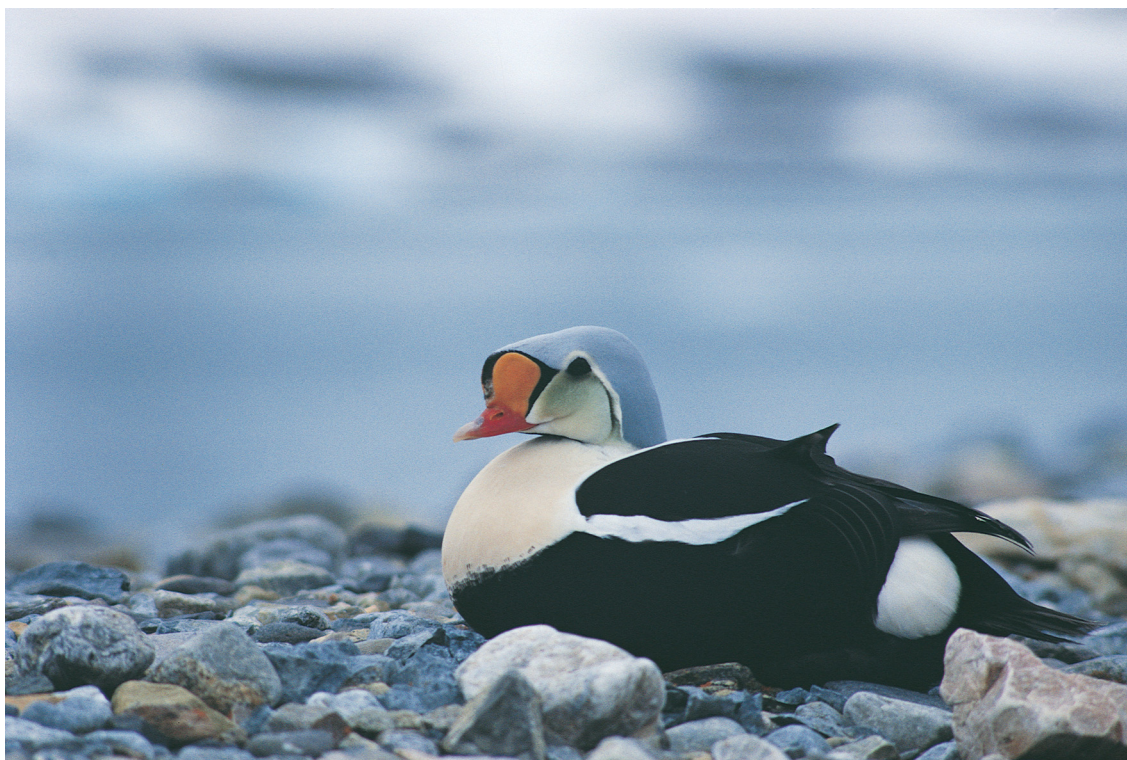




Migration patterns, breeding- and moulting locations of king eiders wintering on the coast of Norway as determined from satellite telemetry

Jan Ove Bustnes & Geir Helge Systad

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Migration patterns, breeding- and moulting locations of king eiders wintering on the coast of Norway as determined from satellite telemetry

Many sea duck species have declined in recent years, and there is currently concern about several populations. There have been particular focus on eiders, and recently breeding populations of both king eiders *Somateria spectabilis* and common eiders *S. mollissima* have been declining. The king eider is a somewhat nomadic species, and its major wintering area in Europe is the coast of northern Norway. There are, however, no reliable estimates for the size of the wintering population; it might however consist of more than 100,000 birds. Systad & Bustnes (1999) counted 30,000 wintering birds on the Finnmark Coast alone in the late 1990s. The origin of Norwegian wintering population has been unknown, as there are no recoveries of banded birds. It was therefore pertinent to study migration and origin of this large population within the framework of SEAPOP. Many recent studies have demonstrated that the most efficient method of acquiring movement data on sea ducks is by using implanted satellite transmitters, and in this study we deployed 10 transmitters in king eiders. The project is carried out in cooperation with Anders Mosbech and Christian Sonne at the National Environmental Research Institute in Denmark (Danmarks Miljøundersøkelser).

Methods

The area of deployment was Båtsfjord in eastern Finnmark. In the last week of February 2008 king eiders were caught using sinking nets in the Båtsfjord harbour area. Five males and five females were selected for implanting of transmitters by surgical procedures (Figure 1). After a short period of recovery (about 2 hrs) the birds were released. The signals from the transmitters were received by ARGOS satellites.



Figure 1
Male king eider fitted with an implanted satellite transmitter. The antenna is clearly visible.
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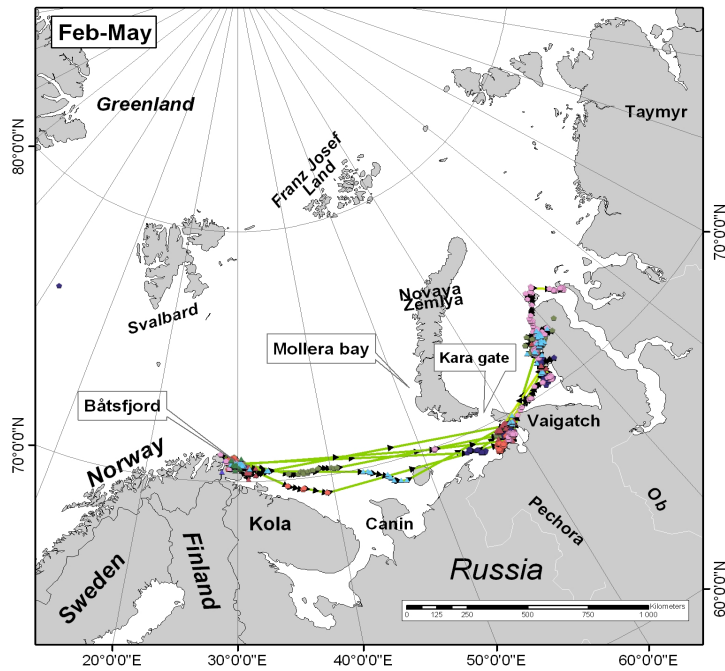


Figure 2
Spring migration routes of king eider fitted with implanted satellite transmitters.

Results

Unfortunately, four of the transmitters failed while the birds were still in Båtsfjord. This was an unexpectedly high failure rate. The six remaining birds departed in early April and flew over open sea, staging in sea ice in the Pechora Sea and Kara Sea (Figure 2).

One more transmitter failed in the Pechora Sea, leaving five functioning transmitters. The birds stayed in the ice until the breeding season in mid/late June when they started to move inland. Three out of the five birds moved inland, probably to breed, including one in the midst of -, and two in the outskirts of the Taymyr Peninsula. Two birds appeared not to move inland during the breeding season (Figure 3).

The birds left the eastern breeding areas in July/August and four birds moved to the Pechora Sea to moult, while one bird chose a different route; through the eastern and northern coasts of Taymyr to the Novaya Zemlya (Figure 4).

One bird returned to Båtsfjord about first of December (the one moulting at Novaya Zemlya), while one bird moved from the Pechora Sea to Båtsfjord in late December (Figure 5). The other three transmitters failed in mid/late December while the birds were still in the Pechora Sea.

Figure 3
Migration from staging to breeding
areas of king eider fitted with
implanted satellite transmitters.

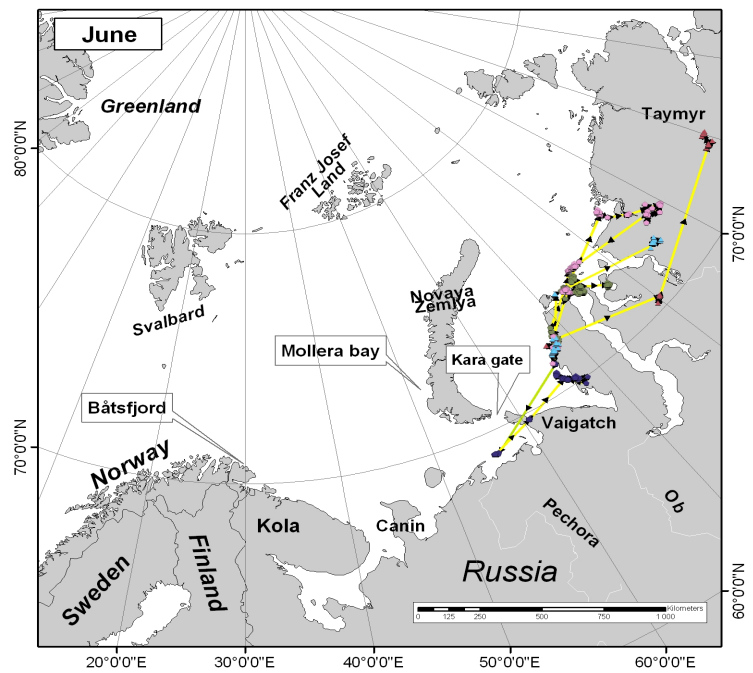
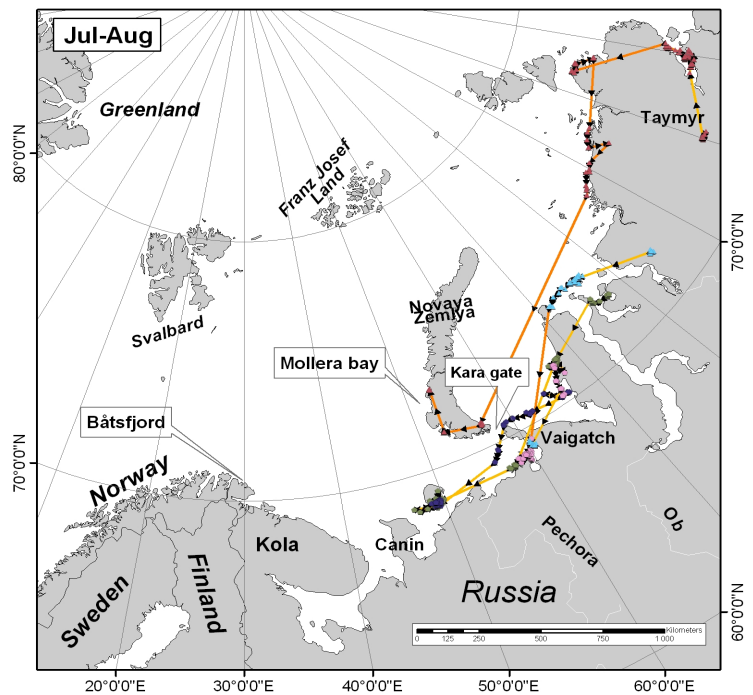


Figure 4
Migration from breeding areas to
moulting areas by king eiders fitted
with satellite transmitters.



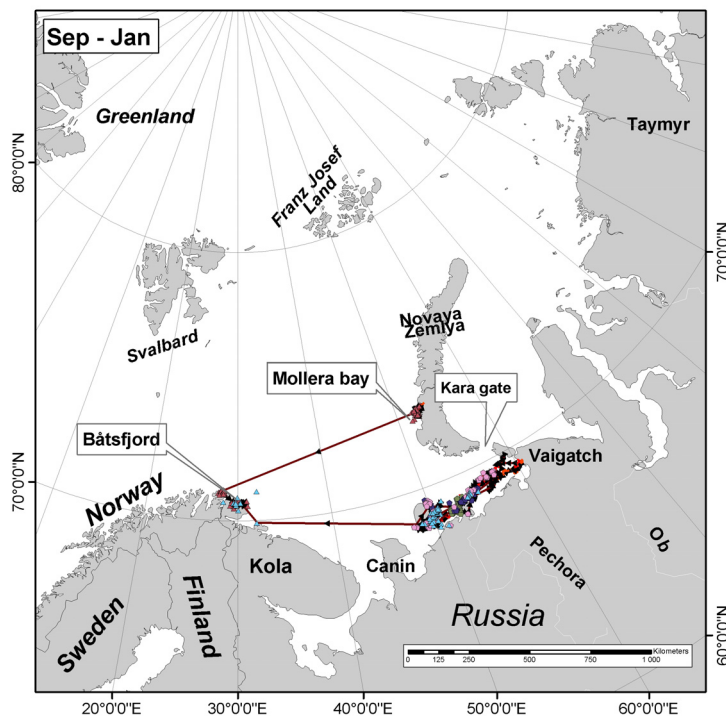


Figure 5
Migration from moulting areas to staging and winter areas by king eiders fitted with satellite transmitters.

Conclusion

This study demonstrates that the king eiders wintering in north-eastern Norway originate from the western half of Arctic Russia, in the area between the Yamal and eastern Taymyr Peninsulas. It thus seems that the Taymyr Peninsula is the dividing point between eastern and western flyways, as previously demonstrated for Steller's eiders. It also demonstrates the importance of the Pechora Sea as a staging and moulting location for this population, which corresponds with recent discoveries of huge populations of blue mussels in the area.

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Cover photo: Male king eider. (© J.O. Bustnes)

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