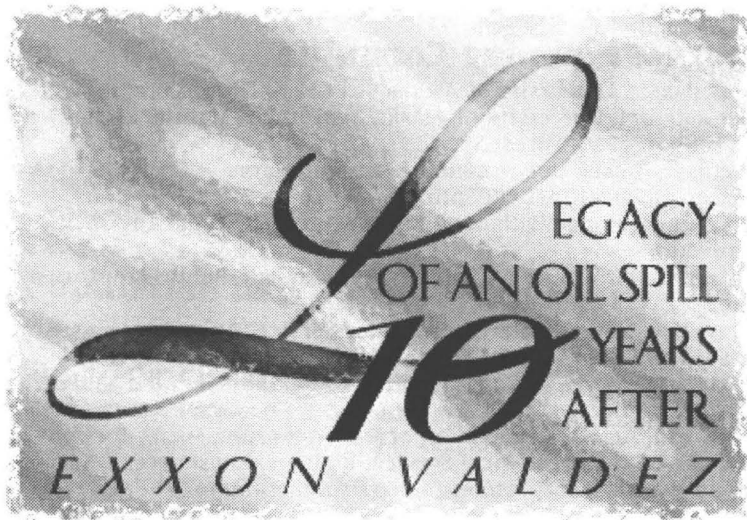


Trend and Habitat Use of Harbor Seals in Prince William Sound, Alaska, after the Exxon Valdez Oil Spill

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We used aerial counts to monitor the trend in numbers of harbor seals (*Phoca vitulina richardsi*) in Prince William Sound (PWS) following the 1989 Exxon Valdez oil spill. Repetitive counts were made at 25 haulout sites during the annual molt period each year from 1990 through 1997. A generalized linear model indicated that time of day, date, and time relative to low tide significantly affected seal counts. When Poisson regression was used to adjust counts to a standardized set of survey conditions, results showed a highly significant decline of 4.6% per year. The number of harbor seals on the trend count route in eastern and central PWS has been declining since at least 1984 with an overall population reduction of 63% through 1997.

During 1992 to 1997, we attached satellite tags to 63 harbor seals in PWS to investigate their movements and diving behavior. In southcentral PWS, adult females displayed strong site fidelity, seldom traveled, and made relatively short and shallow dives. Subadults traveled greater distances within and outside PWS, made deeper and longer dives, and utilized a greater variety of depths when diving. During this study there appeared to be a change in the feeding locations of seals during winter-spring. Before 1995, only 2 of 30 tagged seals traveled to the Copper River delta. During 1995 to 1997, 8 of 19 spent time there. This is consistent with fatty acid analysis indicating that seal diets changed in 1995. It is clear from these tagging studies that some harbor seals in PWS move considerable distances to feed during winter months. The distance from southcentral PWS, where most seals were tagged, to the Gulf of Alaska (either near Middleton Island or the Copper River delta) is more than 100 km. This is greater movement than has been reported for harbor seals in most other studies.



Abstracts

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