

ABSTRACTS FOR CONDOR 104(1) FEBRUARY 2002 C.E.

FEATURE ARTICLES

**ISOTOPIC INVESTIGATIONS OF SEABIRDS OF THE NORTH WATER POLYNYA:
CONTRASTING TROPHIC RELATIONSHIPS BETWEEN THE EASTERN AND
WESTERN SECTORS**

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Abstract. We used ¹⁵N and ¹³C analyses of blood, muscle, and liver tissues to evaluate similarity of diet among five seabird species: Black Guillemot (*Cepphus grylle*), Black-legged Kittiwake (*Rissa tridactyla*), Dovekie (*Alle alle*), Glaucous Gull (*Larus hyperboreus*), and Thick-billed Murre (*Uria lomvia*) nesting at Coburg Island on the west and Hakluyt Island on the east side of the North Water Polynya between Ellesmere Island, Canada, and northwest Greenland. We hypothesized that dietary differences should occur because the two neighboring sites are subject to different oceanographic conditions, one result of which is differential timing of spring open water. Relative trophic level, derived from tissue ¹⁵N values, ranged from 3.6 for Dovekie from Hakluyt Island to 4.7 for late-breeding-season diets of Thick-billed Murre adults from Coburg Island. At Coburg Island, trophic level of hatching year (HY) kittiwakes, murre, and Glaucous Gulls was higher than that for adults. This pattern was not found at Hakluyt Island, where chicks of all species generally occupied lower trophic positions. These findings suggest that lower-trophic-level prey were more important to Hakluyt Island seabirds, possibly due to lower availability of arctic cod (*Boreogadus saida*).

Key words: arctic, carbon-13, diet, nitrogen-15, polynya, seabirds, trophic level.

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