

DOES THE EXTENT OF ICE COVER AFFECT THE FATE OF WALLEYE POLLOCK?

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In the late-winter and early spring, walleye pollock spawn pelagic, individual eggs at mid-water depths. Some of the spawning grounds occur below sea ice, such as in the Sea of Okhotsk, but the effect of cold, low-saline water derived from melting sea ice on eggs is not well known. The present study examined the effect of cold, low-saline water on the survival and hatching success of walleye pollock eggs. The hatching rate of normal larvae was low below 2°C and high between 2 and 7°C, but showed no significant differences over the salinity range examined (24-35). Eggs in early development stages had a lower specific gravity than the water mass on the spawning ground, suggesting that eggs float to the surface within a day after being spawned where they will be exposed to cold seawater. These results suggest that cold seawater from melting sea ice could be a critical factor affecting the hatching success of larvae. The fate of walleye pollock stocks in relation to spatial changes of the optimal temperature range (2-7°C) caused by global warming will be discussed.