Managing recreational fishing within a sustainable harvest and allocation framework

HOW CAN THE RECREATIONAL CATCH BE MANAGED?

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OUTLINE

1. Introduction
2. Two case studies
3. Isaak Walton’s lore of compleat recreational catch management
To allocate or distribute?

- Explicit catch sharing is new in practice
- L Allocate – to put in its place
- Little legislative basis
- L Tribuere – to share and distribute
- To “share” effective sectoral catch management needs to be in place.
Big commercial fisheries do it - so they say

- Time-series data
- Stock assessments
- Biological targets
- Predictive indicators
- Management that contains harvest
- “market-based” mechanisms to redistribute fishing entitlements within the sector
The small fun fisheries don’t

- No biological or catch targets
- Little data
- A few regs that restrict individuals
- No individual or collective fishing rights
- Common law rights eroded regulation
- “Open” access – variable participation
- Scarce resources for management
Why so little in the literature?

- Two examples of effective recreational catch management
Two WA case studies

• West Coast abalone (*Haliotis roeii*)

• Shark Bay inner gulf pink snapper (*Pagrus auratus*)
West coast abalone

- Recreational catch management since 1988
- Stock never collapsed
- Few interest groups
Abalone - vital statistics

- 21,000 licences
- 24,000 fisher days
- No TAC.
- Annual rec catch 45 tonnes
- Catch rates - 80-100% of daily limit
- 9 hours per year
- Bag/size/possession limits
- No processing below HWM.
# Key management changes

<table>
<thead>
<tr>
<th>Year</th>
<th>Management</th>
<th>Fishery response</th>
<th>Effort (trips)</th>
<th>Catch/trip</th>
<th>Kept</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-88</td>
<td>Bag limit 20 LML – 60mm</td>
<td>Licences</td>
<td></td>
<td></td>
<td>30t – 80t</td>
</tr>
<tr>
<td>89-90</td>
<td>Closed season</td>
<td>Licences</td>
<td></td>
<td></td>
<td>Nil</td>
</tr>
<tr>
<td>91</td>
<td>Short season – 9 days</td>
<td>Licence</td>
<td>7,000</td>
<td>n/a</td>
<td>80t</td>
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<tr>
<td></td>
<td>No scuba</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>Shorter season – 12 hours/6 weeks Possession limit</td>
<td></td>
<td>11,000</td>
<td>n/a</td>
<td>45t</td>
</tr>
<tr>
<td>95-2000</td>
<td>Shorter season – 9 hours/6 weeks</td>
<td></td>
<td>18,000</td>
<td>22,000</td>
<td>17</td>
</tr>
</tbody>
</table>
A “bottleneck” fishery

- Catch controlled by squeezed season
- Catch rates very high – 17/20
- Limited, visible, onshore fishing grounds
- Not much fisher involvement in early management
Sharing issues

- Social vs economic valuation???
- Recreational fishing “rights”
- A fair means of distributing catch
- Risk that “market mechanisms” will select entry – and increase illegal activity
Shark Bay inner gulf snapper

- 1,000km north of Perth
- Residents nearby - less than 1,000
- Three discrete “stocks”
- 4 years + to bring under management
- 5,000 anglers/$0.5m per year cost
- Many interests
Snapper - vital statistics

- No licence
- 40,000 fisher days
- TAC - 30 tonnes
- Biol target - 40% evb
- Annual catch - 10.5 tonnes
- Bag limit - 1/min/max sizes
- Seasonal closures
- Catch tags - 1200 fish/$10 each (rec)
Key management changes - Freycinet

Estimated weight of pink snapper kept per month from Freycinet Estuary (Nanga) May 2000 to December 2003

Size limit increased from 45cm to 50cm, bag limit decreased from 4 to 2 and limit of one fish over 70cm introduced on 25th August 2000

Freycinet Estuary closed between 15 August and 30 September from 2000

Catch limited by number of tags issued from 2003
### Key management changes - Denham

Estimated weight of pink snapper kept per month from Freycinet Reach (Denham) May 2000 to December 2003

| Month | May00 | Jun00 | Jul00 | Aug00 | Sep00 | Oct00 | Nov00 | Dec00 | Jan01 | Feb01 | Mar01 | Apr01 | May01 | Jun01 | Jul01 | Aug01 | Sep01 | Oct01 | Nov01 | Dec01 | Jan02 | Feb02 | Mar02 | Apr02 | May02 | Jun02 | Jul03 | Aug03 | Sep03 | Oct03 | Nov03 | Dec03 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Weight kept (tonnes) | 0.0   | 0.5   | 1.0   | 1.5   | 2.0   | 2.5   | 3.0   | 3.5   | 4.0   | 4.5   | 5.0   | 5.5   |

- Size limit increased from 45cm to 50cm, bag limit decreased from 4 to 2 and limit of one fish over 70cm introduced on 25th August 2000
- Bag limit decreased from 2 to 1 and max size limit of 70cm introduced on 1st March 2003

**Maps and Diagrams**

- Map of Denham Sound and surrounding areas
- Graph showing weight kept per month from May 2000 to December 2003, with key management changes indicated.

**Legend**

- Effort (fisher days)
- Weight kept (tonnes)
A fishery in a big pool

- Lag from collapse to management – 4 years +
- Seasonal closures – at peak catch times
- Tags are an absolute measure – but price sensitive
- Compliance and education critical
- Marine sanctuaries – not useful
- Prawn trawling and juvenile mortality – another “share”?
Sharing issues

• Social vs economic evaluation
• Recreational and charter fishing rights
• Trawl mortality – another share?
• A fair means of distributing catch entitlements
• Compliance risk around “market mechanisms”
Izaak’s lores

But, how do we manage the catch?

• Understand recreational aspirations for use
• Define the participants – licence or registration
• Link registration to an annual (?) individual catch entitlement and data collection
• Resource compliance and education
• Make sure your regs act on the total catch!!
Here, methinks, if I find not trout I shall find content, and good company, and sweet songs, fair milkmaids, and country mirth. For you are to know that trout be now scarce ......