

# Steller's Sea Eagle Oh-washi (Jpn) *Haliaeetus pelagicus*

## Morphology and classification

**Classification:** Accipitriformes Accipitridae

Total length: 85-94cm  
 Wing length: ♂ 560-590mm ♀ 600-650mm  
 Tail length: 330-400mm Culmen length: 62-75mm  
 Tarsus length: 96-115mm Weight: 4.9-9.0kg

The total length and weight after del Hoyo et al. (1994), and others after Kiyosu (1978).

### Appearance:

Males and females are similar in plumage coloration. Adult birds are blackish brown all over except for rectrices, wing coverts, thighs and forehead, which are conspicuously white. The beak, feet and irises are bright yellow. Juveniles of the year are dark brown all over with a white patch on the wing. The tail has blackish brown flecks on a white ground. The beak is pale yellow, but very dark at the tip and almost white at the base. Young birds of 2-3 years of age have white tails with some dark mottles. The leading edges of the wings start to have white feathers. The beak is vivid yellow but some individuals may retain dark tips. Subadults of 4-5 years have white parts on the leading edges of the wings and the tail, but some dark feathers may be mixed. Adult plumage will be completed at the age of 6 years (Nakagawa unpubl.).



Photo 1. Adult Steller's Sea Eagle on the sea ice.

### Vocalization:

They bawl like "Kak, kak, kak, kak" in roosting forests and on the sea ice. Although similar, the call of Steller's Sea Eagles sounds thicker and deeper compared to that of White-tailed Eagles, which sounds drier.

## Distribution and Habitat

### Distribution:

Steller's Sea Eagles are distributed in far eastern Russia, Japan, northern China and the Korean Peninsula. They breed in the limited areas of far eastern Russia such as, southern Koryak, the Kamchatka Peninsula, the lower reaches of the Amur River, the Shantar Islands, northern Sakhalin Island, and the coastal areas of Magadan and Khabarovsk. They over-winter primarily in northern Japan (Hokkaido and northern Honshu), the southern Kamchatka and the Kuril Islands, with some birds in northeastern China, the Korean Peninsula and western Japan. The world population is estimated to be 5,000-7,000 birds, and approximately 2,000-2,500 birds are assumed to winter in Japan and the southern Kuril Islands.

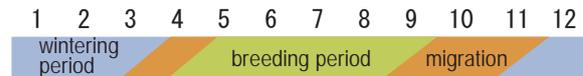


Fig. 1. Distributions of Steller's Sea Eagles. Deep green: Breeding grounds and the areas as year-round-residents. Light green: Wintering grounds and the areas as rare migrants.

### Habitat:

Steller's Sea Eagles build their nests on sea cliffs, huge rocks and in the woods on a coastal slope, while they use seashores, lagoons and mouths of a salmon spawning river as a foraging site in the breeding period. In inland areas, on the other hand, they build the nest in tall trees of a forest and cliffs along a river and around a lake and a marsh. Steller's Sea Eagles wintering in Hokkaido frequently feed in salmon spawning rivers and estuaries as well as forests, lakes and marshes of a coastal area. They are also found in inland areas with deer carcasses (Collar et al. 2001, Ueta & McGrady 2000).

## Life history



### Breeding system:

Steller's Sea Eagles are monogamous. The breeding period varies with the region.

### Nest and egg:

They build the nest in tall trees and on cliff ledges of the coastal areas, such as the wetlands along rivers, around lakes and marshes. They generally use birches and aspens as a nest tree in Kamchatka, while they frequently nest in larches in the lower reaches of the Amur River and Sakhalin. Their breeding season starts in late February in Kamchatka with a regional variation. They exhibit display flight while calling at the same time, and start building a nest which is completed in early April. The egg-laying generally starts in late April, but may occur as late as late May. The clutch size is usually 2 eggs, with a range of 1-3 eggs. The color of the egg is white.

### Incubation and nestling periods:

The incubation period is 1-1.5 months. The eggs hatch from mid-May to mid-July. The hatchlings are covered with gray down, and are fed fish and birds by the parent birds. Fish (pikes, etc.) and birds account for 80% and 10% of the food carried to the nest, respectively in the lower reaches of the Amur River. In Kamchatka and Sakhalin, on the other hand, Japanese pond smelts (*Hypomesus nipponensis*) and cod are fed to the nestlings. The juveniles grow up to the size of half to 2/3 of the parents by the end of July. They usually fledge in August, but occasionally in early September (Lobkov & Neifel't 1986).

### Migration and wintering ground:

Steller's Sea Eagles set out on a migration from the breeding grounds in September. Those breeding in Kamchatka, for instance, head for the southern part of the peninsula and the Kuril Islands to winter. The majority of the Steller's Sea Eagles that breed in the northern part of the Sea of Okhotsk such as Magadan, the lower reaches of the Amur River and northern Sakhalin Island go south through Sakhalin and arrive in Hokkaido via the Soya Strait after October. After they land in Hokkaido, they generally travel south-east to the Shiretoko Peninsula along the coast of the Sea of Okhotsk. Some of them stay for a short period of time in salmon spawning rivers from the Soya Cape (the northernmost cape of Japan) to the Shiretoko Peninsula. The recent studies of wintering eagles, however, have revealed that most of them go over to Kunashirito and Etorofuto Islands of the Kuril Islands to spend the first part of the winter. A total of nearly 2,000 Steller's Sea Eagles head east along the coast of the Shiretoko Peninsula between late October and late November. More than 400 birds pass the coast in a single day at the peak period. The eagle count showed that 1,135 Steller's Sea Eagles wintered in Kunashirito and Etorofuto Islands at the end of December 1998. They are assumed to return to eastern Hokkaido again in January because wintering Steller's Sea Eagles increase in number in the coastal areas of the Shiretoko Peninsula and Lake Furen in January. In addition to eastern Hokkaido, Steller's Sea Eagles winter in the Ishikari River basin, rivers of the Hidaka and Oshima regions in central-south Hokkaido, and Iwate and Miyagi Prefectures (north-east Honshu). Therefore, the total of Steller's Sea Eagles wintering in northern Japan amounts to 1,700-2,300 birds. Some of them begin to depart their wintering sites for the breeding ground as early as March. In spring, they retrace the route along the coast of the Sea of Okhotsk to Sakhalin, stopping over at lakes and marshes. In April many Steller's Sea Eagles are observed to fly north out of Cape Soya. (McGrady et al. 2000, WGWS 1996, Ueta et al. 2004).

## Diet and foraging behavior

The diet of Steller's Sea Eagles consists of fish, birds and mammals including their carcasses. The fish is composed principally of Salmonid fish such as pink and chum salmon and gadidae fish such as Alaska pollacks (*Theragra chalcogramma*), the prey bird is comprised primarily of alcids, gulls and cormorants, and the mammal is mainly made up of foxes, muskrats, hares and ringed seals. In the breeding season, fish predominate their diet in the lower reaches of the Amur River and Kamchatka, while birds occupy the major part of it in the northern coast of the Sea of Okhotsk (Utekhina et al. 2000). From late autumn to early winter in Hokkaido, they gather in estuaries or along rivers to forage for pink and chum salmon. In the coast of the Shiretoko Peninsula, they consume carcasses of whales and pinnipeds washed up on the beach by rough seas. During the coldest period of winter, they ingest frozen salmon carcasses preserved in the river. When they finish off the supply of these carcasses, however, they turn to leftover fish from fishery. A large number of Steller's Sea Eagles are attracted to small fish, such as White-edged rockfish, tidepool gunnel and Japanese dace discarded from ice fishing on lakes of eastern Hokkaido.



Photo 2. Steller's Sea Eagles gathered at an ice-fishing site (above) and around a whale carcass (below).

## Topics of ecology, behavior and conservation

### ● Changes of food and distribution

The studies of the Working Group for White-tailed Eagles and Steller's Sea Eagles show a long-term change in the distribution of Steller's Sea Eagles wintering in Hokkaido. More than 90% of the Steller's Sea Eagles wintering in Hokkaido concentrated in the coast of Rausu at the eastern base of the Shiretoko Peninsula from the mid-1980s to 1990. They were attracted to fish discarded from the gill net fishing of Alaska pollacks along the coast of Rausu. In the 1990s, however, the Alaska pollack haul declined rapidly to 10% of that of the peak period. With the drop of the haul, Steller's Sea Eagles gathering in the coast of Rausu decreased in number as well. They dispersed to other areas of Hokkaido (Fig. 2). They increased in lakes where the ice fishing was carried out, such as Lakes Furen and Akkeshi and rivers with salmon carcasses. In addition, they started to be observed in the inland areas of eastern Hokkaido where few Steller's Sea Eagles had wintered before. In these sites, they were attracted to the carcasses of shika deer which rapidly increased in the 1990s. Some of the deer carcasses were left over from hunting, which was responsible for lead poisoning of some eagles. In the coast of Rausu, tour boats operated in the sea ice period started to place fish scrap, which attracted many White-tailed and Steller's Sea Eagles (Nakagawa 1999, 2007).

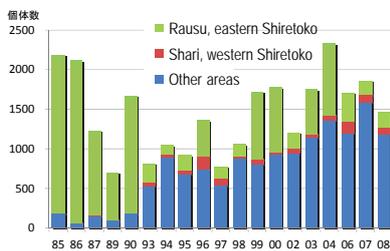


Fig. 2. Long-term changes in the abundance and distribution of wintering Steller's Sea Eagles. (Based on the study of the Working Group for White-tailed Eagles and Steller's Sea Eagles).

### ● Conservation issues

Lead poisoning has represented a serious threat to Steller's Sea Eagles since the mid-1990s. They suffer from lead poisoning by accidentally ingesting lead fragments when they consume deer carcasses or remnants hunters killed with lead bullets. In the the winter of 1998

when cases of lead poisoning occurred most frequently, a total of 26 White-tailed and Steller's Sea Eagles died of lead poisoning. In Hokkaido, the use of lead bullets for deer hunting was banned by 2001, and the cases of lead poisoning in eagles have decreased accordingly. However, up to 5-8 White-tailed and Steller's Sea Eagles are still found dead due to lead poisoning every year. A regional ban on the lead bullet use in Hokkaido is not sufficient, and the nationwide restriction of the possession and sale of lead bullets is urgently required to prevent eagles from falling victim to lead poisoning. In addition, wintering Steller's Sea Eagles are not only killed by collision with automobiles and trains but also electrocuted on power lines. In Sakhalin, on the other hand, the breeding habitat of Steller's Sea Eagles has been degraded due to the development of energy resources. In 2006, a large amount of seabird carcasses covered with oil were washed up on the coast of the Shiretoko Peninsula, and two Steller's Sea Eagles died of secondary oil poisoning because they consumed the polluted seabirds. It is also confirmed that they have accumulated chlorinated hydrocarbons, such as PCB in their body (Lead Poisoning Network 2004, etc.).

## Literature

- Collar N.J., et al. (eds.) 2001. Threatened Birds of Asia: The BirdLife International Red Data Book Part A. BirdLife International, Cambridge.
- del Hoyo J., Elliot A. & Sargatal J. (eds.) 1994. Handbook of the Birds of the World. Vol.2. New World Vultures to Guinea-fowl. Lynx Edicions, Barcelona.
- Kiyosu Y. 1978. Great Reference of Japanese Birds II Revised edition with supplement. Kodansha, Tokyo. [J]
- Lobkov E.G. & Neifel'dt I.A. 1986. Distribution and biology of the Steller's Sea Eagle *Haliaeetus pelagicus* (Pallas). Proceedings of the Zoological Institute 150 "The Distribution and Biology of Birds of Altai and Far East", 107-146. (Yuzo Fujimaki translation. "Birds of the Far East -11" pp.1-32. the Far Eastern Bird Society, Obihiro) [J (original in Russian)]
- McGrady M.J. et al. 2000. Migration and wintering of Juvenile and immature Steller's Sea Eagle. In Ueta M. & MacGrady M.J. (eds.). First Symposium on Steller's and White-tailed Sea Eagles in East Asia. pp.83-90. Wild Bird Society of Japan, Tokyo.
- Nakagawa H. 1999. The Steller's Sea Eagle. In Shiretoko museum (eds.). Birds in Shiretoko. pp.178-219. Hokkaido Shimbusha, Sapporo. [J]
- Nakagawa H. 2007. The Steller's Sea Eagle and the White-tailed Eagle: conservation measures. Kakkou (Sapporo Chapter of Wild-Bird Society of Japan newsletter) 290:6-9. [J]
- WGWS: Working Group for White-tailed Eagles and Steller's Sea Eagles. (1996) Yearly fluctuations of number of Steller's Sea Eagle and White-tailed Eagles wintering in Hokkaido and northern Honshu. The status of rare species of wild fauna and flora report consigned by the Environment Agency in 1995 fiscal year. Pp1-9. Wild-Bird Society of Japan, Tokyo. [J]
- Ueta M., Fukuda Y., Matsumoto K. & Nakagawa H. 2004. The migration of Steller's Sea Eagles in the Shiretoko Peninsula. Strix 22:71-80. [J+E]
- Ueta M. & MacGrady M.J. (eds.) 2000. First Symposium on Steller's and White-tailed Sea Eagles in East Asia. 127pp. Wild Bird Society of Japan, Tokyo.
- Ueta M., Sato F., Nakagawa H. & Mita N. 2000. Migration routes and differences of migration schedule between adult and young Steller's Sea Eagles *Haliaeetus pelagicus*. Ibis 142:35-39.
- Utekhina I., Potapov E. & MacGrady M.J. 2000. Diet of the Steller's Sea Eagle in the Northern Sea of Okhotia. In Ueta M. & MacGrady M.J. (eds.). First Symposium on Steller's and White-tailed Sea Eagles in East Asia. pp.83-90. Wild Bird Society of Japan, Tokyo.
- Lead Poisoning Network of Eagles. 2004. Aiming at stopping the lead poisoning in eagles VI. Lead Poisoning Network of Eagles, Kushiro. [J]

## Author

Hajime NAKAGAWA Shiretoko Museum, Shari Town

As soon as I graduated the Agriculture Department of Hokkaido University in 1973, I moved to eastern Hokkaido to live and work on nature conservation activities as well as bird studies. I became a curator of the Shiretoko Museum in 1978 and was engaged in educational activities as well as studies of bird and mammal ecology. As the secretary-general of the Shiretoko Foundation, I began to work to promote the use of the Shiretoko National Park and help with the management in 1991. I have served as the director of the Shiretoko Museum since 1995. I specialize in animal ecology and wildlife conservation and management.

