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THE PREDATION OF MUSSELS BY EIDERS (*SOMATERIA MOLLISSIMA*)
AND ITS EFFECT ON GERMAN MUSSEL FARMING

by

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ABSTRACT

In 1979/80 about 50,000 and 1984/85 as in 1985/86 100,000 Eiders were observed in the German Wadden Sea. Of this number approx. 15,000 resp. 30,000 birds were foraging on mussel culture beds and consumed about 4,000 - 8,000 t of mussels.

INTRODUCTION

The Eider *Somateria mollissima* is a protected bird in German waters. This largest northern diving duck considerably increased its number compared to the situation in 1950. The size of the Baltic/Wadden Sea population amounts to at least 650,000 Eiders (SMIT and WOLFF, eds., 1980). Mussels are the preferred diet in the Wadden Sea. Other food items are *Cardium*, *Psamm-echinus*, *Asterias* and *Carcinus* (BRÜLL, 1963). The Wadden Sea also is the main production basis for German mussel farmers. In 1985 total mussel landings amounted to 21,000 t. This is about the 10-year average (1976-85) of 20,000 t.

MUSSEL FARMERS AND EIDERS

From summer 1979 to spring 1980 about 50,000 Eiders were foraging in the German Wadden Sea. Of that figure approx. 15,000 birds concentrated around the mussel cultures for about 9 months. In 1984/85 and 1985/86 the respective figures were approx. 100,000 Eiders in the German Wadden Sea and at least 30,000 on mussel culture grounds. Eiders feeding on cultured mussels were observed also in Denmark (THEISEN, 1968), in the Netherlands (SMIT and WOLFF, eds., 1980), in Scotland (DUNTHORN, 1971) and the USA (LUTZ, ed., 1980).

MUSSEL CONSUMPTION BY EIDERS

Culture beds offer optimum feeding conditions to Eiders. This bird has a basal metabolic rate of 135 kcal (565 kJ) per day (SMIT and WOLFF, eds., 1980). The equivalent is 187,5 g mussel meat (SOUCI et al., 1962) or 938 g fresh weight of mussels having 20 % meat contents.

Accepting this figure we can arrive at a rough estimate on the possible amount of mussels, which is consumed by the above numbers of Eiders. 15,000 Eiders feeding for 9 months on farmed mussels would have consumed about 4,000 t in 1979/80. Some years later 30,000 ducks might have taken from mussel cultures about 8,000 t in 1984/85 and 1985/86.

OTHER ASPECTS

Eider ducks began to replace Shelducks Tadorna tadorna in the area of "Gros-ser Knechtsand". This Wadden area is one of the most important European moulting places of this species (OELKE, 1985).

With regard to parasites of invertebrates, the Eider has to be considered an important carrier of trematodes. From one single bird, 89,000 Himasthla-trematodes have been separated (LAUCKNER, in: KLEINSTEUBER and WILL, eds., 1986).

DISCUSSION

The increasing number of Eiders could be the result of a process, in which the exploitation of this natural resource diminished, and the food available to Eiders enlarged. If discussing possible means of limiting the feeding pressure on mussel cultures, one should also consider that there are many threats to the birds of the Wadden Sea, e.g. oil pollution.

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