164

USSR Ministry of Fisheries

Ichthyological Commission of the USSR Ministry of Fisheries

Pacific Ocean Research Institute of Fisheries and Oceanography (TINRO)

Biological Resources of the Far-East Seas, p. 113-115
(Biologicheskie resursy morei dal'nego vostoka)

Papers of the All-Union Conference, Vladivostok, Oct. 1975

Reproduction of Pacific Walruses
(Vosproizvodstvo tikhookeanskogo morzha)

V.N. Gol'tsev (MoTINRO)

The results are presented here from the processing of the data acquired from 213 walrus females 4 to 27 years of age. The animals were caught during the summers of 1972 and 1973 in the Chukotsk Sea. Out of the 213 females caught, 201 turned out to be mature ones. The period for the onset of sexual maturity for female walruses extends from 4 to 8 years. They begin reproduction usually a year or two later and as an exception, in the year of maturation. Among 4-year-old females 17% were pregnant, 55% of 5-year-olds, 90% of 6-7-year-olds, 92% of 8-year-olds, and 100% of 9-year-olds.

After beginning reproduction the females reproduce until the end of their lives more or less regularly, which the increase in the number of pregnancies with age on the average for each female shows. The onset of a climacteric period is not found.

In the reproductive organs of the females a number of pathological changes were found: the formation of cartilaginous capsules at the area of large follicles; the development of connective-tissue tumors on the body of the ovary; the degeneration of the cortical tissue into connective tissue; deposits of salts in the horn of the uterus. The last two phenomena make the females sterile; the others usually do not affect their participation in reproduction. Another cause of sterility has been noted: the resorption of the corpus luteum of pregnancy which occurs as a consequence of the unsuccessful implantation of a blastocyst.

Based on the quantity of corpus albicans from past pregnancies and corpus lactation found in the ovaries, it was calculated how many pregnancies had occurred up to the given moment. There turned out to be 659 of them, that is, 3.28 for each mature female. To this number were added still another 87 pregnancies this season. As a result, the overall number of pregnancies amounted to 746 or 3.71 for a mature female. J. Burns (1965) by the same method obtained 3.22 pregnancies for each female.

Six years was conditionally taken as the start of the first pregnancy, and the number of reproductive years in each age group and in each sample was obtained. It turned out that 201 mature females produced 659 pups during 1,384 reproductive years--on the average, one pup in 2.1 years;

according to Burns' data (1965), one pup in 2.3 years (Garbo, 1961, in 2.4 years).

K. Chapskii (1936), S. Freiman (1941) and A. Mansfield (1959) came to the conclusion that female walruses give birth once in two years. V. Krylov (1962) presents a complex reproduction cycle, but according to his data, on the average 35% of the mature females reproduce annually. According to Burns' (1965) data 46.2% of the mature females give birth annually.

In our sample, 87 females (43.3% of the number of mature ones) reproduced in the given season. Out of this number, 10 individuals (5%) became pregnant the second year in succession; however, a large part of the lactating females--91 (45.3%)--did not reproduce. The remaining 11.4% were sterile females and those giving birth less than one time in 2 years. It is apparent that these figures should not be considered constant. They fluctuate annually within small limits which produce a complicated rhythm in the births by the females. The increase varies from 6.3% (Krylov, 1962) to 17% (Freiman, 1941). The mature portion of the population amounts to 60%. Since the sex ratio in the herd is 1:1, the amount for the females is 30%. However, only 43.3% of them gives birth annually; consequently the increase amounts to 13%.

At present the Pacific walrus population amounts to 100,000 to 117,000 individuals (Burns, 1967; Gol'tsev, 1972) with an annual increase of 13,000 to 15,000 individuals. It is quite possible that 15 years ago when the herd was in a depressed state (Fedoseev, 1962), the immature portion was relatively less (30-35%) and the increase might amount to 15-16%.

With the growth of the herd the rate of increase may negligibly decrease because of an increase in longevity and, accordingly, because of the number of age groups in the population.