Migration confers survival benefits against avian predators for partially migratory freshwater fish - DTU Orbit (28/12/2018)

Migration confers survival benefits against avian predators for partially migratory freshwater fish
The importance of predation risk in shaping patterns of animal migration is not well studied, mostly owing to difficulties in accurately quantifying predation risk for migratory versus resident individuals. Here, we present data from an extensive field study, which shows that migration in a freshwater fish (roach, Rutilus rutilus) that commonly migrates from lakes to streams during winter confers a significant survival benefit with respect to bird (cormorant, Phalacrocorax carbo spp.) predation. We tagged over 2000 individual fish in two Scandinavian lakes over 4 years and monitored migratory behaviour using passive telemetry. Next, we calculated the predation vulnerability of fish with differing migration strategies, by recovering data from passive integrated transponder tags of fish eaten by cormorants at communal roosts close to the lakes. We show that fish can reduce their predation risk from cormorants by migrating into streams, and that probability of being preyed upon by cormorants is positively related to the time individuals spend in the lake during winter. Our data add to the growing body of evidence that highlights the importance of predation for migratory dynamics, and, to our knowledge, is one of the first studies to directly quantify a predator avoidance benefit to migrants in the field.

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