A THIRTY FOUR YEARS OLD MALE KURIL SEAL FROM SHIRETOKO PEN., HOKKAIDO

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The Kuril seal (*Phoca kurilensis* INUKAI, 1942) is distributed from northern Kuril Islands to the Pacific coast of eastern Hokkaido. The population in the Kuril Is. is estimated at under 2,000–2,500 including those in the Shikotan and Habomai Is. (Belkin, 1964). The Japanese population is limited to nine hauling grounds in the above range, and the number is estimated at 200–250 individuals (Niizuma et al., 1980; Fig. 1). The presence of the species along the Okhotsk coast of Hokkaido is not confirmed at the present.

The present material was shot by Mr. H. Ohki, an expert seal hunter, in the Spring of 1980 on the coast of Kuzurehama at Shiretoko Pen. (Fig. 1). He identified the species by its black coat marked with white ring spots and its large body size. The sex was not recorded by him. The skull was brought to us for detailed analysis, and registered as Protocol Number 1351 of Department of Anatomy, Faculty of Dentistry, Hokkaido University.

The skull shows some of the features of *P. kurilensis* mentioned by Belkin et al. (1969); that is, as compared with harbour seal (*P. vitulina larga*), the posterior margin of the zygomatic bone makes a corner, the inferior surface of the tympanica is flat and the proboscis is massive (plate I). The skull measurements are as follows; condylobasal length 232 mm; zygomatic width 152 mm; mandibular length 161 mm. The condylobasal length of the present specimen is larger than the maximum size (227 mm) of *P. v. larga* reported by Belkin et al. (1969), and come within the range of male *P kurilensis* 226–248 mm. According to the data of Belkin (1964), the range of zygomatic width of the female *P. kurilensis* is 122.4–145 mm and that of the male is 134.5–158.7, and the mandibular length of the female is 141.6–160.2 and the male is 149.2–174.8. All the above measurements on the present specimen exceed the range of the female and come in the range of the male. This strongly suggest the specimen may belong to a male rather than a female.

The preparation of tooth slides for age determination was done as follows. At first step, several longitudinal sections of about 40 μ in thickness were taken from the root of a canine tooth using a fine saw with diamond wafering blades (Kosaka Loboratory Ltd, C1–1). Then, they were decalcified with plank-Rychlo's solution (Plank and Rycholol 1952) for 10–15 min. at room temperature, and stained with Delafield's haematoxylin for 1–30 min. Finally they were mounted with Canadian balsam for permanent preparations.

There were observed 34 stainable layers in the cementum. And the age of the animal was considered to be 34 years old (Plate I). The age determination by Naito and Nishiwaki (1972) on the un-decalcified thin sections of 49 males and

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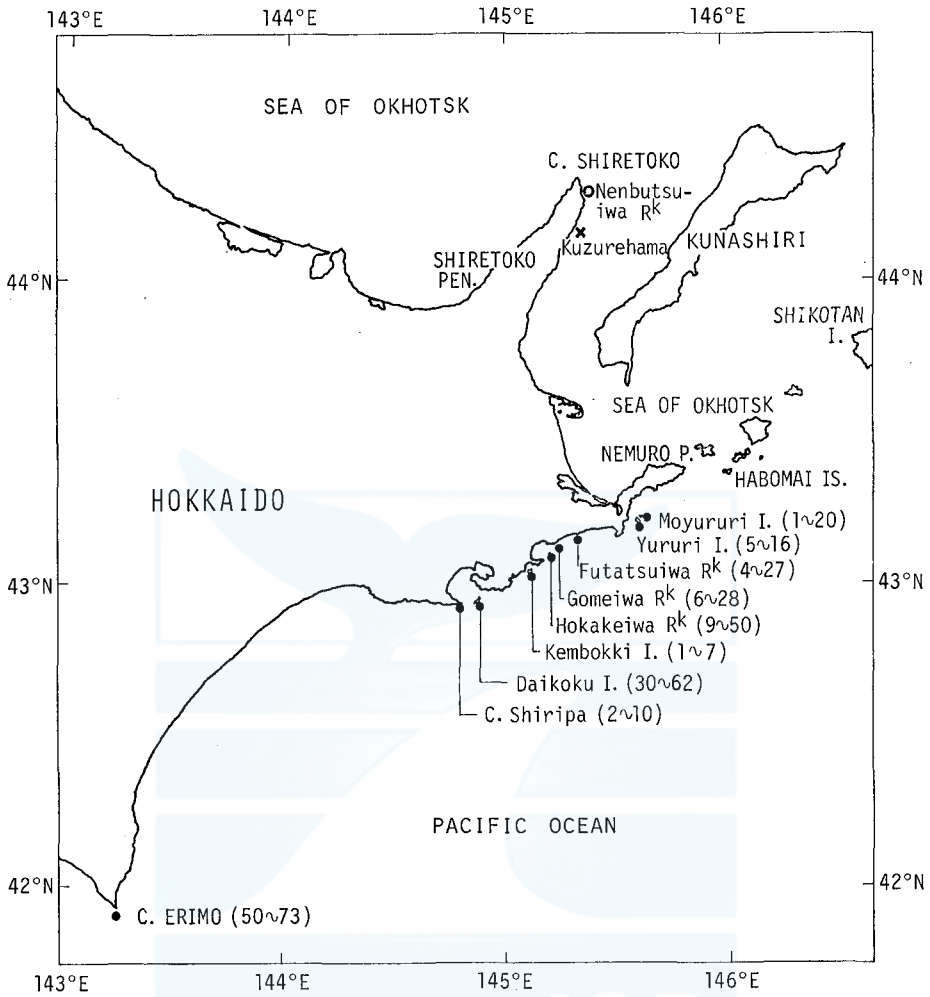

Fig. 1. Geographical distribution of the nine hauling grounds (●) of *P. kurilensis* along the coast of eastern Hokkaido, Japan. Numbers show the result of censuses taken by the Marine Mamm. Res. Group in the middle of June during the years 1974–1981 (From Niizuma et al., 1980 and unpublished data). × indicates the location of present material.

57 females of the same species revealed that 98% of the males were under 10 years and 95% of the females under 18 years, and that the maximum ages of the males and females were 18 and 24 years respectively. According to Naito and Konno (1979), the maximum age of the *P. v. larga* obtained by the same method was 30 years in males and 33 years in females, and the corresponding figures also obtained by the same method (Y. Naito pers. comm.) of the ribbon seal (*P. fasciata*) was 26 years and 21 years respectively. In the subgenus *Pusa* animals of over 40 years have been found by the stained sections and the group is considered to be the most

longevous among the Pinnipedia (Helle, 1980). From the condition on the heavily worn teeth of the present individual (Plate I), the age of 34 years is considered to be close to the maximum age of the species in natural environment, as shown the maximum ecological longevity by Ohtaishi (1978) of this species.

It is thought that the present individual of *P. kurilensis* might be originated from the southern Kuril Is. However, it is also possible to regard it as a survivor of a breeding colony previously existed on the Shiretoko Pen. According to Mr. I. Nedefuji, an old seal hunter, *P. kurilensis* had bred untill about 1959 on the cliffy coast between Kuzurehama and Nenbutsuiwa Rock on the east coast of the Shiretoko Pen. Since the male *P. kurilensis* tends to remain at its birth hauling ground almost around the year (Marine Mammal Research Group, 1978), the latter consideration may be more plausible.

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EXPLANATION OF PLATE

PLATE I

Fig. 1. Cementum of the canine teeth. DC shows dentino-cemental junction; the numbers show the age of each layer. Hematoxylin stain. ×22

Fig. 2. Lateral view of skull. Posterior margin of zygomatic bone makes a corner, the inferior surface of tympanica is flat and the proboscis is massive.

Fig. 3. Dorsal view of skull and mandible. The teeth are heavily worn.