SANDEEL AVAILABILITY AND ATLANTIC PUFFIN RECRUITMENT, MORTALITY, AND HARVEST IN THE WESTMAN ISLANDS

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About 20% of the Atlantic puffin (*Fratercula arctica*) world's population breeds in Vestmannaeyjar, about 1,300,000 burrows. Annual puffin harvest during the last decades in Vestmannaeyjar has been around 100,000 birds. The puffin's breeding success has been poor since 2005, attributed to a great reduction in the lesser sandeel (*Ammodytes marinus*) population. A newly started cooperative research project on the puffin-sandeel population dynamics is presented. Contemporary events evaluated are: (1) sandeel's annual population size, age composition, and mapping of the habitat distribution. (2) Puffin recruitment in relation to feeding frequency, and mortality by color ringing. The central goal of the project is the evaluation of the reciprocal effects of the sandeel and puffin population dynamics through time and climate change. This necessarily includes the effect of hunting on the puffin population. Two long-term data series are currently being analyzed and some preliminary results and aspects of analysis are presented: (1) Itemized annual puffin harvest in Vestmannaeyjar 1944-2007. This series contains information on sandeel population change, puffin recruitment rate and hunting pressure. (2) National puffin ringing data 1953-2008, of >60,000 birds ringed and 12,000 recoveries providing yearly- and age specific mortality rates. These data are further supplemented by two shorter data series: (1) annual number and season of fledglings since 1971, and (2) chick body mass at fledging since1996, among other data. Combined these data provide considerable insight into puffin and sandeel long term population dynamics in relation to environmental changes.