How will the iconic dolphins adapt?

Simon J Allen, PhD

School of Biological Sciences | Oceans Institute

The University of Western Australia
Achieving International Excellence

Dolphins: past, present, future

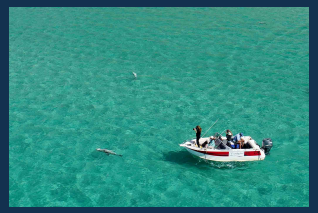
- Monkey Mia (eSB) 1982- | Useless Loop (wSB) 2007-

- Annual effort: photo-ID, surveys, focal follows, biopsy

Dolphins: past, present, future

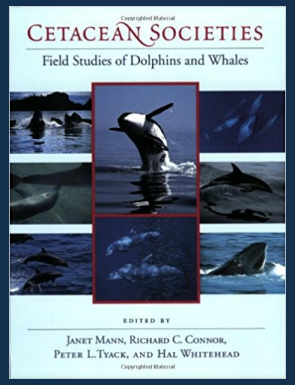
- Ongoing incl. u/w video, o/h video + acoustics…

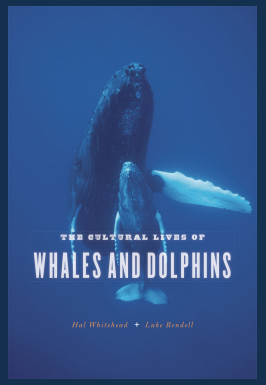




- Abundance, ranging/movements, behaviour, demography, population/social structure, diet, contaminants, vital rates, and anthropogenic impacts (*Nature*, *PNAS*, *Proc Roy Soc B*, *Curr Biol*)

- http://www.sharkbaydolphins.org
- https://monkeymiadolphins.org

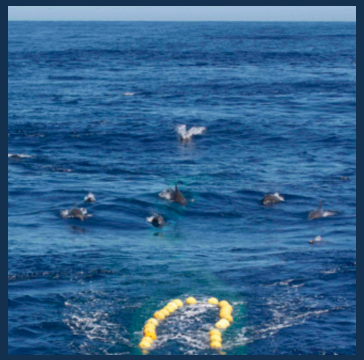




Dolphins: Anthropogenic impacts

Fisheries, tourism/development and climate change






Direct (bycatch) and indirect (habitat modification, prey depletion)

Dolphins: Anthropogenic impacts

Fisheries, tourism/development and climate change




Provisioning, dolphin watching and resort development

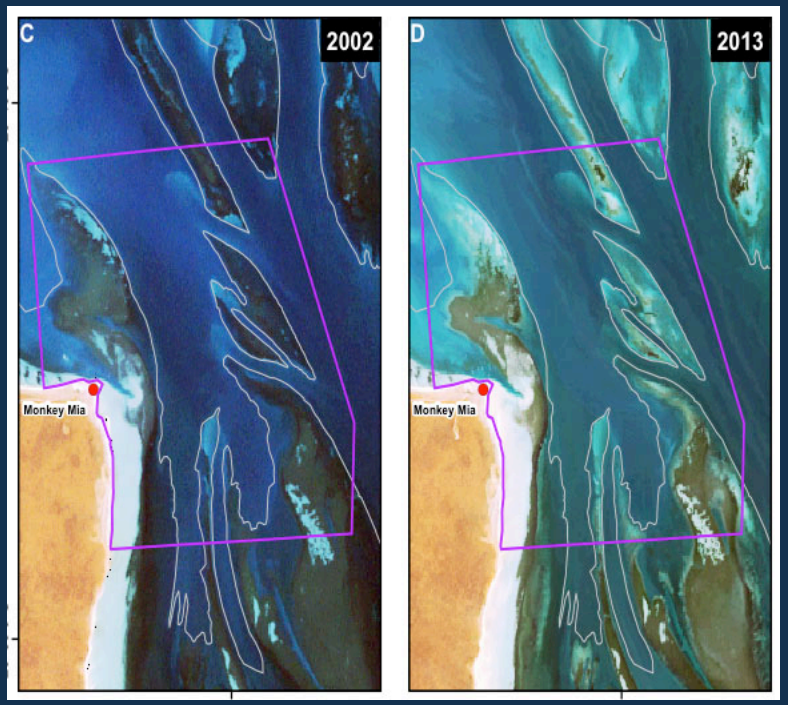
Dolphins: Anthropogenic impacts

Fisheries, tourism/development and climate change

Eastern Shark Bay (Miketa et al. in prep.)

Before

After



- 5-year blocks pre-/post-heatwave
- Focal follows detailing behaviour
- >10,000 surveys
- Reprod rate ($N=230_{pre}$; $N=234_{post}$)
- Calf survival ($N=156_{pre}$; $N=148_{post}$)

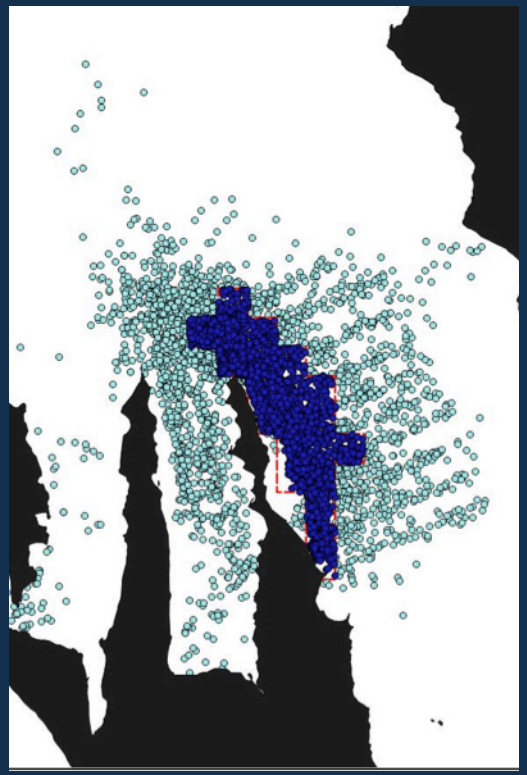
Eastern Shark Bay (Miketa et al. in prep.)

- Dolphins shift from preferred foraging habitats of dense *A. amphibolis* to less impacted *P. australis* and sand post-HW.
- Dolphins *increased* use of seagrass post-HW, likely capitalising on easier prey capture due to lower seagrass densities.
- No change in fem reprod rate or calf survival (to age 3) detected, though long-term effects likely should prey decline. (see handout)

Dolphins: Anthropogenic impacts

Fisheries, tourism/development and climate change

Western Shark Bay (Wild et al. in prep.)

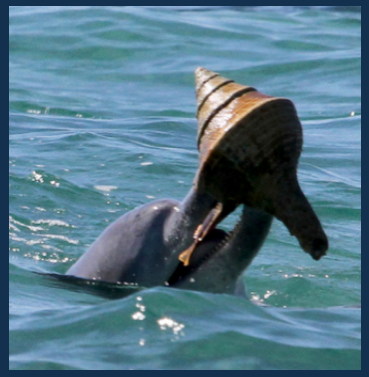


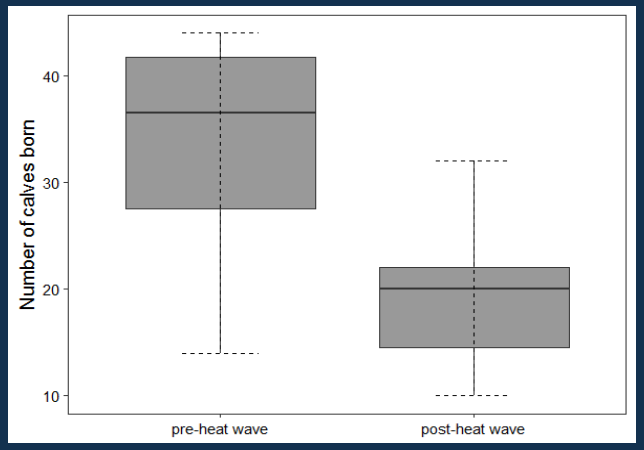
- 2007-2017 pre- and post-HW data
- >2,000 surveys
- 482 individuals
- CMR modelling of survival rates
- Female reprod rate pre-/post-HW

Western Shark Bay (Wild et al. in prep.)

Before

After





- Increase in shelling post-HW
- Decline in survival (6-12%) post-HW
- More calves born pre-HW
- Sig impacts correlate with one HW!

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