

**RECRUITMENT RATES IN HARLEQUIN DUCKS:  
WHEN DO WE BECOME CONCERNED?**

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Harlequin (*Histrionicus histrionicus*) ducks are generally characterized as K-selected species with variable and low annual productivity compensated by high adult survival and long life spans. Thus, population stability depends upon high adult survival and a few successful years of reproduction, generally measured as recruitment. Recruitment, the process of adding young to the population, includes natality and mortality prior to first breeding. Young harlequin ducks do not enter the breeding population until their 2nd or 3rd year and consequently have a relatively greater risk of mortality before reaching sexual maturity than r-selected species. Recruitment is difficult to measure directly and must be estimated. Estimates of recruitment are often derived from studies conducted on relatively small areas of the breeding grounds and may be different from estimates obtained from larger wintering populations. We examined sex and age ratios, and trends for a group of harlequin ducks wintering in Prince William Sound, Alaska from 1997 to 2005. We used age ratios (the number of immature males to adult males) to index recruitment and assessed recruitment rates in the context of population trends. Differences in age ratios may indicate recent differences in breeding propensity, breeding success, or juvenile or immature survival. Annually, we counted approximately 5,000 ducks along 750km of shoreline. We observed little variation in abundance and sex ratios over the course of the study. However, recruitment varied annually. Sex ratios in Prince William Sound were skewed towards males in all years, averaging 40.9 females per 100 birds (range = 39.4- 41.9). Age ratios averaged 6.8 immature males per 100 males (range = 4.5-8.6). Similar recruitment rates were reported from studies that examined age ratios of wintering ducks in British Columbia from 1994-2000. With delayed maturity actual recruitment rates would be lower than observed in either study. We observed relatively little annual variation in recruitment and interpret the recruitment rates we observed as indicative of a stable population.

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