



# STATUS OF THE SOUTH AFRICAN MARINE FISHERY RESOURCES



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# INTRODUCTION

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- This report is a summary of the collective effort of the research team in the Fisheries Branch of the Department of Agriculture, Forestry and Fisheries over the past 100+ years
- Report covers all of the managed fishery resources
- For each resource it provides:
  - Quick-view assessment of resource status
  - Introduction to the resource
  - History and management
  - Research and monitoring
  - Current status and future projections



**Mandela Day Celebrations at the Seapoint Research Aquarium**



# TODAY'S PRESENTATION

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- Summary of the status of the marine fishery resources as a whole
- Detailed overview from the report on key resources:
  - Cape hakes
  - Abalone
  - West Coast rock lobster
  - Linefish

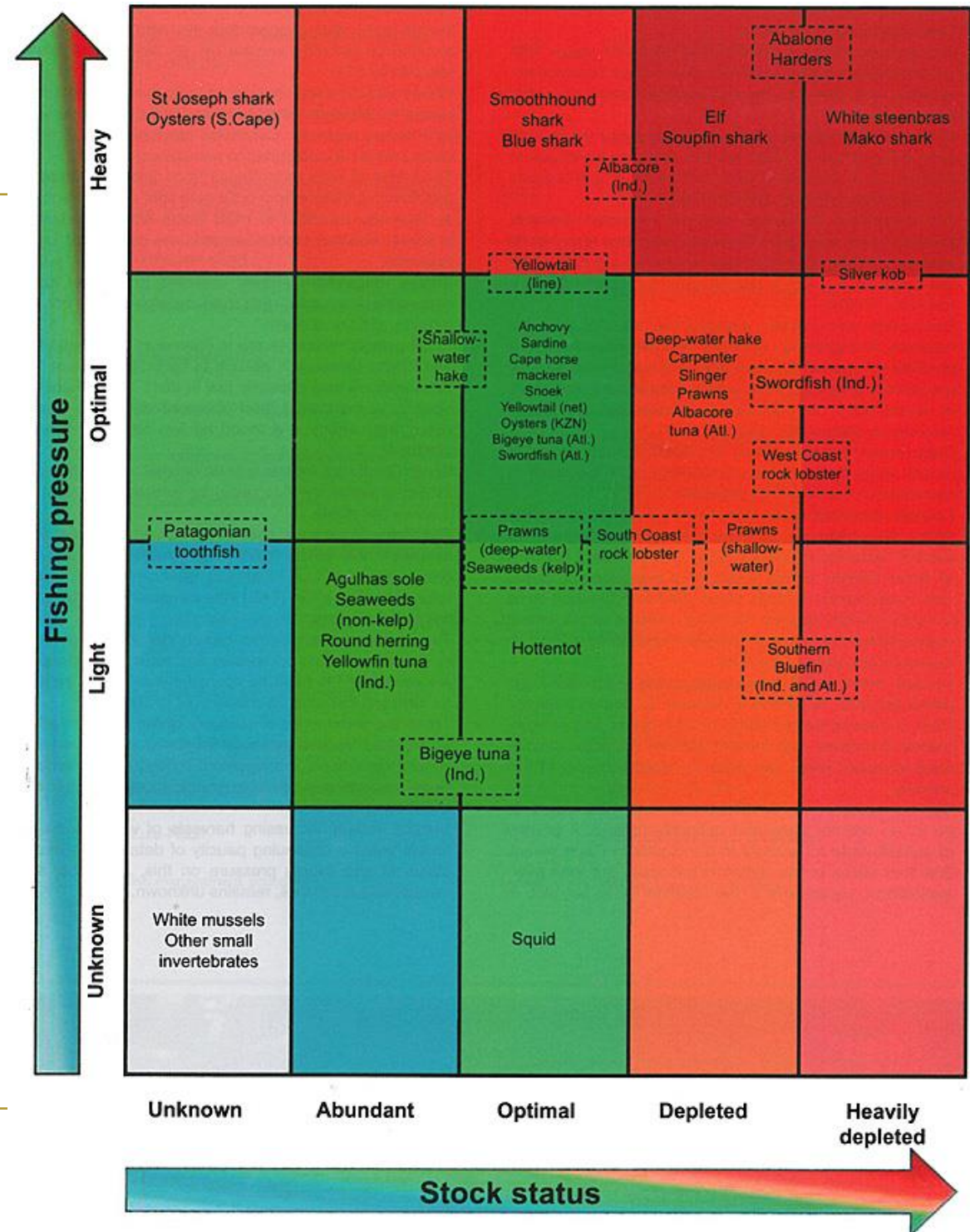


**A South Coast rock lobster has its vital statistics recorded**



# SUMMARY

- **Stock status – current status, resulting from historical fishing**
- **Fishing pressure – current level of fishing on resource**
- **Depleted and experiencing heavy fishing pressure = 18%**
- **“Healthy” (stocks abundant or optimal and fishing pressure light to optimal) = 45%**
- **General trend – near-shore, more accessible resources more likely to be over-fished**

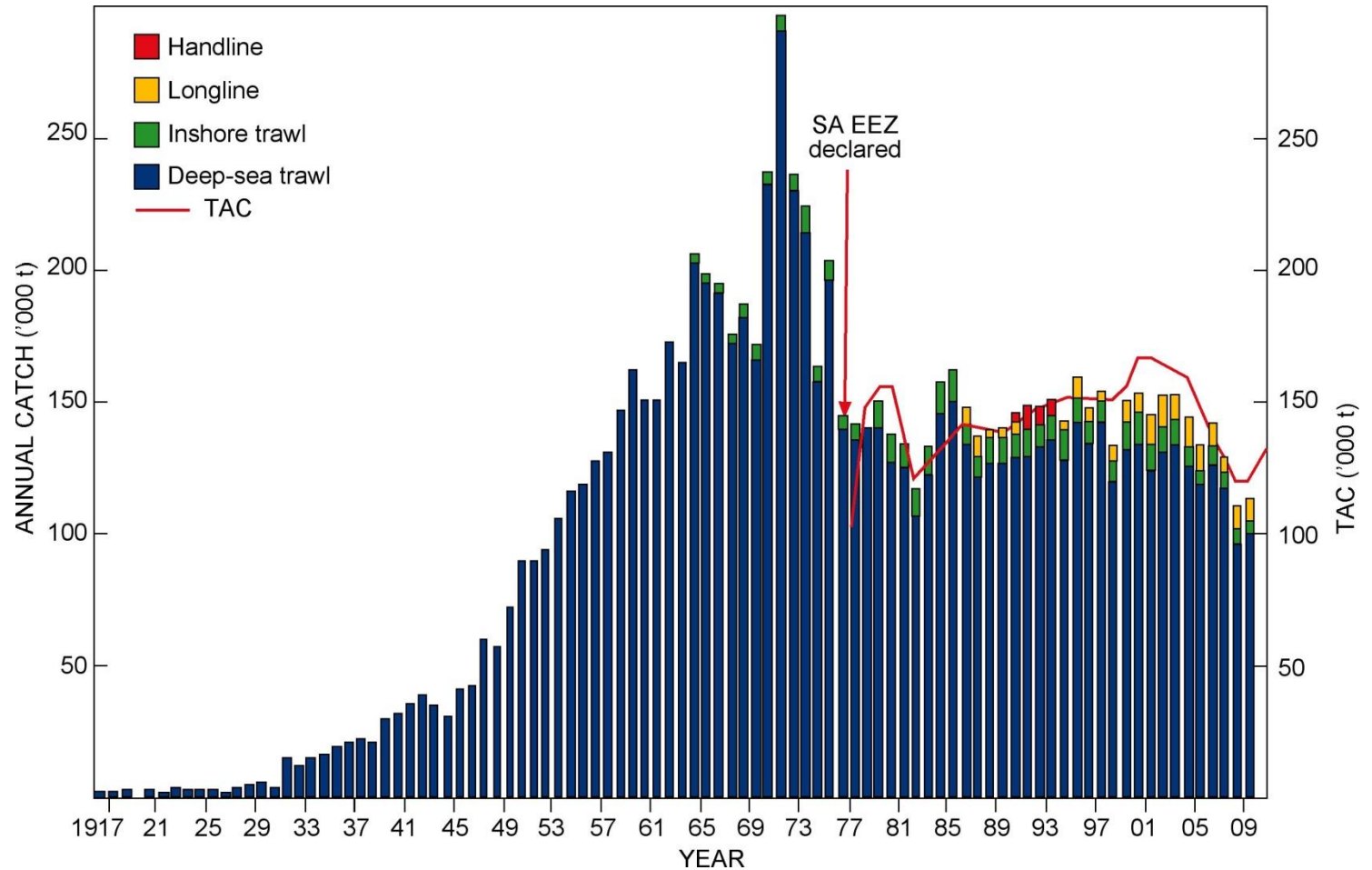


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# CAPE HAKES

- **Shallow-water and Deep-water hakes**
- **Trawl (inshore & offshore), longline and handline**
- **Value equals that of all other SA marine fisheries combined**
- **Only South African fishery certified by the Marine Stewardship Council**



Annual catches of Cape hakes landed by the various fishing sectors off South Africa, 1917 - 2010



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# CAPE HAKES CONTINUED...

- **2006 assessments indicated shallow-water hake under-utilised, deep-water hake over-exploited**
- **Operational Management Procedure (OMP) aimed at recovering abundance of deep-water hake**
- **TACs reduced from 2007 to 2009, and in response catch rates have increased as predicted and TACs are increasing**
- **Resource status now far more optimistic, and deep-water hake is approaching its target level more rapidly than expected**

|   | Deep-water hake | Shallow-water hake |
|---|-----------------|--------------------|
| Depletion<br>(current biomass as % of pre-fished) | 21 %            | 68 %               |
| Target<br>(MSY biomass as % of pre-fished)        | 24 %            | 36 %               |
| % progress towards target                         | 88 %            | 182 %              |

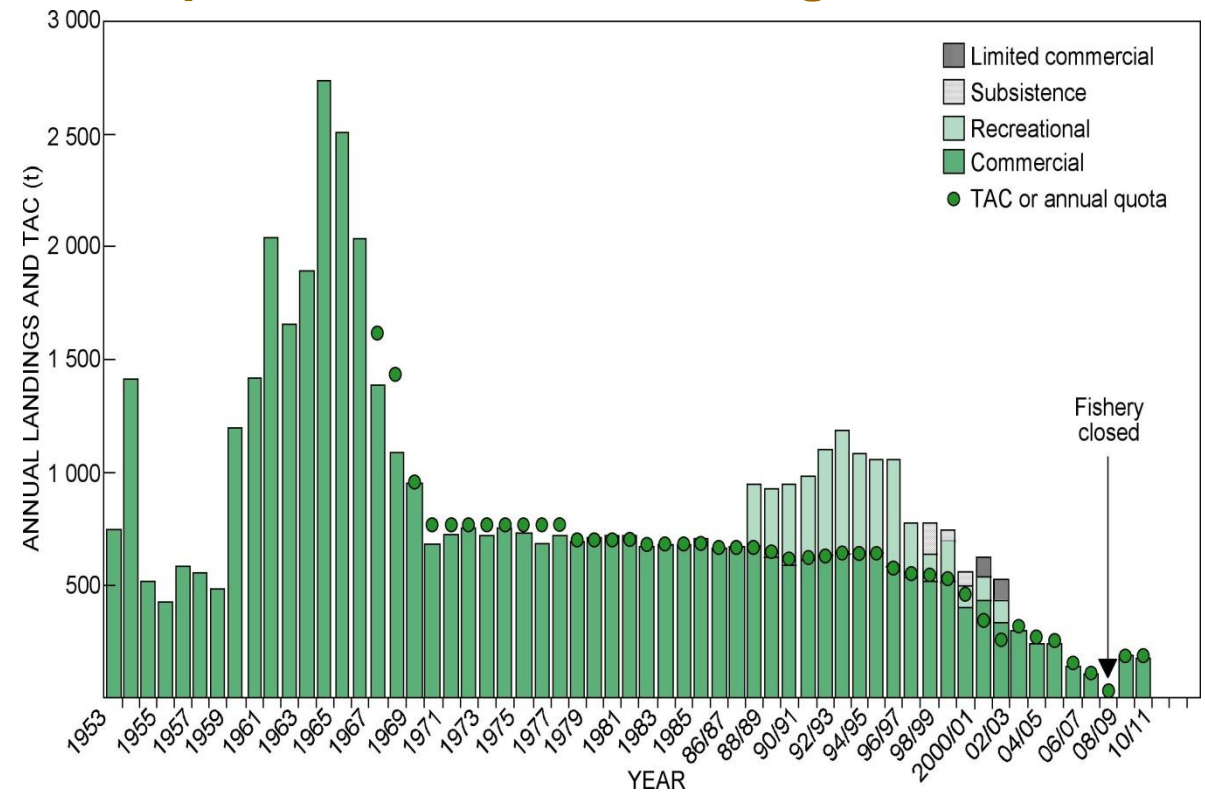


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# ABALONE

- Resource suffered serious decline despite best efforts at management (e.g. closure of recreational fishery, drastic TAC reductions, area closures, TURF system)
- Recreational fishery closed in 2003
- Commercial fishery closed in 2008
- Commercial fishery conditionally re-opened in 2010



The total allowable catch (TAC) and recorded (legal) annual landings for the abalone fishery from 1953 to 2010/2011. Landings for the recreational sector are only available since 1988/89. Note that the substantial recent illegal catches are not shown.

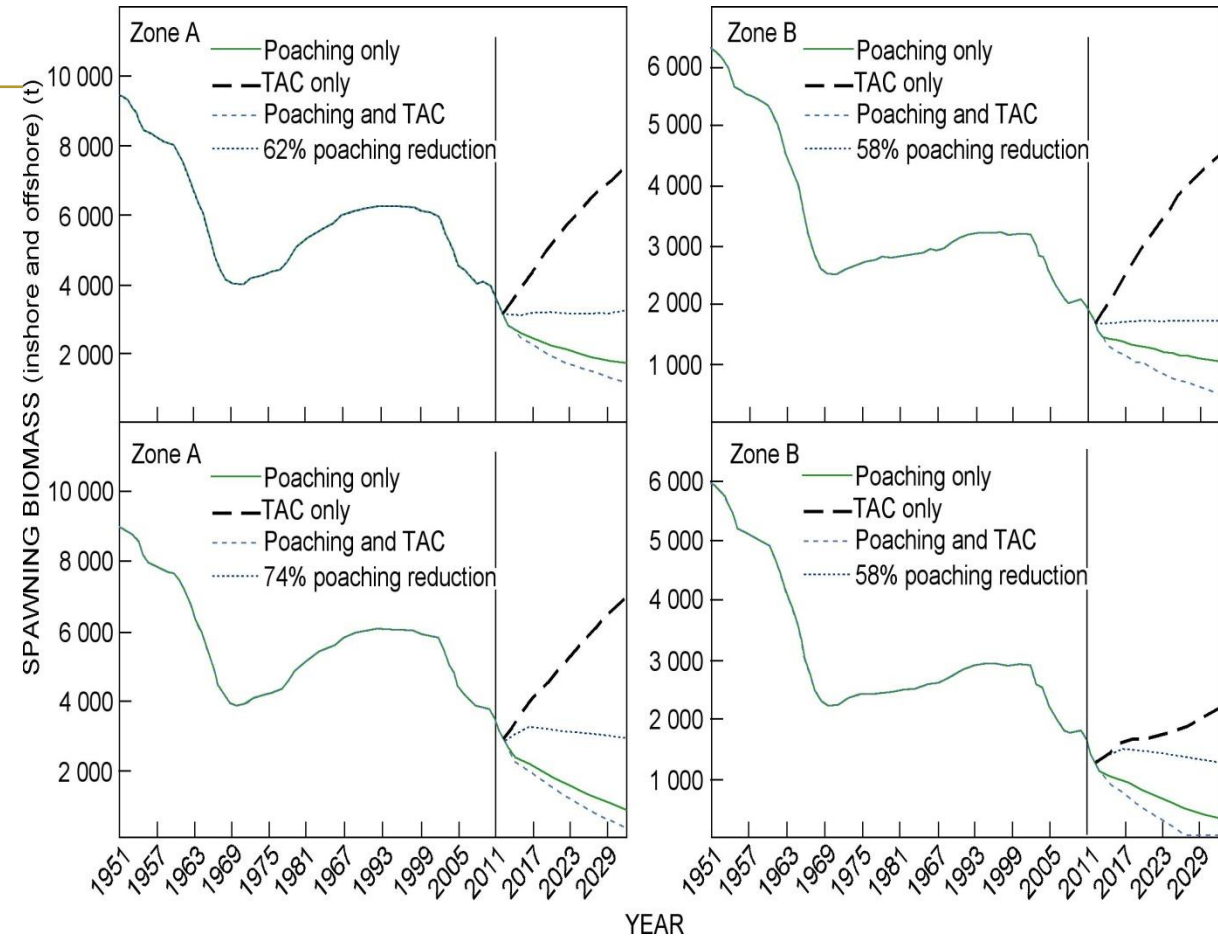


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# ABALONE CONTD...Zones A & B (Gansbaai to Buffeljags)

- Resource continues to decline due to poaching
- Projections indicate recovery is possible if poaching can be reduced
- Recovery plan includes gradual increases in TACs if poaching can be reduced by 15% percent/year



Total spawning biomass trajectories shown for Zones A and B. The 20-year projections shown (after the vertical bar) represent four different scenarios of future commercial and poaching catches. Unless set to zero, future poaching levels are assumed to remain at the estimated current level, and future commercial catches are set to the current TAC of 50 t per zone.

The top 2 plots show projections where no Allee effect is taken into account, whereas the bottom two plots include an Allee effect. The first projection scenario (solid line) assumes that poaching remains at current levels, and the TAC is zero. The additional three projection scenarios are included to illustrate spawning biomass trajectories if:

- (i) the current TAC remains but poaching is stopped completely (bold dashed line),
- (ii) Both the current TAC and poaching continues at present levels (dashed line),
- (iii) The calculated required reductions in poaching necessary to keep the resource stable at current levels under the current TAC (dotted line).



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# ABALONE CONTD...Other Zones

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- **Zones C& D (Hangklip to Hermanus)**
  - Resource continuing to decline due to poaching
  - Incursion of rock lobsters hampers recruitment
  - Zero TAC set for these zones
  
- **Zones E, F & G (West Coast)**
  - Indications of increased poaching in these zones
  - Natural productivity and reproduction low
  - Stock status assumed relatively stable for now
  
- **Eastern Cape**
  - 3-year experimental fishery under way to determine resource abundance and productivity



Abalone in their natural environment

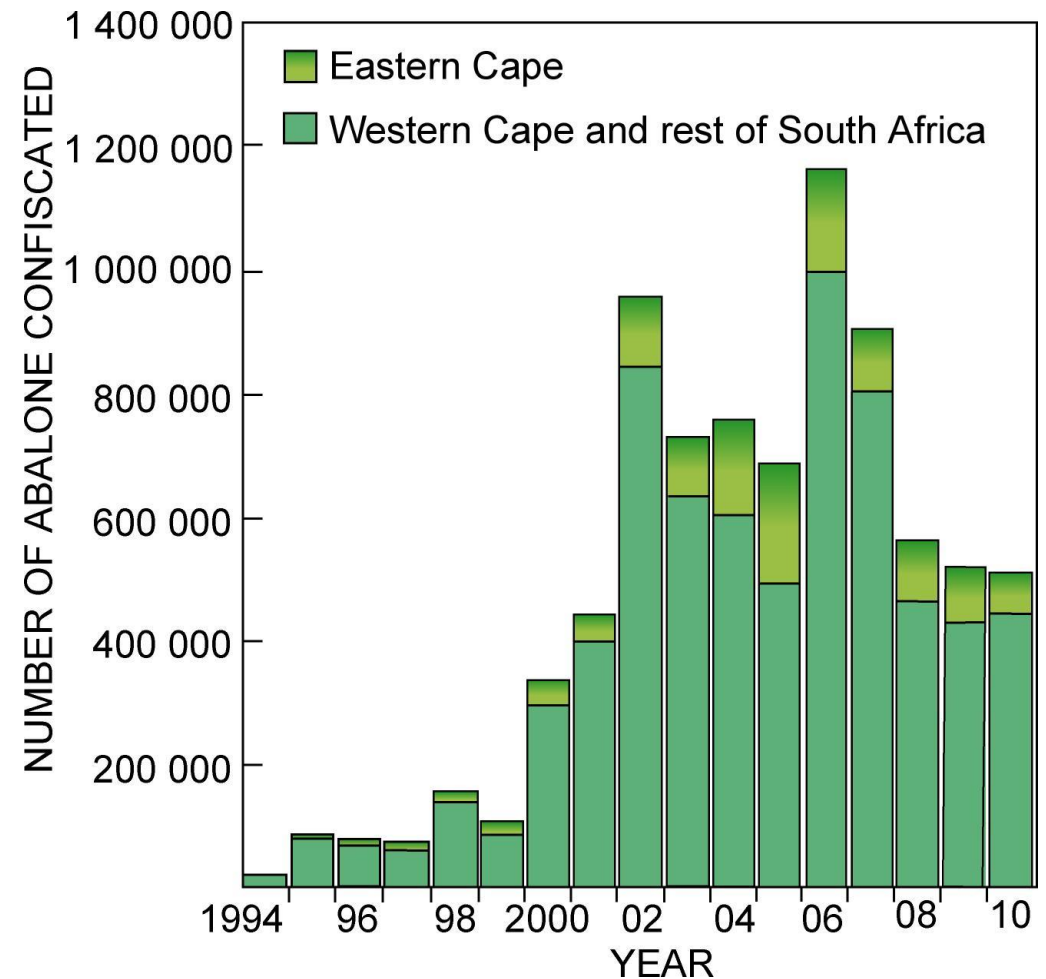


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# ABALONE CONTD...Poaching

- There has been a 40% increase in compliance effort in the last few years
- However, poaching continues to increase
- 60% of poached abalone below reproductive age
- Levels of poaching are far higher than the total estimated sustainable catch from the resource



Number of abalone confiscated annually from 1994 to 2010



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# WEST COAST ROCK LOBSTER

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- Generates +/- R400m per year, employs +/- 4 200 people
- Traditionally focused on the West Coast, but resource shifts resulted in three new areas being opened up East of Cape Hangklip



A catch of West Coast rock lobster



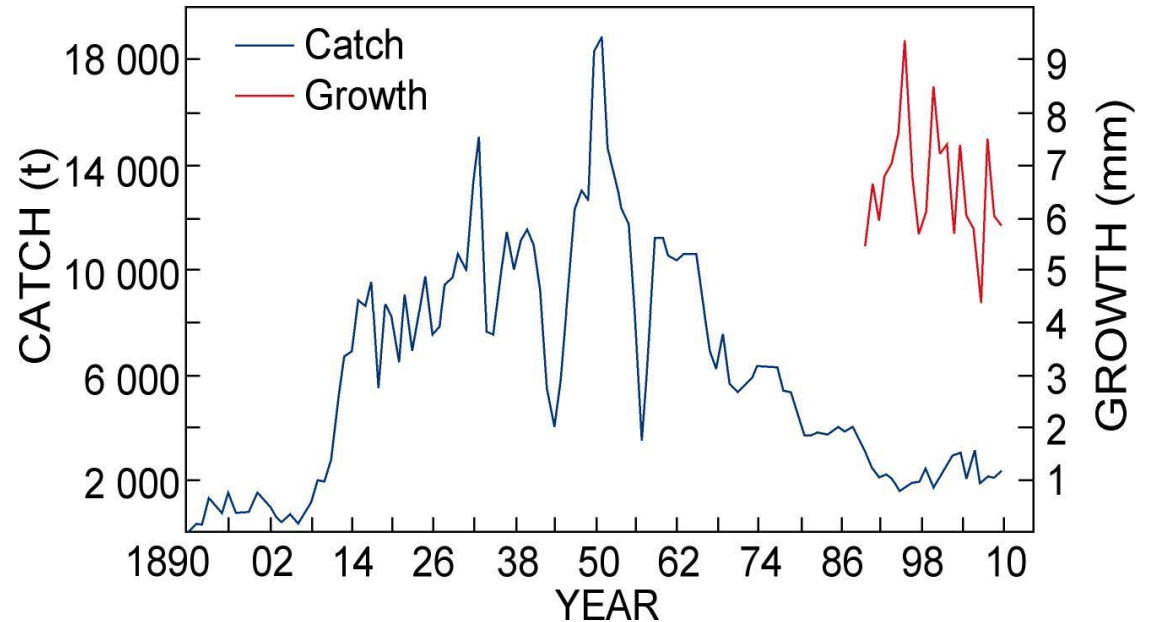
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# WEST COAST ROCK LOBSTER CONTD...

➤ Declines in catches since the 1950s-1960s had a number of causes, including:

- Changes in fishing methods
- Stricter control of catches
- Declines in abundance
- Reduced growth rates
- Environmental changes



Historical catches of West Coast rock lobster (1890 – 2010), with the associated trend in growth indicated for the period post-1990.

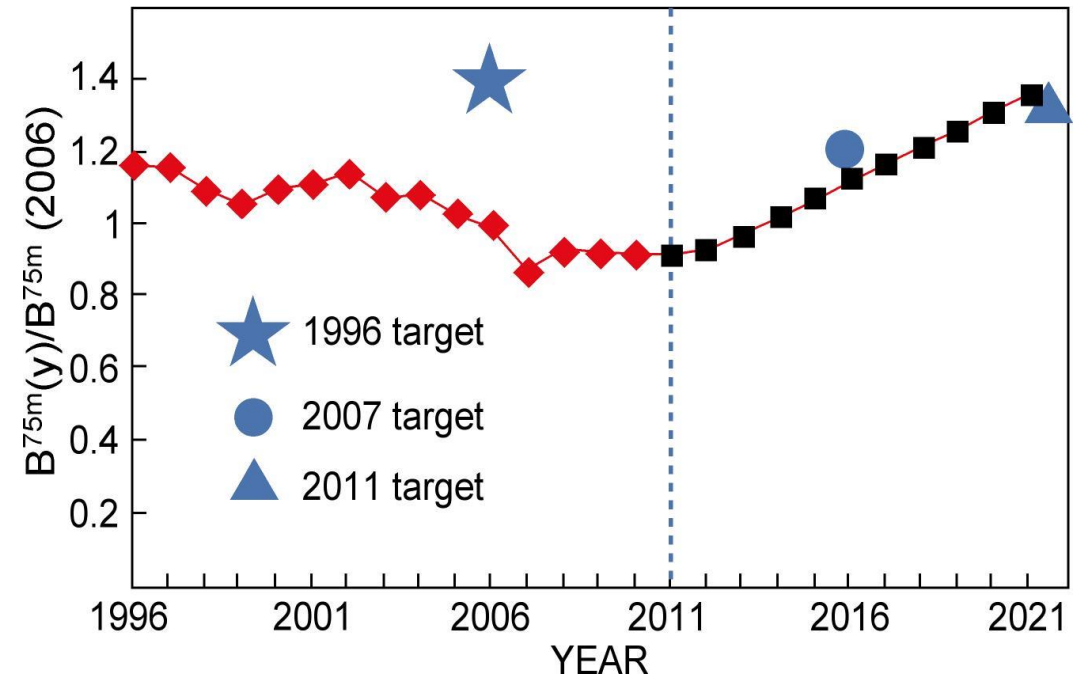


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# WEST COAST ROCK LOBSTER CONTD...

- Resource is currently severely depleted (estimated at 3.5% of pre-fished levels for males larger than 75mm carapace length)
- Recovery plan aims to recover resource by 35% (i.e. to 4.8% of pre-fished levels) by 2021
- Indications are that the resource is responding, but it is still too early to say with certainty



Biomass recovery targets for the 1996, 2007 and 2011 OMPs for West Coast rock lobster. The recovery targets are expressed as a proportion of the biomass estimated for 2006. The vertical line indicates the current position in time. Values to the right are predicted median estimates of resource recovery for the 35% recovery option.



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# LINEFISH

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- **Multi-species, multi-sectoral fishery**
- **Subsistence & small-scale sector includes 8 000 recognized fishers, 85% of whom harvest linefish**
- **Commercial boat-based fleet has 455 boats, but only contributes 6% of total value of marine fisheries**
- **Recreational sector includes +/- 4 000 boats and >40 000 people who purchase permits annually.  
Spin-off revenue estimated into the billions of Rands annually**
- **Linefish also caught as by-catch in a number of other fisheries, including trawl and trap fisheries**



**White steenbras relax in the safe haven of the Two Oceans Aquarium**

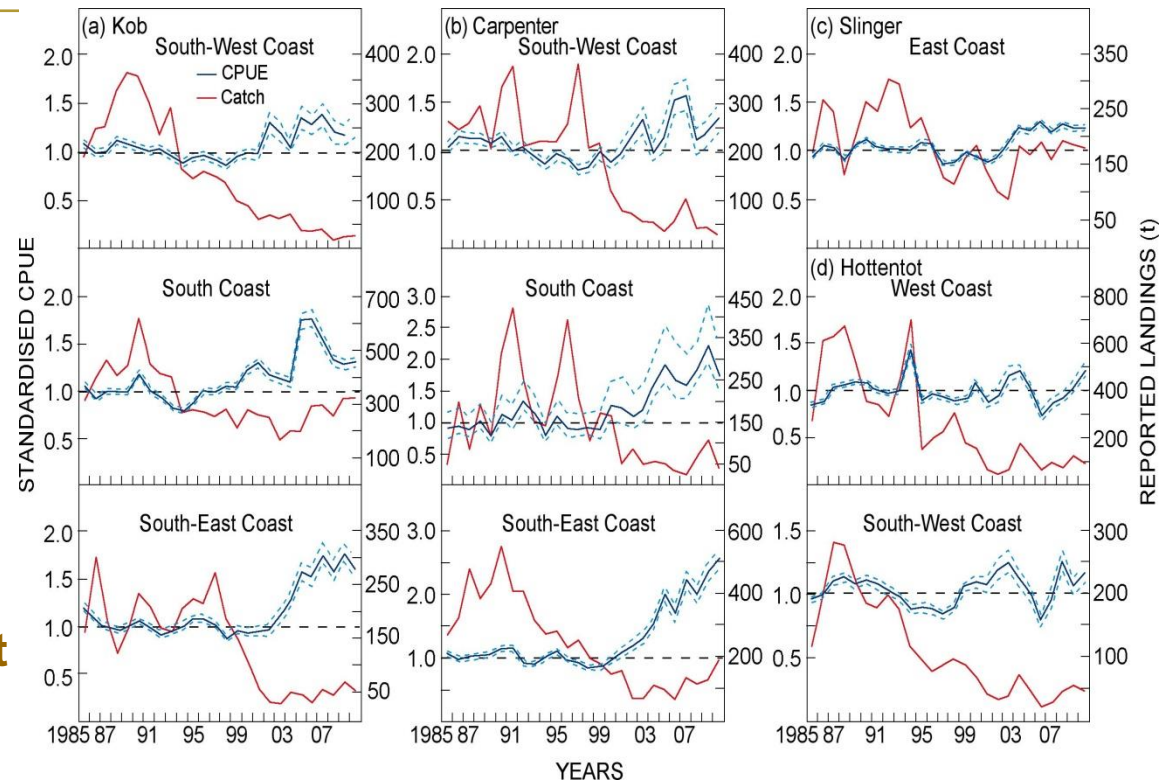


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# LINEFISH CONTINUED...

- Intense fishing pressure has led to widespread depletion of linefish stocks
- Catches are now a far smaller than they were in the 1980s and 1990s
- Emergency measures in place since 2000 appear to be having results for some linefish species at least
- These measures need to remain in place for sufficient time to rebuild stocks to levels that will allow larger catches



Standardised CPUE trends (blue solid line) and total reported landings (red solid line) for (a) kob *Argyrosomus* sp. (b) carpenter *Argyrosoma argyrosoma*, (c) slinger *Chrysoblephus punicus* and (d) hottentot *Pachymetopon blochii* by fishing area, defined as follows: West Coast: Orange River-Cape Point, South-West Coast: Cape Point-De Hoop, South Coast: De Hoop-Tsitsikamma, South-East Coast: Tsitsikamma-Kei River, East Coast: Kei River-Mozambique border. The CPUE was normalised to the standardised mean CPUE for the period 1985-2000 (black dashed line). The blue dashed lines represent 95% confidence intervals.



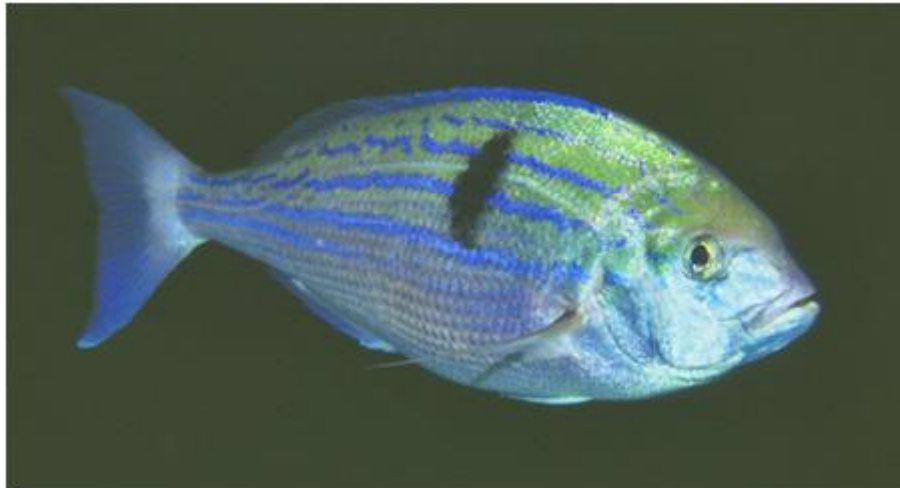
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# LINEFISH CONTINUED...

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- If recovery to sustainable levels can be effected, the linefishery offers huge potential for growth and expansion



Once one of the most abundant linefish, over-fishing has led to a 10-year fishing moratorium on Seventy-four



A good snoek catch brings smiles to the faces of fisherfolk in the Western Cape



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# CONCLUSION

- The bad news...
  - Many of our key marine fishery resources have been over-fished in the past
  - Our resources are therefore impoverished and catches are often far less than they could be

## HOWEVER

- The good news...
  - Something can be done to recover fish resources to more productive levels
  - Current recovery plans appear to be showing positive results
  - If we can take the short-term pain, we will achieve the medium- and long-term gains that will make a significant positive contribution to food security and alleviating coastal poverty



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