

Utilising Stunted Stocks

the Australian way

Different methods are used to determine stunted stocks

- **TASMANIA** – no current objectives to access unfished 'slow-growing' stocks
- **SOUTH AUSTRALIA** – uses a ratio between shell length and shell height
- **VICTORIA** – uses a “length of first maturity”

Victoria

- Since 2001 access to the Stunted stock has been connected to length of first maturity (LOFM) studies.
- There is a significant difference in LOFM of abalone – i.e. abalone mature at different lengths even though they may be the same age.
- A call is made on what you want to harvest the stock at: $L50 + 2 \dots L100 + 1 \dots L100 + 2$

Victoria

A lesson learnt is that you need to fish alternate years when you start utilising stunted stocks as there is likely to be a number of reactions that take place.

Victoria – Lessons learnt

- The stunted stocks will likely grow faster, (which in turn increases your LOFM). This will depend on the reason for stunting (i.e. genetics, food, density of abalone).
- The abalone will respond to being fished (which wasn't being done in the past) and as such you will have to allow at least one complete breeding cycle from the remaining fish and re-measure their LOFM.
- After several years of fishing stunted stocks you need to review the LOFM and adjust the fishing effort accordingly.

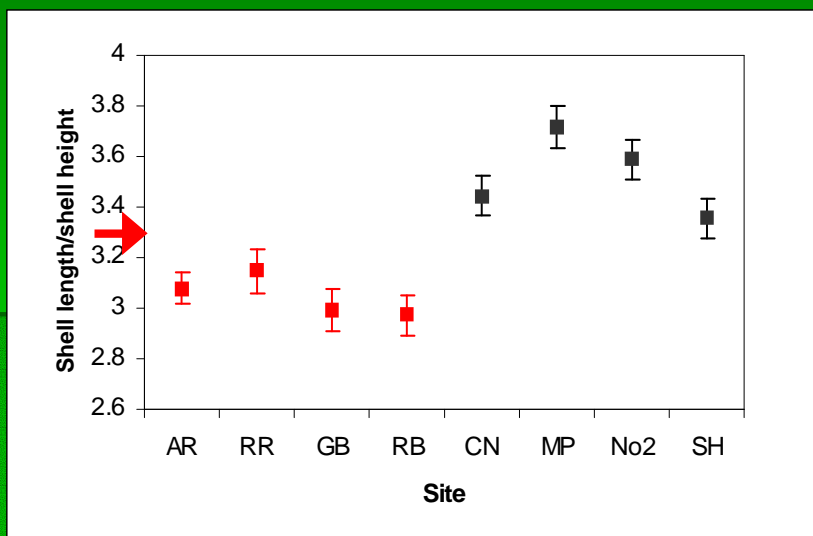
South Australia

The use of a ratio between shell length and shell height appears to be a useful 'morphometric marker' for separating abalone populations with different morphometric features.

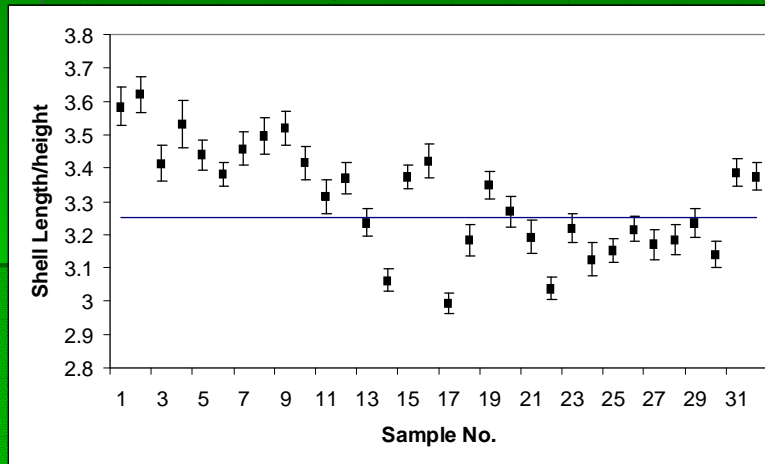
South Australia - R&D project

- Numerous 'morphometric measurements' including shell length, shell width, shell height, shell weight, shell volume and whole wet weight were obtained from abalone collected from various sites.
- Analyses indicated that abalone from 'stunted' and 'non-stunted' areas could be readily distinguished by the relationship between shell length and shell height.
- Similar measurements were obtained from, and analyses conducted on abalone from 32 samples obtained from commercial fishers. The 'morphometric marker' proved robust in distinguishing stunted fish among populations across this suite of samples.

Plot of abalone shell length/height for each of eight sites. Red markers indicate sites with 'stunted' abalone and black markers indicate sites with 'non-stunted' abalone.



Plot of abalone shell length/height for 32 samples from the 2004/2005 commercial abalone catch. Horizontal blue line indicates a shell length/shell height ratio of 3.25



Tasmania

- The Government / Industry conducted 5 pulse fish-downs between 1988 and 1995, on the North coast and Bass Strait Islands.
- The fish-downs were successful but ...
 - Insufficient pre- and post-monitoring
 - Politically motivated events complicate the issue
 - Severe depletion occurred at some sites

Tasmania - Comment from Craig Mundy

- Use of Fish-downs to utilize stocks excluded from the normal fishery by size limits must be thought through very carefully.
- These stocks tend to be less productive, and a conservative TAC is required.

We can talk more on what could happen in NZ in the Medium Term Research Planning Session.