer steaming time.

- Vessels fishing the Easy Coast Grounds
  - Operational characteristics same as above but slightly shorter steaming time.

- Vessels sailing from the West Coast to East Coast and vice versa
  - Very rare due to limitations on permit conditions and economics


DEMERSAL LONGLINE ACTIVITY 2006
To Northerly grounds 78 nm (8hrs) or 222 nm (21 hrs) steaming
NORTH
St Helena Bay
Saldanha Bay
Table Bay
Cape Town
Walker Bay
Cape Infanta
Struisbaai
Stilbaai
Mossel Bay
Plettenberg Bay
Port Elizabeth
INTERMEDIATE
To East grounds 50 nm (5hrs from Mossel Bay) or 110 nm (11 hrs) to PE grounds. From PE 30 nm (3hrs) to nearest grounds or 100 nm (10hrs) to offshore grounds.
To Cape grounds 48 nm (5hrs) or 180 nm (18 hrs) Steaming or 300+ nm to East grounds (+30hrs steaming)
SOUTH



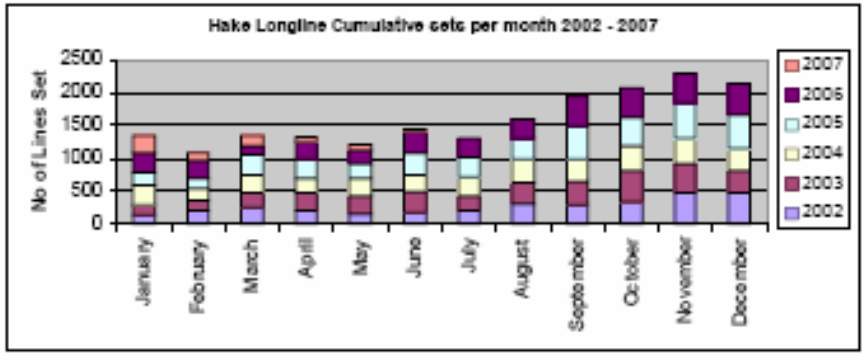
- For the purpose of Effort Calculations, it is suggested that the following parameters be used:
  - Average hake fishing days per trip is 4 days.
  - Steaming time, discharge and provisioning approximately 3 day combined.
- **A trip is considered to be 7 days from sailing time, discharge and preparation for the next departure.**

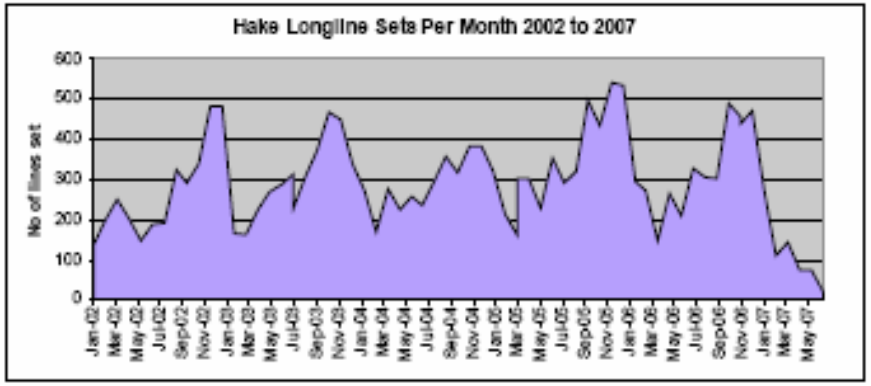
Results – Effort Levels

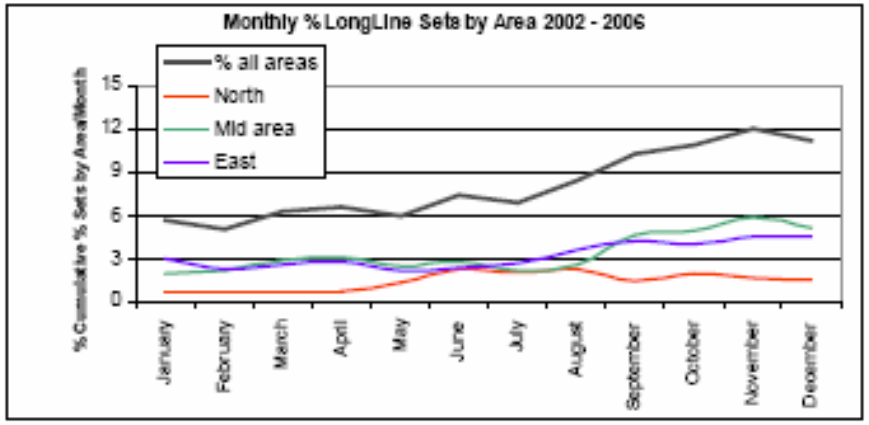
- Hake longline effort fluctuates monthly
- This fluctuations are influenced by

factors such as:

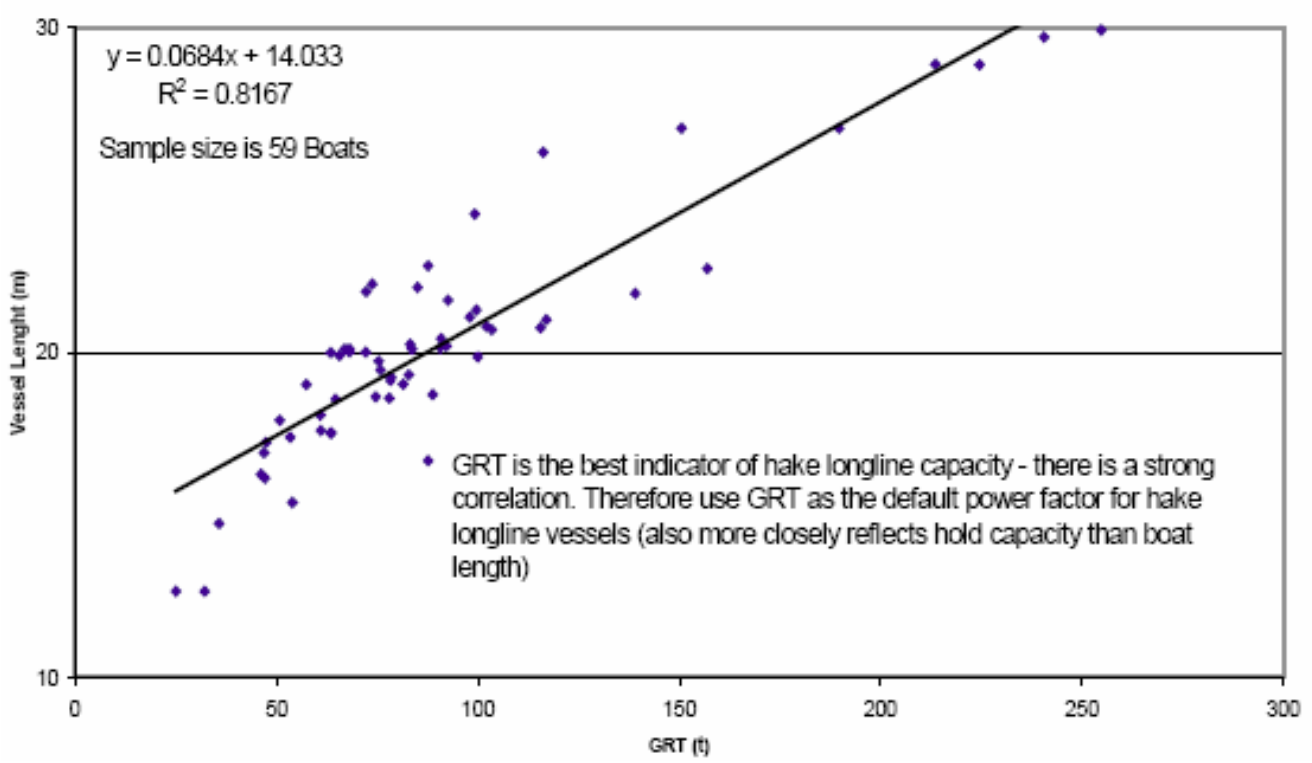
  - Weather
  - Markets
  - Completing allocation.





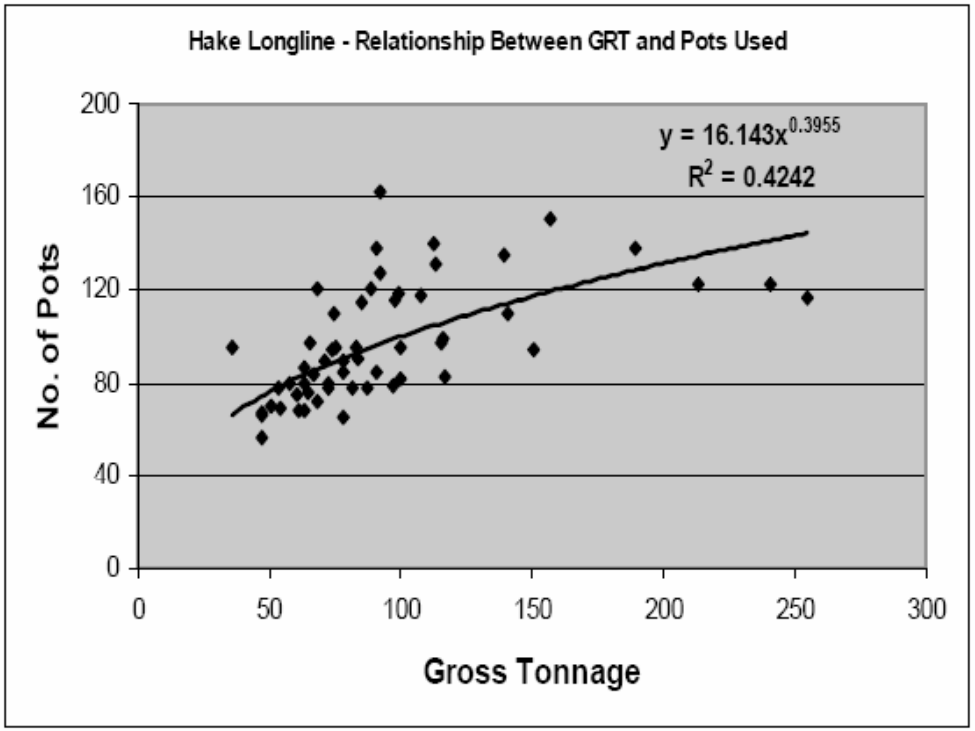


Result –Relationship between hooks, pots & boats



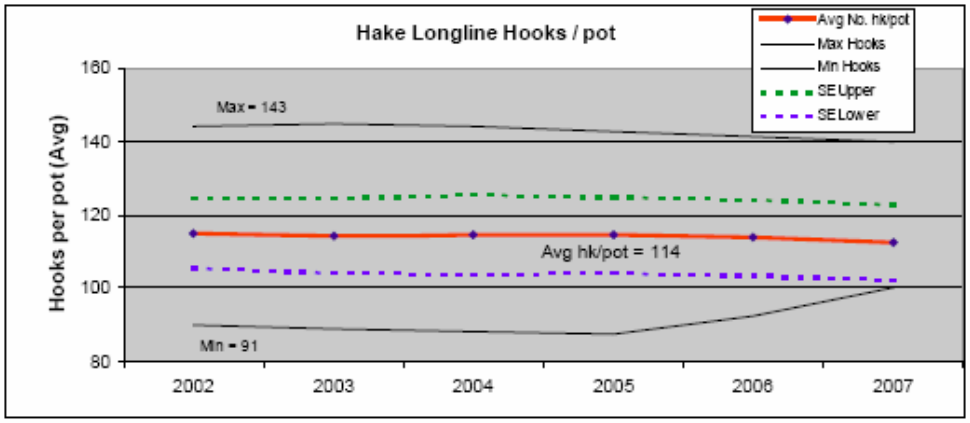
- An analysis was done and it was found that there is correlation between vessel length and vessel displacement.

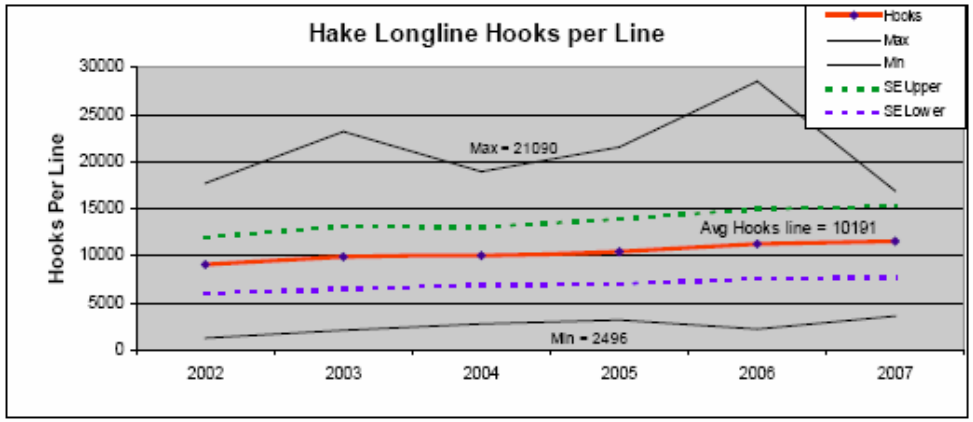
Result –Relationship between hooks, pots & boats (cont..)



- An analysis of vessel displacement and pots deployed per vessel was done.
  - Results suggested that larger bots do generally carry more pots.

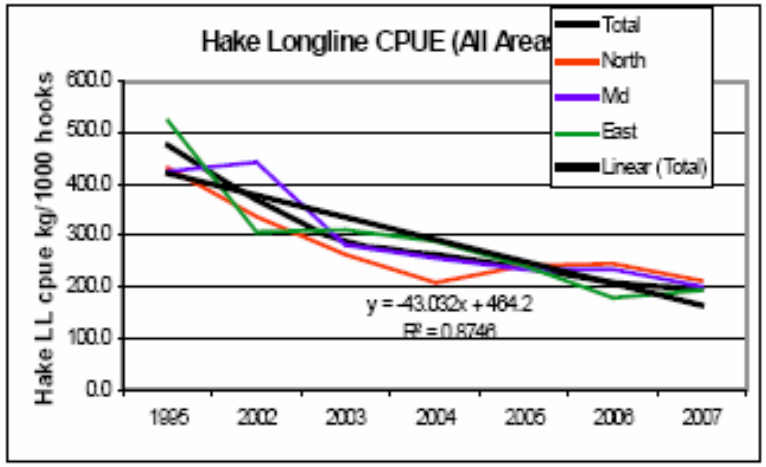
Result –Relationship between hooks, pots & boats (cont..)

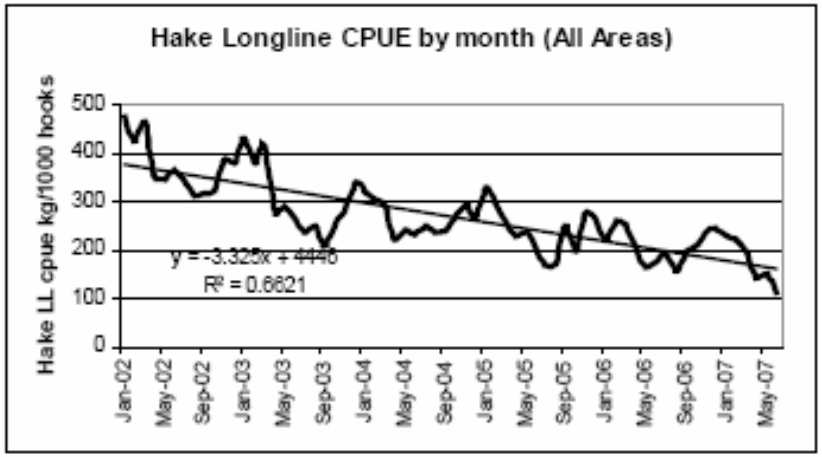


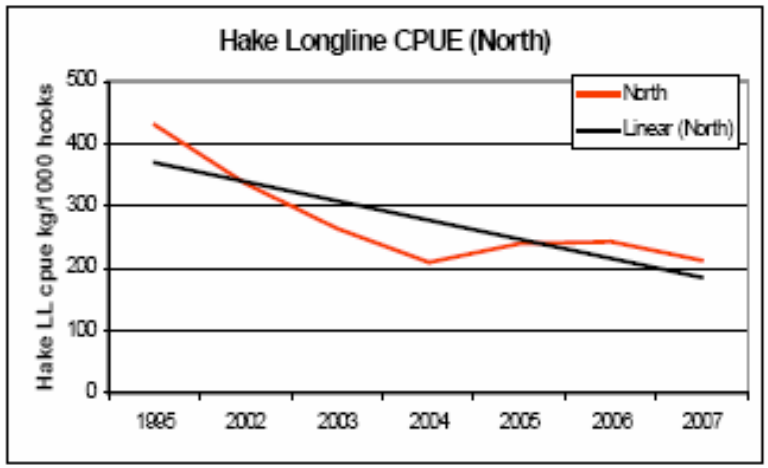


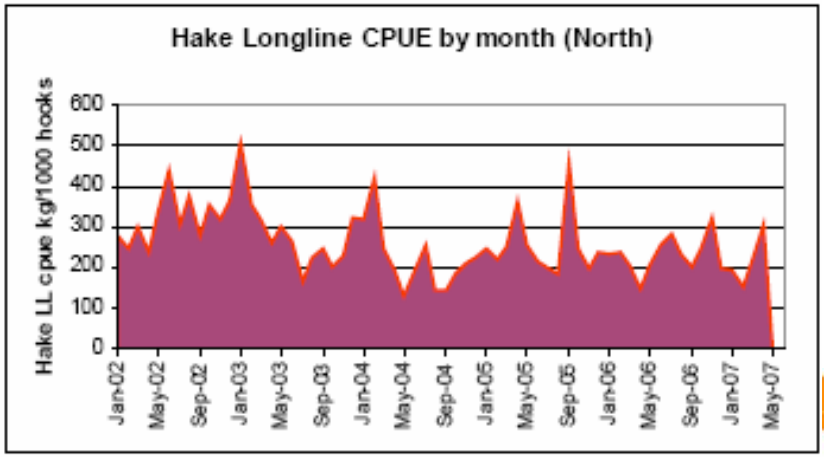
- For hake longline effort to be managed on the basis of number of pots, number of hooks per pot and pot size have to be standardized.
  - For this study maximum of 143 hooks per pot and a minimum of 91 hooks per pot.

Results – Hake Longline Catch rates









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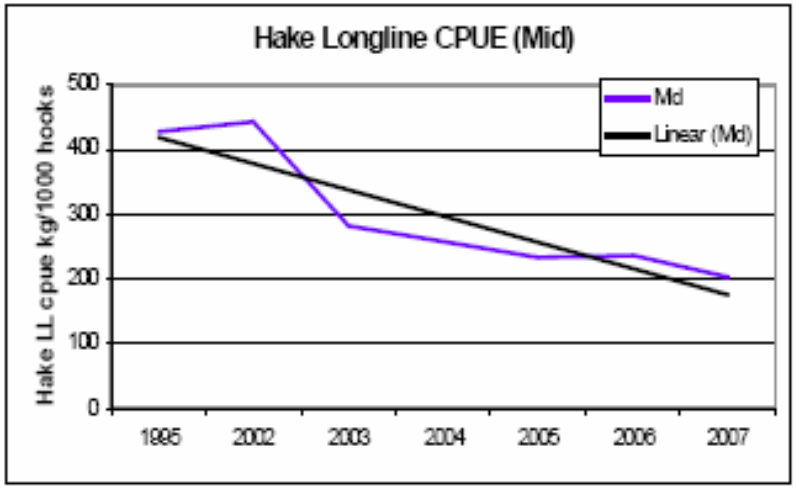
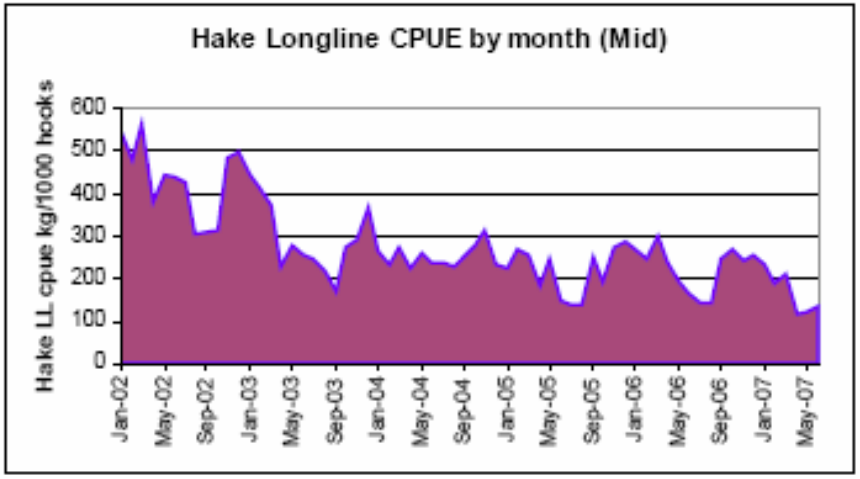
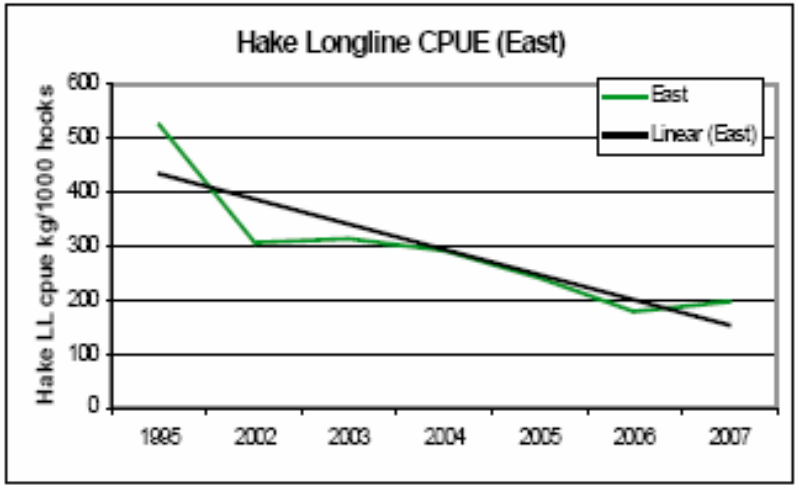
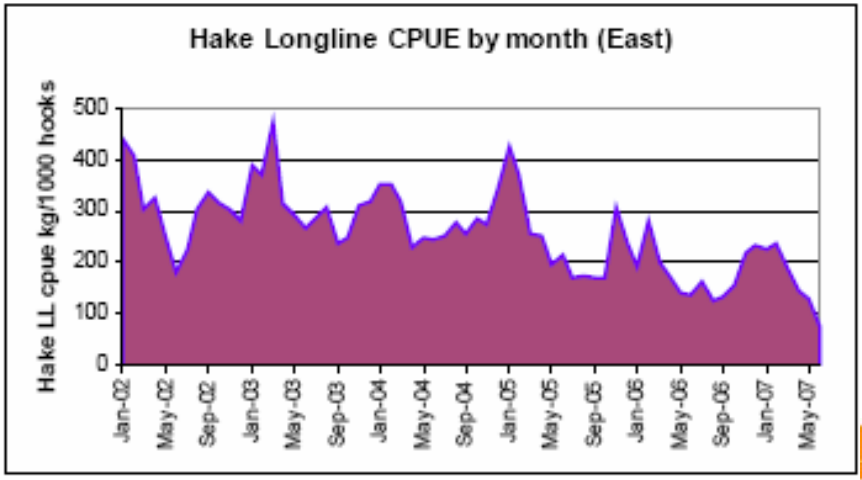
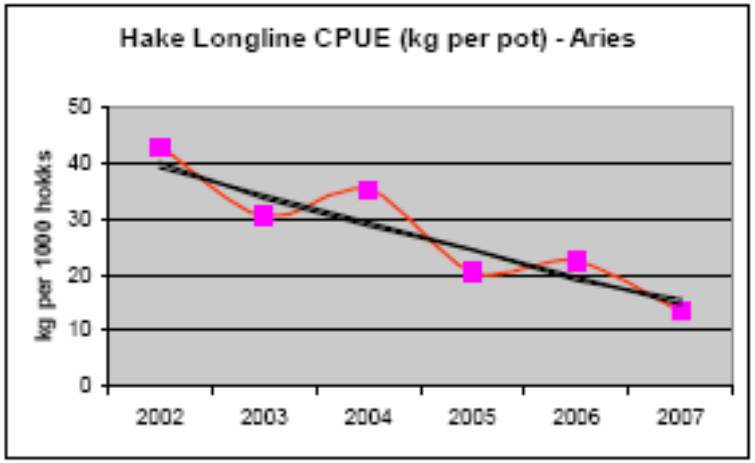


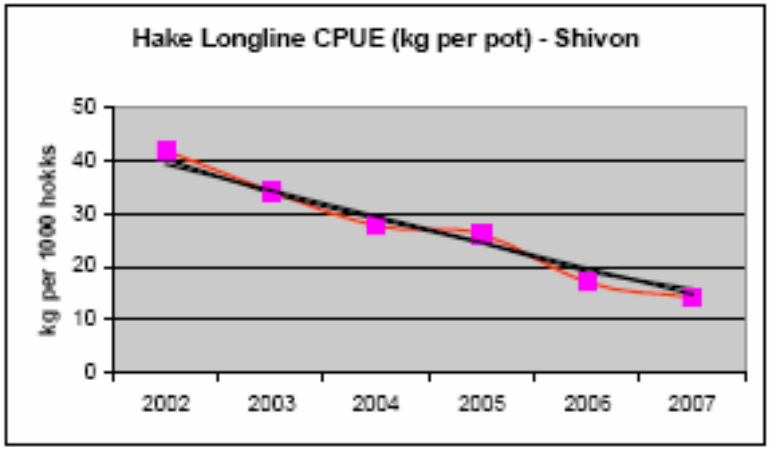


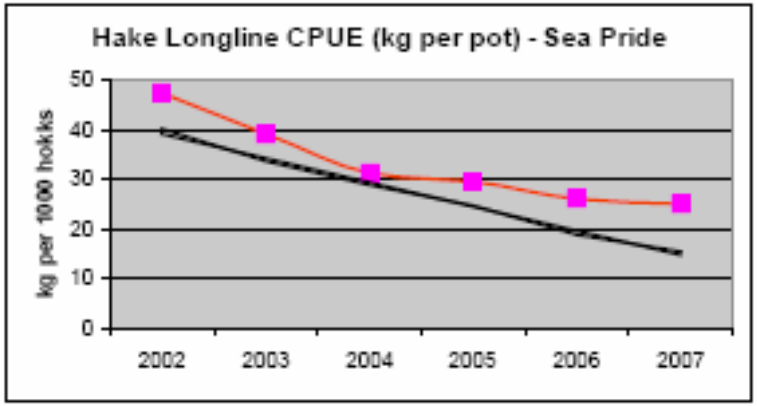


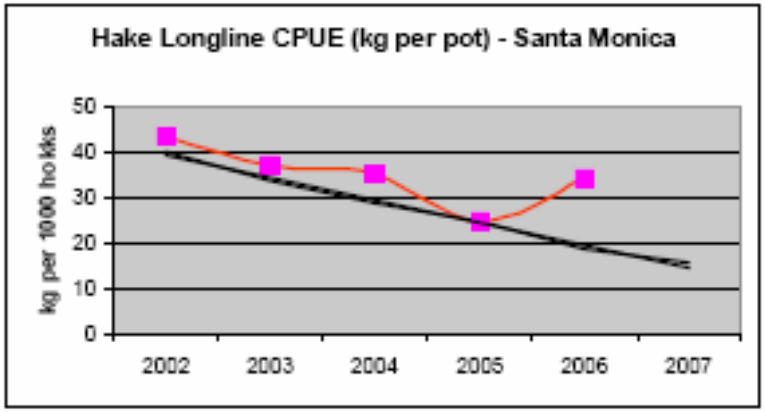


Results –Catch rates per vessel









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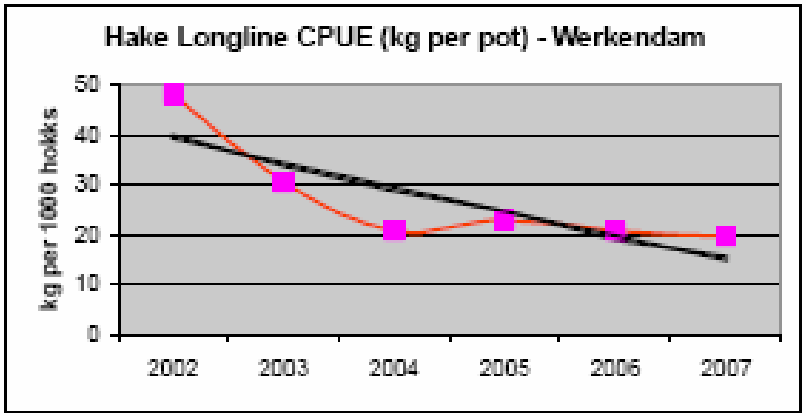

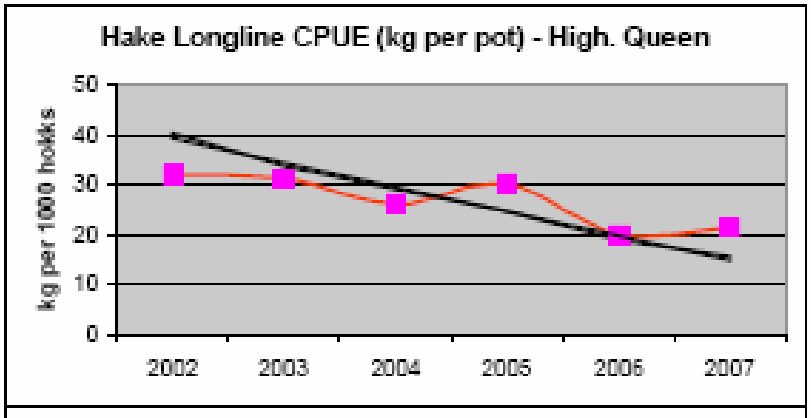

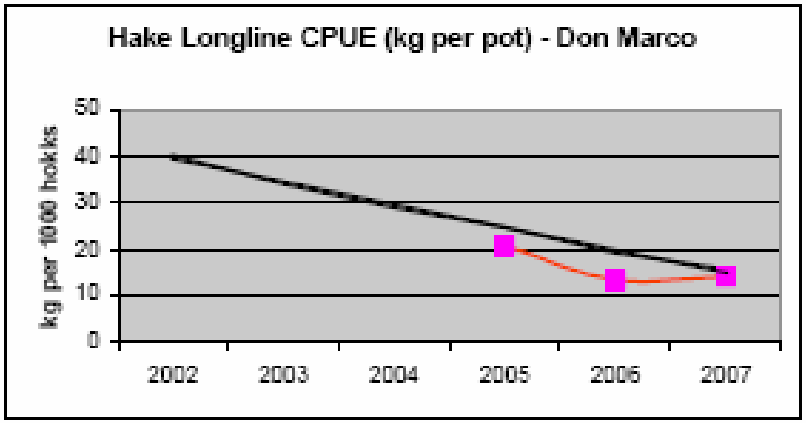

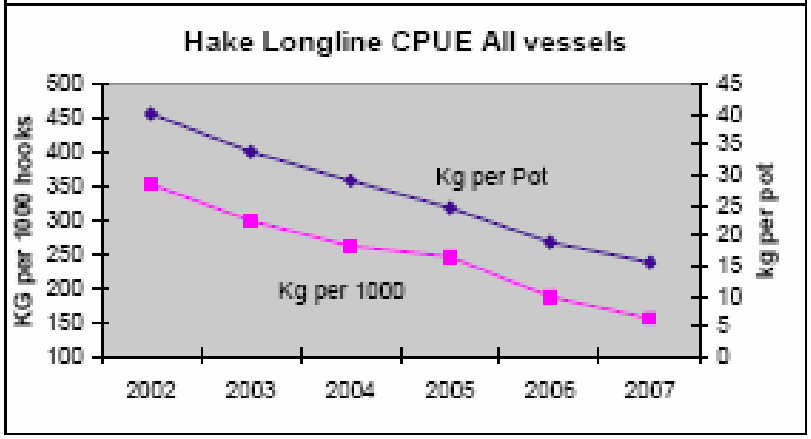

Conclusion –Catch rates per vessel

- Hake Longline CPUE has declined more than 50% since 1995 from about 460 kg/1000 hooks to less than 198.5 kg/1000 hooks.
- Monthly CPUE show similar downwards trend.
- Selected boat data show that the decline in CPUE has persisted in to 2007 and catch rate is estimated to be approximately 15.7 kg/pot.
- **For the purpose of hake longline effort management, the current CPUE of 15.7 kg/pot will be applied. This figure will need to be reviewed and updated.**

Conclusion

	Days per Annum	Comments
Assume 21-Day lay up (3 weeks)	21	Note HLL vessels generally do not fish all year
Days available (Fishing)	344	No of days available for fishing
Max trips PA (7-day turnaround)	49.1	Assumes 7 day start of trip, to sailing again = 4 days fishing, 3 days steaming and turnaround
Max days setting lines (fishing)	196.6	
Max steaming and turnaround days	147.4	49.1 trips x 2 days steaming
Ratio Fishing : Calendar days	0.5385	Gives an index for converting sea days to calendar days = 196.6 / 365