

Mechanisms for assessing the sustainability of swimming-with-whales tourism in the Great Barrier Reef
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 Schools of Business + Earth & Environmental Sciences

PhD project supported by:



Whale watching tourism: growth & impacts

Rapid growth in whale watching tourism worldwide
(Hay, 2001; O'Connor, et al., 2009)

- >13 million people in 119 countries
- 1.6 million in Australia in 2008; worth >\$172m
- 8% annual growth in Australia since 1998 *(O'Connor, et al., 2009)*

Studies showing impacts from whale watching

- Disturbance from vessel noise
- Vessel collisions – injury or death
- Reduced feeding, nursing, resting, socialising
(Scheidt, et al., 2004; Koski, et al., 2009; Lusseau, et al., 2004)

Research objectives

1. Describe characteristics of SWW industry & minke whale encounters, including spatial & temporal patterns
2. Assess the SWW experience & document range of social values
3. Evaluate management of the SWW activity & identify key issues for sustainable management
4. Develop sustainability objectives & identify potential indicators

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

6 x live-aboard operators: 12 – 30 pax



3 x day-trip operators: 80 – 100 pax



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)

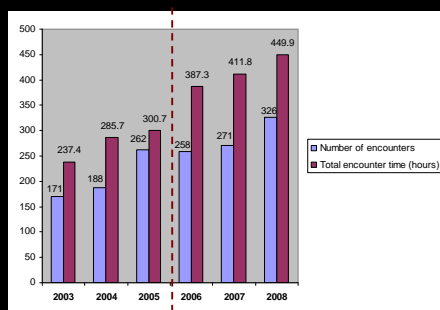


Handheld GPS tracking ship's position



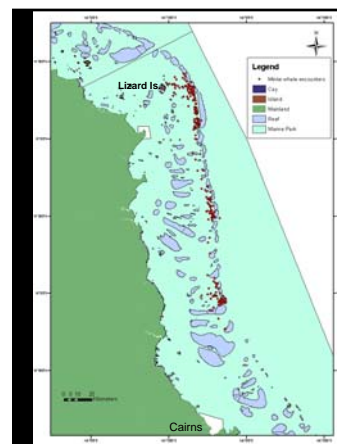
'Logger' software running on Undersea Explorer

Results: minke whale encounters in the GBR



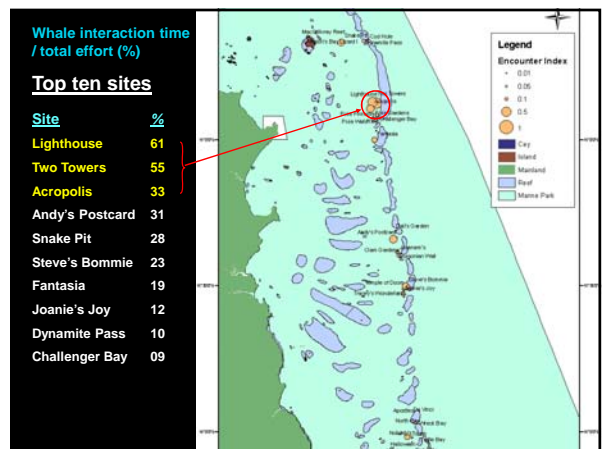
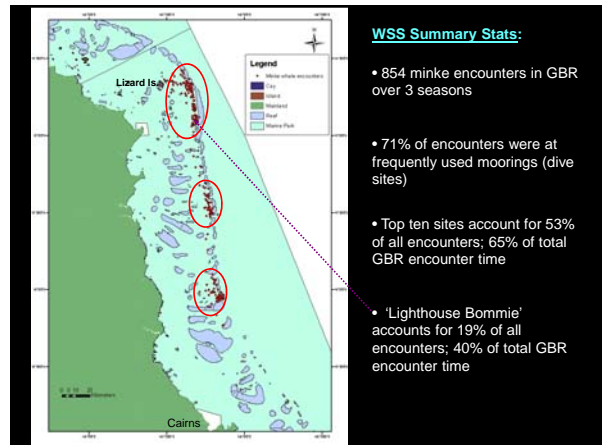
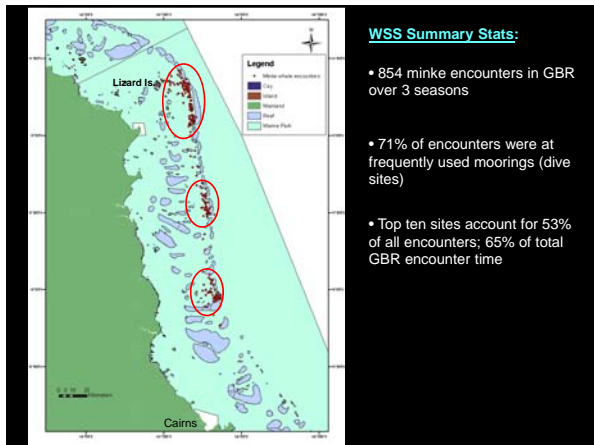
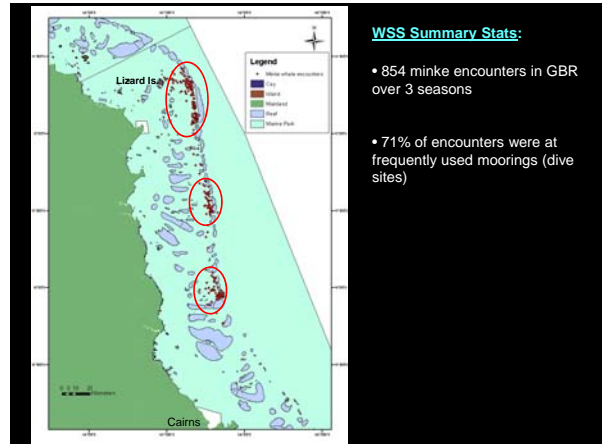
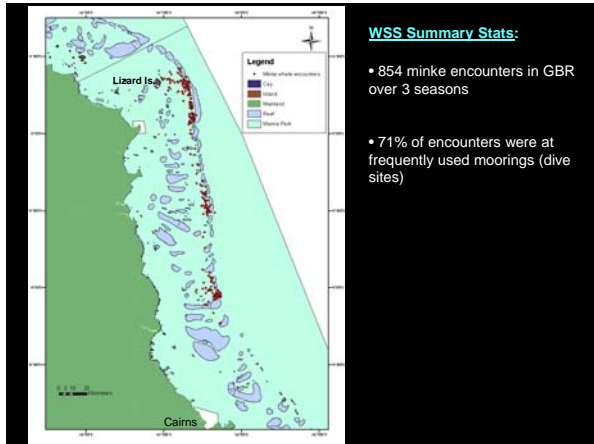
91% increase in number of encounters reported per year, 2003-08 (n=1476)

90% increase in total reported encounter time per year, 2003-2008

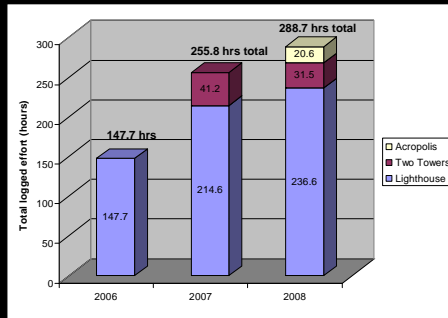


WSS Summary Stats:

- 854 minke encounters in GBR over 3 seasons



Growth in total encounter time due to more effort at minke whale 'encounter hotspots'



95% effort increase at top 3 sites in 3 years

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
3. Facilitated Stakeholder Workshops (2007-08)



Outcome = 39/41 proposed SOs adopted with unanimous support

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

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:

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MWP colleagues: Susan Sobtzick & Arnold Mangott & the late Dr Peter Arnold

Sustainable Tourism CRC

GBRMPA & staff: Dr Mark Read, Sarah Salmon, Dr Kirstin Dobbs, Anne Caillaud

DERM & QPWS staff: Jesse Low & Chad Buxton

Industry champions: John Rumney, Craig Stephen, Peter Wright, Pam Fischer, Laurence Buckingham, Julia Sumerling & 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?

