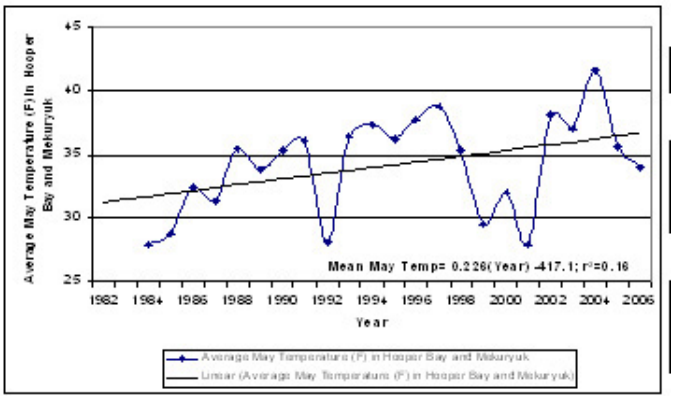
CLIMATE CHANGE: Observations from Region 7 Waterfowl, Yukon-Kuskokwim Delta



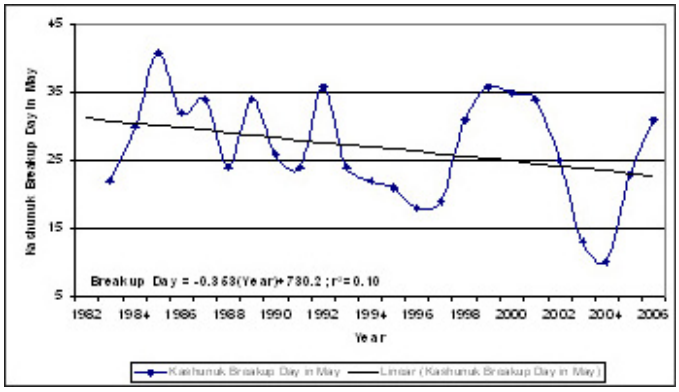


The Yukon Kuskokwim Delta is interlaced with ponds, lakes, rivers, streams, inlets, bays, and coastal areas, and provides breeding habitat for waterfowl from all four North American flyways. More than half a million geese and one million ducks, including the threatened spectacled eider, breed there annually.

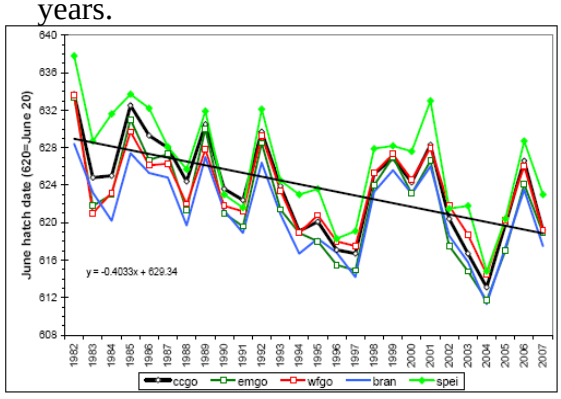
Spring weather has been variable over the last 25 years, but a general warming trend is indicated by a trend towards warmer coastal temperatures and earlier river breakup.



Average May temperatures on the coast of the YKD, 1983-2006. Spring temperatures are highly variable but have tended to warm over the last 25 years.



Timing of river breakup near the coast of the YKD, 1982-2006. Timing of breakup is highly variable but has tended to occur earlier over the last 25 years.



Estimated average hatch date based on egg float angles, 1982 – 2007.

Hatch dates have advanced significantly for geese and eiders over the last 25 years on the Y-K Delta. The change is most pronounced for cackling geese, emperor geese, and spectacled eiders whose eggs hatch 0.4 days earlier each year and are hatching 5-10 days earlier than they did 25 years ago. Hatch dates were highly correlated with May temperatures, timing of Kashunuk River breakup, and timing of snow-free tundra.

Preliminary data suggests that at this point, there have been changes in timing of nesting that are correlated with a variable and warming climate. The level of change in the environment, so far, does not appear to have impacted reproductive success of geese and eiders. However, continued warming could result in loss of nesting habitat through erosion and flooding, and changes to brood rearing habitat through salt-water intrusion and wetland drying. Because the rate of change in the climate cannot be predicted with assurance, and because we do not know how species within multiple trophic levels will adapt, it is difficult to know how and when changes will impact waterfowl species