Meeting the data requirements for integrated fisheries management: progress towards minimising the cost of monitoring

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## Catch by sector

<table>
<thead>
<tr>
<th>Fishery</th>
<th>Catch (tonnes)</th>
<th>% of total catch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>17,000</td>
<td>78%</td>
</tr>
<tr>
<td>Recreational</td>
<td>4-5000</td>
<td>20%</td>
</tr>
<tr>
<td>Indigenous</td>
<td>&lt;50</td>
<td>&gt;1%</td>
</tr>
<tr>
<td>Charter</td>
<td>250</td>
<td>1.2%</td>
</tr>
</tbody>
</table>
Overview of finfish fisheries

• Target 70 species, >150 species recorded
• Sustainable catch of individual species small (10s to 100s tonnes).
• Series of multi-sector, multi-method fisheries.
• 23 managed commercial finfish fisheries.
• Only general ‘wetline’ fishery still unmanaged.
• Recreational and charter sectors.
Time for change

• Call for allocation of catch shares amongst sectors

• Recognition of significant regional differences in resource and community values.

• Shift from individual stock focus to broader sustainability of ecosystems and regional communities.

Proactively account for multiple user groups and changing circumstances over the next 10 to 20 years.
Bio-Regional Management

- South Coast
- West Coast
- Gascoyne
- Pilbara/Kimberley
- Southern Freshwater
- Northern Freshwater
Laying the foundation

• Clear understanding of management objectives and required outcomes in each Bioregion.

• Risk assessment of priorities across Bioregions, habitats, species.

• Manage on the basis of most vulnerable/conflict/target/rare species.

• Design surveys to allow cost-effective monitoring at the appropriate frequency.
Prioritization
Data requirements

The two main issues:

- **Stock status** – Sustainable harvest level for each resource
- **Catch shares** – Size of each sector’s harvested catch

The extent to which we succeed with the long-term realisation of the IFM vision depends on a robust data-collection system. (+ others)
Cost effective monitoring of age composition

- Examination of age structure continues to provide the basis for assessing stock status
- Cannot undertake for all target species
- Remains expensive to undertake for indicator species

**FRDC project – Cost effective methodology for ongoing age monitoring**
Sectioned otolith (control age-structure)

Develop alternative AS

Test alternative AS

Control assessment model

Accept or reject performance
Assess reduced sample size for sectioned otoliths and accepted alternatives.

Compare costs. Develop sampling strategy for $n$ species.
## Preliminary cost-benefit analysis for 5 stocks

<table>
<thead>
<tr>
<th>MARKET-BASED SAMPLING</th>
<th>FIELD-BASED SAMPLING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sectioned otolith</td>
<td>Alternative</td>
</tr>
<tr>
<td>$11,640</td>
<td>None</td>
</tr>
<tr>
<td>$4,960</td>
<td>$1,480</td>
</tr>
<tr>
<td>$5,100</td>
<td>$1,100</td>
</tr>
<tr>
<td>$12,320</td>
<td>$1,110</td>
</tr>
<tr>
<td>$3,480</td>
<td>$640</td>
</tr>
</tbody>
</table>
Monitoring of commercial/charter catch & effort*

- Known client base (licensed)
- Long-term, mandatory reporting system
- Daily/trip* logbooks being developed
- Database systems being upgraded
- Charter logbook validation survey (shore-based vs sea-based?)
Cost effective monitoring of recreational catch and effort

• No system to record catch and effort

• Extremely large and variable client base

• Creel surveys - expensive

• Phone/diary surveys – less expensive

• Need to investigate alternatives

FRDC project – Cost effective techniques to monitor recreational catch and effort
Estimates of Recreational Catch

- Catch data
- Potential catch
- Assumed catch
Estimates of Recreational Catch

Creel/phone surveys ($$$)

1. Participation rates – remote-based methods.
2. Catch rates – improved use of current resources.
Alternative data sources - participation

- Creel survey
- Phone/diary survey

Control

Test alternatives.
Assess costs.

Alternatives

- Cameras (still, video)
- Trailer counts
- Tickets/fines
- Traffic counters
Car park - still video shot
Car park - video camera
Marina channel – testing phase
Estimates of recreational catch rates

Current (and ongoing) resources: review, develop and assess collection of catch and effort.

- Fisheries Marine Officers - routine checks of vessels at boat ramps (underway)
- Volunteers (Vol. Fisheries Liaison Officers) – routine visits to beach
Summary

Department of Fisheries has embarked on the transition from single fishery/individual sector management arrangements to an integrated approach across all user groups.

- The data challenges relate to:
  - ongoing sustainable harvest estimation
  - monitoring catch shares for each sector

**Cost effective techniques are being developed to monitor recreational catch and effort**
Summary Contd.

• Understand objectives and required outcomes
• Prioritize across Bioregions, habitats, species.
• Design surveys/methods to allow cost-effective monitoring at the appropriate frequency.
• Improve current systems (catch & effort)

Aim: Achieve maximum return (i.e. assess status of more stocks & determine catch levels for more fisheries)