

# As Arctic sea ice melts, animal movement between the Atlantic and Pacific oceans needs to be monitored

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Accelerated decrease of sea ice extent in the Arctic is opening up routes connecting the Atlantic and Pacific oceans. This change makes it easier for birds and marine mammals to move between these oceans.

Observations suggest that these movements have increased in recent decades, including a gray whale (generally restricted to the Pacific Ocean) in the Mediterranean off the coast of Israel and a Northern Gannet (generally restricted to the Atlantic Ocean) on the Farallon Islands off the coast California.

Because Arctic sea ice is difficult to cross for many animals, the reduction of sea ice extent increases the likelihood that these animals moved between the Pacific and Atlantic via the Arctic. However, the actual routes traveled are not known with certainty.

As a result, it will be important to monitor these movements, and incorporate them into our understanding of ecology,

evolution, and conservation and in particular to assess species and system vulnerability to climate change.

To develop this understanding, we recommend increasing the effort to monitor the dispersal of wildlife through the Arctic Ocean. This monitoring should be coupled with distribution modeling that can project where new species will occur when they colonize oceans in which they have not occurred in recent history.

As these movements become increasingly frequent, the consequences may include changes in wildlife distribution, hybridization of closely related species that were previously isolated, and new patterns of disease transmission. We recommend that managers and policy makers consider the potential consequences and begin to plan accordingly.

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## Main Points

-The melting of Arctic sea ice is hypothesized to make it easier for seabirds and marine mammals to move between the Pacific and Atlantic oceans

-Recent observations of species that are likely to have crossed the Arctic suggest that these movements may be increasing

-Because Arctic sea ice extent is projected to continue to diminish rapidly, monitoring these movements will become increasingly important.

-Policy makers and managers will need to consider the potential for rapid changes in the distribution of seabirds and marine mammals and the consequences for ocean ecosystems

McKeon, C.S., M.X. Weber, S.E. Alter, N.E. Seavy, E.D. Crandall, D.J. Barshis, E.D. Fechter-Leggett, K.L.L. Oleson. 2015. Melting barriers to faunal exchange across ocean basins. *Global Change Biology*  
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