Ongoing research and management for the long-term sustainability of demersal scalefish on the west coast of Australia

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Background

The West Coast Demersal Scalefish Fishery (WCDSF)

The West Coast Bioregion

The WCDSF

- Multi-sector line fishery (Commercial, charter and recreational sectors)

- Multi-species

W. A. Dhufish *Glaucosoma hebraicum*

Pink snapper *Pagrus auratus*
Background

History of management and research in the WCDSF

• 1990s/2000s - Increasing catches and fishing efficiency
  = increased concern about stock status
  - review of management of fishery and
  - biological studies of important species:
    - WA dhufish (Hesp et al., 2002),
    - Pink snapper (Wakefield, 2006),
    - Baldchin groper (Fairclough, 2005; Nardi et al., 2006).

• Commercial - open access prior to 2008.
• Charter - licenses in 2001, cap on licenses
• Recreational - no license
• All sectors - limited by MLL and catch limits
Background

History of management and research in the WCDSF

- Integrated Fisheries Management
  - appropriate catch shares and TAC
- Indicator species for status of stocks

**Pink snapper**  
*Pagrus auratus*

**W. A. Dhufish**  
*Glaucosoma hebraicum*

**Baldchin groper**  
*Choerodon rubescens*
Previous research findings

**Stock assessment** of the three indicator species, WA Dhufish, Pink Snapper and Baldchin groper across bioregion.

- Estimates of fishing mortality
- Overfishing was occurring
- No biomass estimates
- Weight of evidence – biological factors that influence recovery rate following depletion, e.g. reproductive complexity, recruitment strength variability.
- **End result** - ≥ 50% reduction required in effort/catch of fishery
Changes to management

Following management review:

• **Formal management for commercial sector in 2008**
  - put limits on access, effort & TAC, gear, daily logbooks

• **Commercial sector** - preliminary catch data indicates that 50% reduction should be achieved with the cap on effort and a ban on fishing in metropolitan zone

• **Recreational sector** - raft of changes to recreational fishing rules, *e.g.* reduced bag limits, effect unclear

• **Charter sector** - mgt under review

• **Need for a monitoring program** - to ascertain stock recovery or further depletion
Monitoring program

- Commenced in 2007/08, until 2010/11
- Sampling design based on stock assessment

Aims

- Collect 500 fish frames of each indicator species (by sector/zone). Total = 6,500 samples

- Determine age composition of each species and estimates of $F$ (by sector and zone)

- Compare $F$ to benchmarks
Monitoring programme - Results

- In 2007/08, over 3,700 samples collected

- Truncated age distributions
- Estimates of fishing mortality indicate overfishing is still occurring
- Reinforcement of findings of stock assessment
Monitoring programme - Results

- Spatial and temporal age composition data
- Detection of strong recruitment events
- Stock recovery or further depletion in relation to management

West Australian Dhufish

<table>
<thead>
<tr>
<th>Year</th>
<th>Age class</th>
<th>Numbers of fish</th>
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<td>1993</td>
<td>484</td>
</tr>
<tr>
<td>2003/04</td>
<td>1993</td>
<td>820</td>
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<tr>
<td>2004/05</td>
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<td>864</td>
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<tr>
<td>2006/07</td>
<td>1999</td>
<td>557</td>
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<tr>
<td>2007/08</td>
<td>1993</td>
<td>1724</td>
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Monitoring programme - challenges

- Obtaining the required sample size
  - mgt aims to decrease effort/catch in commercial/recreational sectors
  - no onboard sampling
  - reluctance
- Staff resources
- More efficient options
  - Rotation of indicator species may reduce some lab costs
  - Only monitor one sector?
  - Buy whole fish?
- Stock structure – genetics/otolith microchemistry
Thank you