

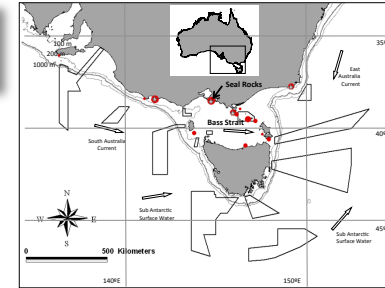
Winter foraging areas of different sized Australian fur seals in the shallow waters of Bass Strait : Is there segregation?

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Bass Strait and principal currents, colonies of Australian fur seals (red), and locations of marine protected areas (which overlap minimally with core foraging areas of Australian fur seals).

Question

In Bass Strait, would a marine reserve that protects areas important to one size of seal also protect areas important to other sized seals?

Aim

Investigate if Australian fur seals of different sizes forage in different areas of Bass Strait.

Introduction

- Australian fur seals (*Arctocephalus pusillus doriferus*) forage on the sea floor.
- They forage *en route* (other seals don't – they 'travel' to foraging areas).

Why could different sized seals have different foraging areas?

- Smaller seals have less breath-hold capacity – could avoid deeper waters.
- Adult females regularly return to nurse their pup – could forage near colony.
- Some juveniles may remain near colony to exploit suckling opportunities.
- Larger seals may evict smaller seals from productive foraging habitats.
- Size / maneuverability may influence targeting of prey with different distributions?

Methods

- Seal Rocks colony – central northern Bass Strait, 30,000 seals (1/4 species total).
- PTTs on :
 - 18 juvenile females (28 – 50 kg),
 - 19 juvenile males (28 – 73 kg),
 - 9 adult females supporting pups (65 – 90 kg),
 - 9 adult males (180 – 310 kg).
- Each seal tracked for 2+ months, winter - spring.
- Locations filtered (<10 km/h), time-in-area (10 x 10 km) ('trip' package in R).
- Locations in Bass Strait (<200 km from SR) – ranges, bathymetry (ArcView, ArcGIS).

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Results

- Considerable individuality.
- Juveniles & adult females preferred 70-80m, - Some shallow-water specialists.
- Juveniles rarely in >90m.
- Adult males – deeper waters & broader depth range.
- Some males (juv. & adult) left Bass Strait.

Discussion

- Juvenile males more 'adventurous' than juvenile females.
- Similarity between juveniles & adult females reflects similar size & preference to be local.
- Bass Strait is sufficiently shallow that juveniles can forage throughout.
- Weak segregation in Bass Strait - considerable overlap in ranges of different sized seals.

Conclusions

Marine reserves that protect areas important to medium 'adult female' sized seals are likely to protect habitat for a range of seal sizes.

Important habitats for the majority of Seal Rocks seals foraging in Bass Strait during winter are in the bathymetries of 60-90m, in north-western Bass Strait.

