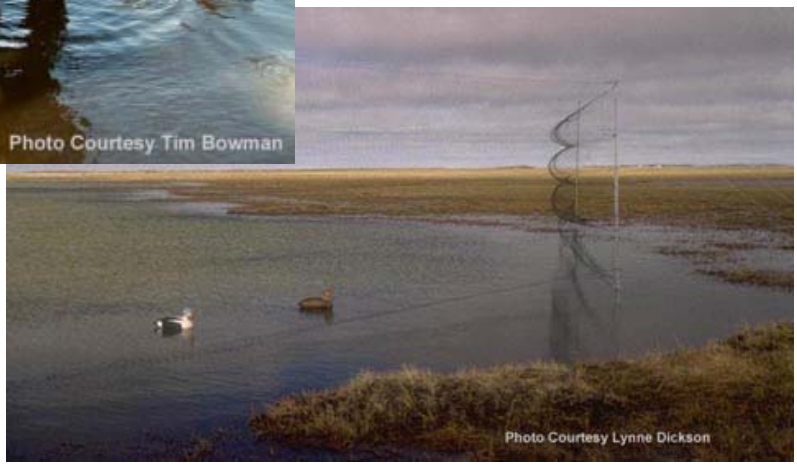
King Eider Satellite Tracking Study

The King Eider population that breeds in northern Alaska and the western Canadian Arctic declined by more than 50% between 1976 and 1996 (Dickson et al. 1997; Suydam et al. 2000). The reasons for the decline are unknown partly due to a lack of information about the King Eider including its distribution while at-sea during migration, moult and winter. Resource development activities such as offshore oil and gas in the Beaufort Sea have accelerated in recent years adding urgency to the need for information on key offshore areas for King Eiders. Knowing what areas the eiders are using will help wildlife managers predict the impact of offshore development and recommend ways to avoid any adverse effects. It is also a preliminary step towards identifying critical marine areas that should receive special protective status.

This study which is a continuation of work started in 1997 (Dickson et al. 2001), utilizes satellite telemetry technology to locate key marine moulting, wintering and migration staging areas for King Eiders in western arctic North America. Additionally, it is providing information on affiliations between wintering and breeding areas, thereby helping to define population units. This information is critical for effective management of a harvested species.

Satellite transmitters were implanted in 12 King Eiders captured just prior to nest initiation in mid June of 2003, in the Kagloryuak River valley on Victoria Island, Northwest Territories. The King Eiders were captured using 2 or 3 mist nets (127 mm mesh; 2.6 m by 12 m) strung together across a pond in an area known to have a high density of breeding pairs.



A veterinarian and two assistants surgically implanted transmitters in the ducks following the technique described by Korschen et al. (1996). Isoflurane administered with compressed air was used as the anaesthetic. The transmitter was placed in the abdominal cavity of the bird with the antenna exiting dorsally near the base of the tail. The whole unit was secured in place by stitching the eider's skin to a dacron collar fitted around the base of the antenna.

The transmitters were programmed to send signals to Argos satellites at a variable rate. This rate was based on periods of anticipated movement and ranged from 3 times a day (every 8 hrs with a 4 h on, 4 h off duty cycle) during migration across the Beaufort Sea, to once every 4 days while on the moulting and nesting areas, and once every 8 days while on the wintering grounds. This variable rate was selected to preserve battery life while ensuring significant data on staging areas and migration corridors in the Beaufort Sea.

The eider locations provided by Argos satellites were plotted on maps using ArcView software. Maps showing the movement of individual eiders tagged in June of 2003 are posted here. These maps will be periodically updated to allow anyone interested to track the eiders as they move from their nesting grounds in central arctic Canada to their moulting and wintering areas.

References

Dickson, D.L., Cotter, R.C., Hines, J.E., Kay, M.F. 1997. Distribution and abundance of King Eiders in the western Canadian Arctic. Pages 29-39 *in* D.L. Dickson, (ed.), King and Common eiders of the western Canadian Arctic. Canadian Wildlife Serv. Occasional Paper No. 94, Ottawa.

Dickson, D.L., G. Balogh, S. Hanlan. 2001. Tracking the movement of King Eiders from nesting grounds on Banks Island, NWT to their molting and wintering areas using satellite telemetry. Unpubl. Rept. Canadian Wildlife Serv., Edmonton, AB 39pp.

Korschgen, C.E., K.P. Kenow, A. Genron-Fitzpatrick, W.L. Green, and F.J. Dein. 1996. Implanting intra-abdominal radiotransmitters with external whip antennas in ducks. Journal of Wildlife Management. 60:132-137.

Petersen, M.R., W.W. Larned, and D.C. Douglas. 1999. At-sea distribution of spectacled

eiders: a 120-year-old mystery resolved. Auk 116:1009-1020.

Suydam, R.S., D.L. Dickson, J.B. Fadely, and L.T. Quakenbush. 2000. Population declines of King and Common Eiders of the Beaufort Sea. Condor 102:219-222.

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