
TEMPORARY EMIGRATION OF FEMALE WEDDELL SEALS PRIOR TO FIRST REPRODUCTION

Glenn E. Stauffer,* Department of Ecology, Montana State University, Bozeman, Montana 59717,
email: gestauffer@gmail.com

Jay J. Rotella, Department of Ecology, Montana State University, Bozeman, Montana 59717,
rotella@montana.edu

Robert A. Garrott, Department of Ecology, Montana State University, Bozeman, Montana 59717,
rgarrott@montana.edu

Temporary emigration (TE) from a breeding site is common in some colonial-breeding species, but implications are poorly understood because TE is difficult to quantify. We used capture-mark-recapture models and a dataset of 5450 female Weddell seals (*Leptonychotes weddellii*) born in Erebus Bay, Antarctica to investigate sources of variation in TE rates and evaluate possible implications for recruitment. Temporary emigration rates and recruitment rates were state- and age-dependent and annually variable. For seals that attended reproductive colonies the previous year, mean TE rates decreased from 0.98 (sd = 0.02) at

age 1 to 0.15 (sd = 0.16) at age 8, whereas mean recruitment rates increased from 0.06 (sd = 0.03) at age 5 to 0.52 (sd= 0.16) at age 10. Seals that did not attend reproductive colonies the previous year had greater TE rates and lower recruitment rates than seals that did attend colonies, but the confidence interval for the effect of TE on recruitment included zero. Our results suggest that 1) motivation to emigrate varies temporally depending on environmental conditions, 2) as seals grow older they have increased motivation to attend reproductive colonies even before they are ready to recruit, and 3) some seals appear to always be more likely than others to emigrate. We suspect that TE may allow seals to buffer variability in survival rates.