

**Declines in Harbor Seal Numbers in Glacier Bay National Park, Alaska**

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Glacier Bay National Park had one of the largest breeding aggregations of harbor seals in Alaska, and it is functionally the only marine reserve for harbor seals in Alaska. Yet, numbers of seals in Glacier Bay are declining rapidly, perhaps as an extension of the population declines that began in the Gulf of Alaska. Understanding why harbor seals are declining in a large area where they are more protected from human activities than anywhere else in Alaska may clarify their minimal habitat needs. We analyzed counts of seals from 1992 to 2002 from Johns Hopkins Inlet, a tidewater glacial fjord, from 559 counts over 191 days in June and August, and aerial surveys of all terrestrial haulouts in Glacier Bay from 45 different days. We estimated population trends using models that controlled for environmental and observer-related factors. In 1992, 6,200 seals were counted on icebergs in a tidewater glacial fjord and at terrestrial sites; by 2002 only 2,550 seals were counted at these same haulouts. Numbers of non-pups in the glacial fjord declined by 6.6%/yr (-39%/8 yr) in June and by 9.6%/yr (-63%/11 yr) in August and at all other haulouts by 14.5%/yr (-75%/10 yrs) during August. In the glacial fjord the number of pups remained steady from 1994-1999 and made up an increasing proportion of seals counted (5.4%/yr), and the proportion of pups peaked at 34-36%. The rapid declines do not appear to be due to changes in seal behavior or redistribution. The declines reinforce genetic evidence that harbor seals in Glacier Bay are demographically isolated from other populations and indicate that the three current management stocks need to be redefined. Changes in Glacier Bay's ecosystem and population demographic data from the glacial fjord suggest that inter-specific competition and predation are likely factors in the declines.

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