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INFLUENCE OF ANTHROPOGENIC FACTORS ON BEHAVIOUR AND DISTRIBUTION OF THE BALTIC PINNIPEDS

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Abstract

Influence of anthropogenic factors on the seals (gray and ringed seals) in different life spans is considered based on the results of observations made in the Gulf of Finland and Bay of Riga from 1969 to 1985. Response of animals to the presence of the people, ships and aircraft is described. Possible negative consequences of distributing factors are discussed.

Résumé

Le travail présent examine l'influence des facteurs dérangeant du côté de l'homme envers les phoques (phoque gris et phoque marbré) dans de différentes periodes de leurs vie à la base de résultats des observations menées dans le golfe de Finlande et le golfe de Riga en 1969-1985. La réaction des animaux sur la présence des gens, bateaux, avions est décrite. Les conséquences négatives éventuelles des facteurs dérangeant sont discutées.

A problem of conservation of wild animals, especially of rare and scanty species, in the age of progressive industrialisation puts forward before the zoologists the task of working out the measures for their reproduction. Routine research of major aspects of their biology, distribution and abundance has expanded due to necessity of studying the influence of anthropogenic factors and response of the animals to these irritants. Such studies involving the Baltic pinnipeds are very important and actual.

The Baltic Sea is inhabited by three pinniped species: common seal (Phoca vitulina), gray seal (Halichoerus grypus) and ringed seal (Pusa hispida botnica). From long ago these animals have been yielded by the coastal Baltic countries. However unlimited capture in the past and pollution of the sea in the course of the recent decades have resulted in reduction of the pinniped abundance, and the population of the common and gray seals appeared to be in a critical situation. At present, the yield of seals is prohibited in all countries of the Baltic region except for Finland where a small-scale fishery still persists. The development of measures for protection and renewal of abundance of the seals requires a comprehensive study of conditions and factors affecting the animals. In this respect, a factor of disturbance originating from the human activity is the one of great importance.

The present paper is based on the results of observations on the gray and ringed seals made in the Gulf of Finland and the Bay of Riga in the spring and summer-fall seasons in 1969 to 1985.

In their economic activities, the people often intrude into the territories which are the seals' biotops, thus upsetting the

bitual rhythm of their life. The animals manifest the response differing acuity depending on the rate of intrusion. In the ter the seals feel more or less out of danger. Approaching ips or boats arise their curiosity, they swim rather close to em and examine them remaining in a vertical position for a long ime. The young animals are especially curious, keeping 3-5 m way from the ships. If the ship moves at low speed the seals ccompany her for some time. Sometimes the seals were observed o accompany the ships conducting the fishing for a long time. owever, when the ships move at high speed or their approach is ccompanied by sharp sounds (hooting, shots), the seals quickly wim away and keep at a considerable distance.

Observations of the pinnipeds in the rookeries showed that their behaviour there is characterized by extreme caution. Approaching the rookeries, they swim around them for some time examining the surroundings. If the people are present nearby, the seals stay in the water keeping at a considerable distance. If the people stay long in the area of rookeries, the seals leave for more quiet sites. Stony ridges around the islands and along the coast are preferred by the seals as rookeries. Acuity of response to arising danger depends on its source. When the pinnipeds become aware of the approach of the people from the shore, they show anxiety long before the latter come nearer, rising their heads, looking around and performing different body movements. As soon as the people approach the 200-300 m mark, the seals begin to slip into the water and swim not far the rookeries, until the people disappear. If the people remain long in the area of rookeries, the

animals leave for other sites. If these sites appear to be near the islands, the seals observe the coastline very carefully, if satisfied, they occupy the new site. Nevertheless, at first they are very cautious and often rise their heads looking around. During this period the seals are very sensitive to any strange sound or to the approach of the people or the ships. Usually, the response is only one - the animals quickly slip into the water. The animals who lie in the group for long are less cautious. On hearing a strange sound, they begin tp look around, but calm down as soon as it dies away. If the sound is very intensive and sharp (shot, aircraft braking through the sound barrier, etc.), the majority of seals immediately dive into the water. For some time they swim not far from the rookeries, and then get on the shore. The response to approaching people or ships somewhat differs: first the animals display a slight anxiety, then they begin to rise heads more often and look for the sourse of possible danger; on closer approach the anxiety increases, several animals slip into the water soon followed by the bulk of the group. The Baltic seals are especially cautious during the birth period. When disturbed, the seals immediately slip into the water, and do not reappear on the ice for hours. If females become frightened when they feed their pups, they interrupt feeding and leave the pups, sometimes condemning them to starvation (Reijnders, 1981). Newborn pups stay constantly on the ice or in snow laiers. In case of danger they either keep quiet or hide in ice-hummocks. At this stage of life they are actually defenseless. The air surveys showed that the seals lying on the ice are very sensitive to the noise made by the planes and helicopters. Some animals leave the shore when the plane

is at a distance of 1 km, most keep still untill the distance is 0.5 km, and only individual seals endure a shorter distance.

During the moulting the pinnipeds stay mostly in the rookeries and ehter the water with reluctance. This can be explained by the fact that in the air the hair-covering of the animals changes more rapidly. The course of the subsequent phases of the biological cycle and the rate of accumulation of the fat depot for wintering depend on the intensity and speed of moulting (McLaren, 1958; Pastukhov, 1982).

As is evident from the above-stated, the anthropogenic influence on the pinnipeds makes them experience extra psychological loads, the consequences of which have not yet been studied. However the negative effect of such an influence is obvious. Certainly the animals may happen to find themselves in oppressive situations leading to disturbance of the normal vital activity. The experience of transportation of the adult seals shows that they cannot stand long trips by trucks and die in some hours from psychological overloads. Certainly this is an example of one of the most harmful influence on the pinnipeds, however, the situations arising occasionally in the nature call forth the response which is beyond the abilities of the protecting systems of the organism.

Most often the animals cannot be completely guarded against the influence of the human activity, but its restriction must become the most important task, especially so for protected territories. The problem of elimination of disturbing factors during the main periods of the pinniped life - birth, lactation and moulting periods - is of primary importance.

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