Mechanisms for assessing the sustainability of swimming-with-whales tourism in the Great Barrier Reef
Matt Curnock,
3rd Australian National Network in Marine Science Conference, 2nd Dec 2011

Supervisors: Dr Alastair Birtles & A/Prof Peter Valentine
School of Business + Earth & Environmental Sciences

PhD project supported by:...
Mixed methods approach

**Study 1:**
- Whale Sighting Sheets (n=854)
- Vessel effort data (multiple sources)

**Study 2:**
- Interviews with key stakeholders (n=16)
- Passenger survey (n=2171)

**Study 3:**
- Interviews with key stakeholders
- Passenger survey
- Crew interviews (n=15)
- Stakeholder workshops (n=7)

**Study 4:**
- Participatory Action Research process

---

**Study 1: data returns (2006-08)**

**Whale Sighting Sheets**
- n=854 encounters
- 513 in-water interactions (60%)

**Effort data**
- Vessel Movement Logs (n=459 vessel days)
- Researcher Log Sheets (n=330 vessel days)
- GPS data logs (n=210 vessel days)

---

**Results: minke whale encounters in the GBR**

![Graph showing whale encounter data (2003-2008)]

91% increase in number of encounters reported per year, 2003-08 (n=1476)
90% increase in total reported encounter time per year, 2003-2008

---

**WSS Summary Stats:**
- 854 minke encounters in GBR over 3 seasons
WSS Summary Stats:
- 854 minke encounters in GBR over 3 seasons
- 71% of encounters were at frequently used moorings (dive sites)
- Top ten sites account for 53% of all encounters; 65% of total GBR encounter time

‘Lighthouse Bommie’ accounts for 19% of all encounters; 40% of total GBR encounter time

Lighthouse Bommie – inside Ribbon Reef #10

Whale interaction time / total effort (%)

<table>
<thead>
<tr>
<th>Top ten sites</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighthouse</td>
<td>61</td>
</tr>
<tr>
<td>Two Towers</td>
<td>55</td>
</tr>
<tr>
<td>Acropolis</td>
<td>33</td>
</tr>
<tr>
<td>Andy’s Postcard</td>
<td>31</td>
</tr>
<tr>
<td>Snake Pit</td>
<td>28</td>
</tr>
<tr>
<td>Steve’s Bommie</td>
<td>23</td>
</tr>
<tr>
<td>Fantasia</td>
<td>19</td>
</tr>
<tr>
<td>Joanie’s Joy</td>
<td>12</td>
</tr>
<tr>
<td>Dynamite Pass</td>
<td>10</td>
</tr>
<tr>
<td>Challenger Ray</td>
<td>09</td>
</tr>
</tbody>
</table>
Key findings of Study 1

- Growth in total minke encounter time – attributable to the same few SWW-endorsed operators having more encounters.
- Encounter rates show ‘encounter hotspots’ with higher relative abundance of whales.
- Live-aboard operators have increased their effort at these hotspots.
- Effort data are needed for monitoring industry trends (e.g., changing effort) and potential changes in relative minke whale abundance at these sites.

Study 4: Developing Sustainability Objectives (SOs)

**Steps:**

1. Draft SOs from literature + input from researchers.
2. Key Informant Stakeholder Interviews - Revised SOs based on feedback.

Adopted SOs: one example

**(ECOLOGICAL OBJECTIVE)**

1.2(a) Dwarf minke whales are not displaced from the areas where they are commonly seen in the GBR as a result of interactions with vessels and swimmers.

*Potential indicator:* Encounter rates for key sites do not decline.

*Data requirements:* WSS + Vessel Effort Data.

Outcome = 39/41 proposed SOs adopted with unanimous support.
How can we tell if the GBR SWW activity is sustainable?

• Long-term monitoring of sustainability indicators
• Manage adaptively
  • Stakeholder participation
  • Transparent & fair process
  • Responsive to new knowledge & changes
• Address biological knowledge gaps
  • Migration & possible external threats
  • Population studies
  • Cumulative behavioural changes

Thank you:

PhD supervisors: Dr Alastair Birtles & A/Prof Peter Valentine
JCU: School & Faculty staff, GRS staff, School colleagues
MWP colleagues: Susan Selbtschik & Arnold Mangett & the late Dr Peter Arnold
Sustainable Tourism CRC
GBRMPA & staff: Dr Mark Read, Sarah Salmon, Dr Kirstin Dobbs, Anne Caillau
DERM & QPWS staff: Jesse Low & Chad Buxton
Industry champions: John Rumney, Craig Stephen, Peter Wright, Pam Fischer, Laurence Buckingham, Jula Somerling & many more...
Stakeholder key informant survey + crew survey respondents
Staff & crew from all nine SWW-endorsed operators
GIS assistance: Dr James Moloney, Alana Grech, GBRMPA spatial data centre
MWP volunteers
SWW tourists
The GBR dwarf minke whales

Any questions?