Effects of reduced tagging sample size on estimation of demographic rates for the Sandy Bay population

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Sandy Bay tagging effort & survival estimation

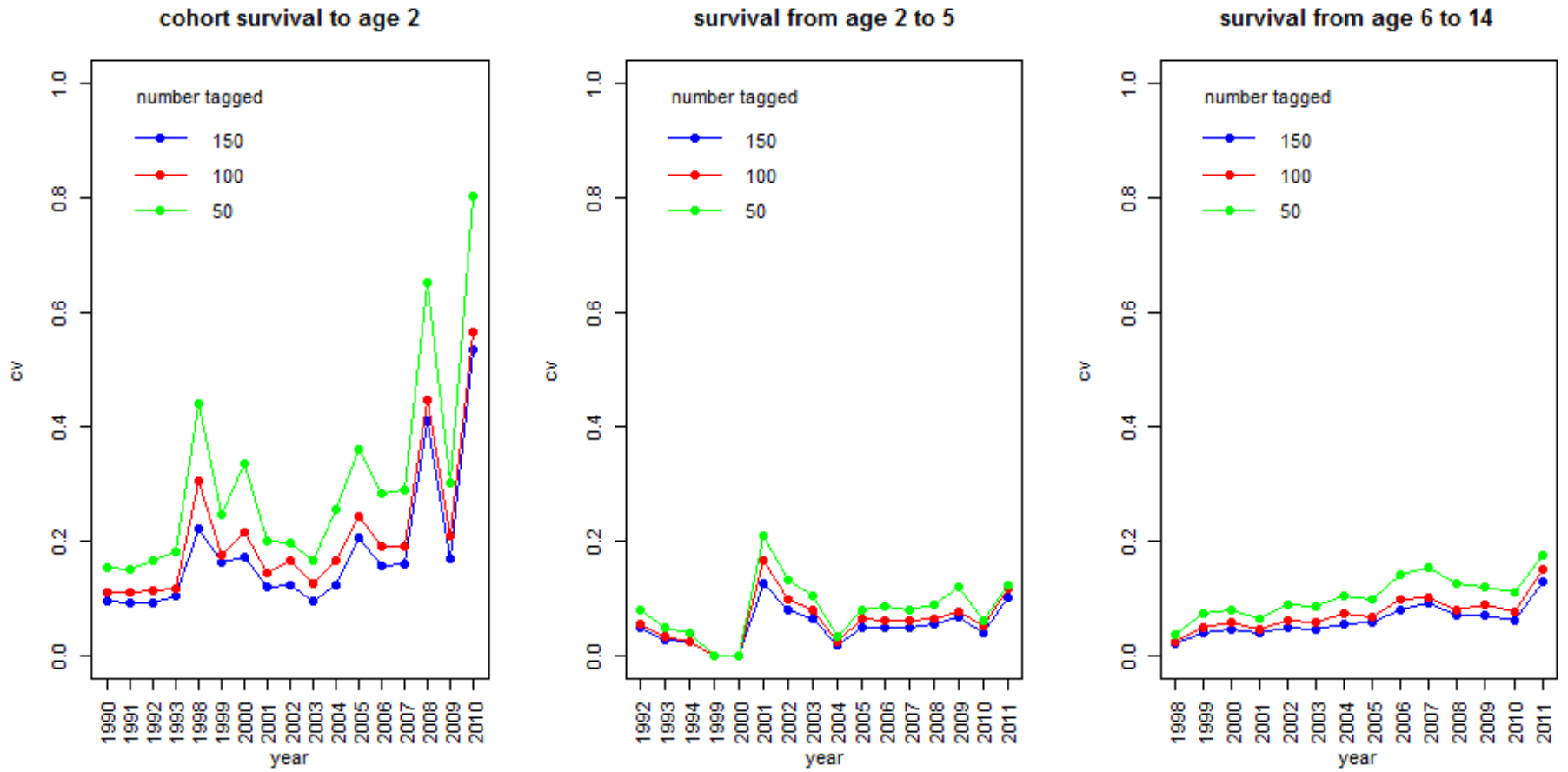
- Currently all pups are flipper-tagged at Sandy Bay
- DOC requested an assessment of tagging sample size effects on the estimation of survival and pupping rate
- We conducted a demographic modelling assessment using bootstrap samples of MR observations

Method

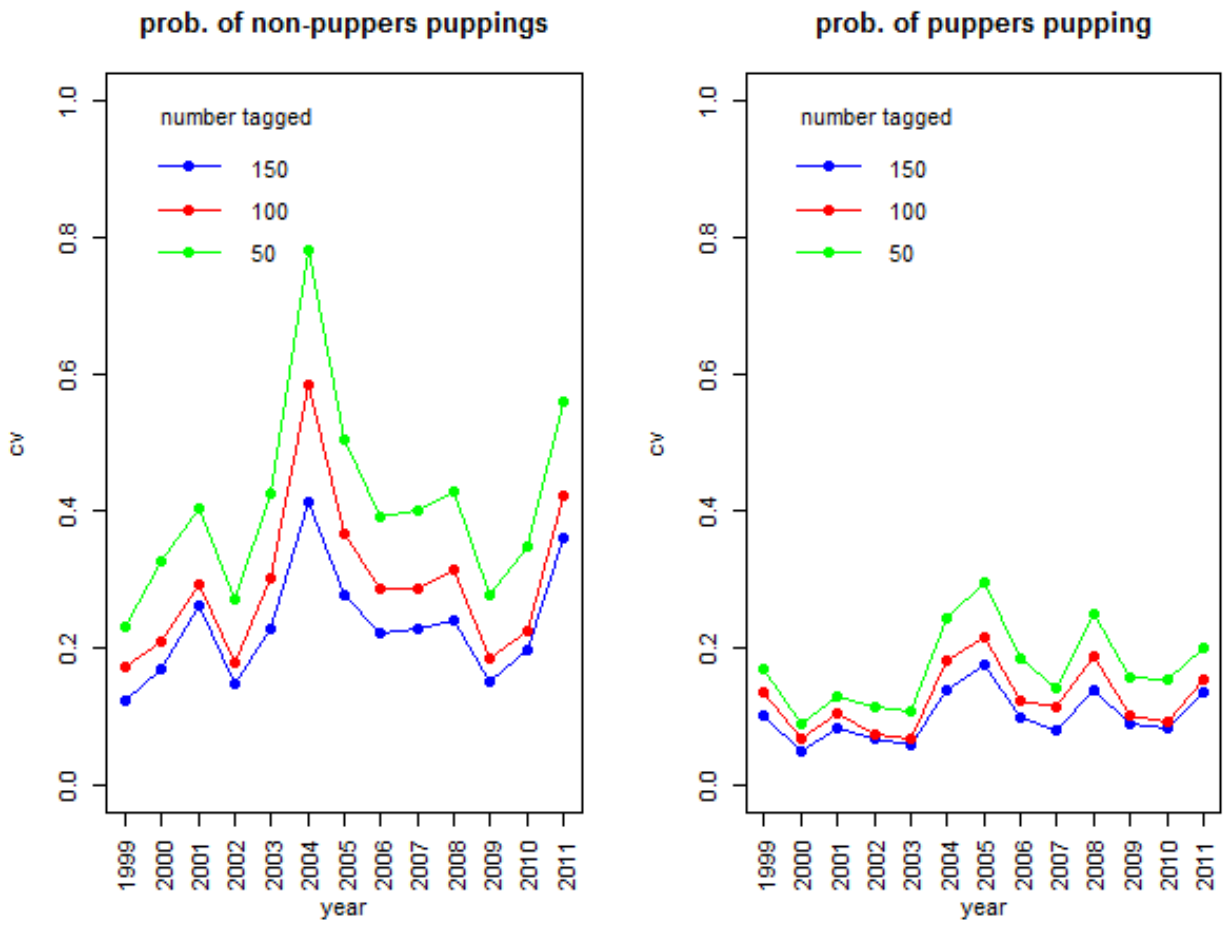
For each of 3 tagged sample sizes (150, 100 and 50 females)

- Bootstrap sample females flipper-tagged as pups at Sandy Bay and their resighting histories (200 for each sample size)
- SeaBird used to generate point estimates for survival-at-age and pupping probability (model config as run 7a of Roberts *et al.*, 2013)
- CV calculated for each parameter and mean of CVs across all years

Results – tagging sample size & survival



Results – tagging sample size & pupping rate



Summary

Demographic rate	Mean CV		
	n = 150	*n* = 100	*n* = 50
Survival cohort to age 2	0.18	0.21	0.31
Survival age 2-5	0.05	0.06	0.08
Survival age 6-14	0.06	0.07	0.10
Prob. non-puppers (yr-1) pupping	0.23	0.29	0.41
Prob. puppers (yr-1) pupping	0.10	0.12	0.17

- Small increase in CV of survival estimates when decreasing tagged sample size from 150 to 100.
- CV almost doubled when tagged sample size reduced to 50 females