DO LOW GENETIC VARIATION AND INBREEDING RELATE TO LOW FECUNDITY IN A SMALL, ISOLATED POPULATION OF ANTARCTIC WEDDELL SEALS?

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A small, geographically-isolated population of Weddell seals (*Leptonychotes weddellii*) exists at White Island (WI), Antarctica. This population of fewer than 25 adults shows low fecundity, high pup mortality and limited population growth when compared to a nearby, presumably outbred population in Erebus Bay (EB), McMurdo Sound. Because this pattern is characteristic of inbreeding depression, we assessed genetic variation and inbreeding levels within the WI population and compared them to those of the EB population. We used multilocus DNA fingerprinting (two probes) to compare levels and distributions of genetic variation within and between WI (n=16) and EB (n=16) individuals. Overall band-sharing was similar in the WI and EB samples. Furthermore, WI individuals did not cluster in UPGMA nor neighbor-joining trees. However, band-sharing of 1992-1993 WI breeding adults was significantly higher than in non-breeding adults. Our results suggest that in the 1992 and 1993 breeding seasons, genetically similar individuals were mating and, therefore, inbreeding is occurring at WI. Thus, inbreeding depression cannot be ruled out as a cause of the reduced fecundity of WI breeding adults.

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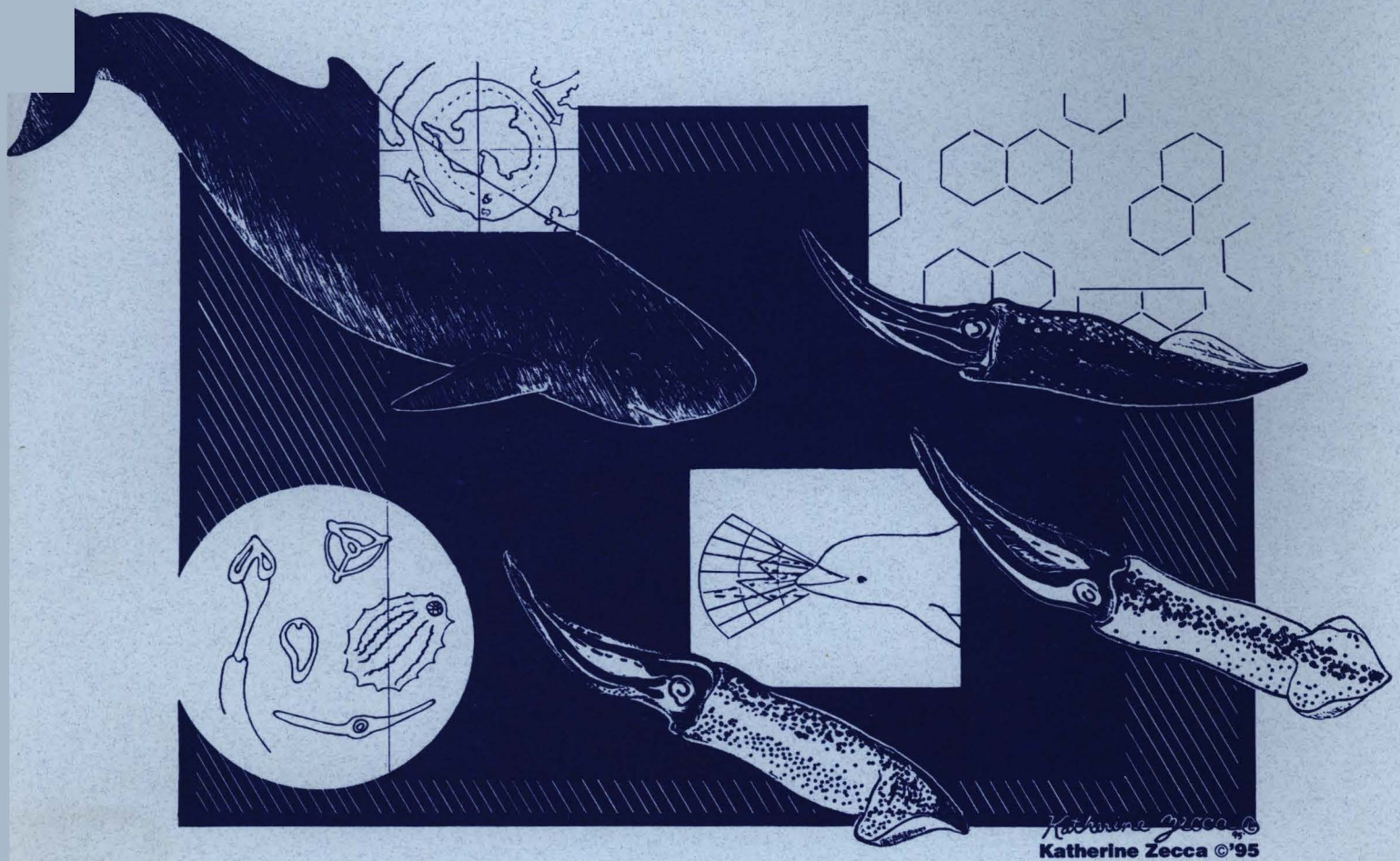

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ABSTRACTS