

MONITORING THE RECOVERY OF HARBOR SEALS AFTER THE EXXON VALDEZ
OIL SPILL IN PRINCE WILLIAM SOUND, ALASKA.

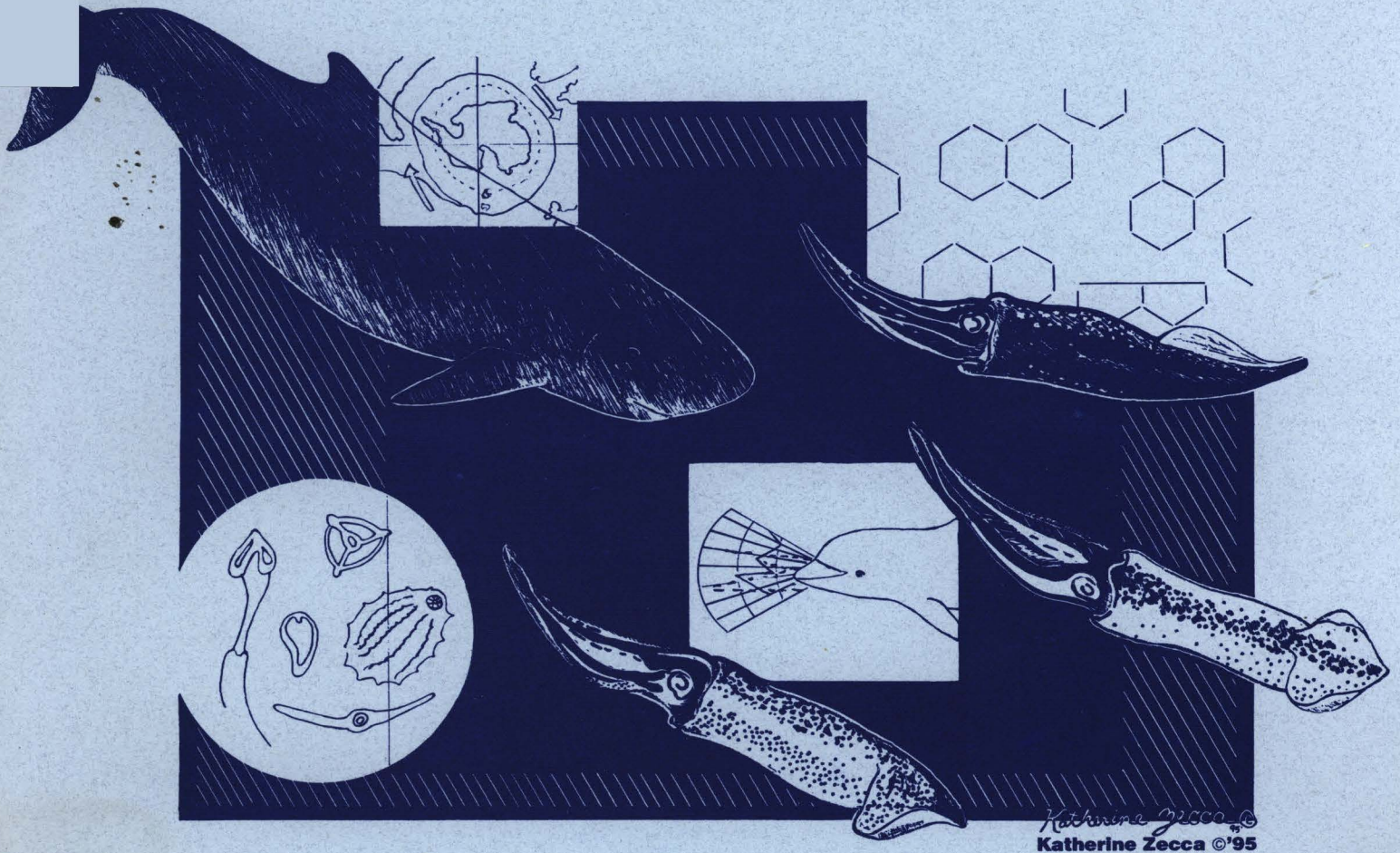
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The March 1989 Exxon Valdez oil spill (EVOS) in Prince William Sound (PWS), Alaska, caused additional mortality to an already declining population of harbor seals (*Phoca vitulina richardsi*). Prior to the spill, in 1984 and 1988 repetitive aerial counts had been made at 25 haulout sites in eastern and central PWS during the August-September molting period. From 1989-1994, counts of those sites were made annually both during the molt and during pupping in June as part of a study supported by the EVOS Trustee Council. Although during this period molting counts declined by 16% and pupping counts by 22%, regression analysis of raw counts indicated no significant trend.

Statistical analysis showed that the primary factors that influenced counts were date, time relative to midday, and time relative to low tide. Parameter estimates from a generalized linear model were used to adjust individual daily counts at each location to make them equivalent to counts made under optimum conditions. Regression analysis of adjusted molting counts showed a highly significant decline of about 6% per year, while the decline in adjusted pupping counts was not significant.

Power analysis was used to examine whether the current survey program will be able to reliably detect population recovery. Results showed that adjusted or unadjusted pupping counts and unadjusted molting counts have relatively little power. However, molting counts that have been adjusted for the effects of date, time of day, and tide have an 80% or better chance of correctly detecting a 5% annual increase if at least 6 replicate counts are made each year over a 5 year period.

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ABSTRACTS