Poster: Gulf of Alaska - Mammals

Asymmetrical male-mediated gene flow between harbor seal (*Phoca vitulina*) populations in Alaska

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Harbor seals (*Phoca vitulina richardsi*) in Alaska are currently treated as three distinct management stocks. Previous genetic analyses using mitochondrial DNA (mtDNA) suggested that these stocks are differentiated genetically. We studied populations in Glacier Bay (GB; Southeast Alaska Stock), where harbor seals are declining, and Prince William Sound (PWS; Gulf of Alaska Stock), where the population has recently stabilized. Using 6 hypervariable microsatellite primers, we determined that these populations are a single panmictic unit with estimated migration rates of 22 (PWS to GB) and 63 (GB to PWS) animals per generation. The asymmetrical gene flow between GB and PWS is likely driven in part by a recent increase in competitors and predators of seals in GB. In contrast with males, emigration of females from PWS to GB (8.3 seals/generation) is higher than emigration of females from GB to PWS (3.3 seals/generation), likely because females use glacial ice as pupping habitat. Despite the high gene flow, the number of migrants per year (0.02% of the Gulf of Alaska population) is likely too low to influence the demographics of harbor seals in PWS, and the two populations may best be managed as separate stocks.

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