

# ベーリング海に生息する2種の近縁な潜水性海鳥類、ウミガラスとハシブトウミガラスの採餌行動の特性

國分瓦彦<sup>1,2</sup>、山本誉士<sup>1,3</sup>、佐藤信彦<sup>2</sup>、綿貫豊<sup>3</sup>、Alexander S. Kitaysky<sup>4</sup>、高橋晃周<sup>1,2</sup>

<sup>1</sup> 国立極地研究所、<sup>2</sup> 総研大極域科学専攻、<sup>3</sup> 北海道大学水産科学院、

<sup>4</sup> アラスカ大学フェアバンクス校

## Characteristics of foraging behavior of two congeneric diving seabirds (common and thick-billed murre) in the Bering Sea

Nobuo Kokubun<sup>1,2</sup>, T. Yamamoto<sup>1,3</sup>, N. Sato<sup>2</sup>, Y. Watanuki<sup>3</sup>, A. S. Kitaysky<sup>4</sup>, A. Takahashi<sup>1,2</sup>

<sup>1</sup>National Institute of Polar Research, Japan, <sup>2</sup>Department of Polar Science, Graduate University for Advanced Studies,

<sup>3</sup>Graduate School of Fisheries Sciences, Hokkaido University, <sup>4</sup>University of Alaska Fairbanks

Southeastern Bering Sea is one of the most productive areas in the world where huge amount of predators inhabit. During recent decades, the area has experienced series of warm and cold regimes that lead different responses of sympatric congeneric predators (Barger and Kitaysky 2013, Irons et al. 2008). Species-specific foraging characteristics is the key to understand how environmental change affect different species of predators differently. In this context, we aimed to reveal the characteristics of foraging behavior of two sympatric congeneric diving bird species, common (*Uria aalge*; hereafter COMU) and thick-billed murre (*U. lomvia*; hereafter TBMU) in the Bering Sea. The field study was conducted on St George Island, Bering Sea, in summer 2014. Acceleration-depth-temperature loggers were attached on chick-rearing common and thick-billed murre, and behavioral data of 18 and 24 foraging trips (including 2 and 3 incomplete trips) were obtained from 7 COMU and 12 TBMU respectively. Trip duration and dive depth in the foraging area were analyzed with the acceleration, depth and temperature records (Kokubun et al. 2010, Aquatic Biology). Prey species delivered to the colony were also observed. 9 out of the 16 COMU trips and 9 out of the 21 TBMU trips were overnight trips (which crossed the local midnight, duration: 16.1±3.1 h for COMU and 14.3±6.7 h for TBMU). The other 6 COMU trips and 12 TBMU trips were day trips (which completed within a day, duration: 8.1±2.0 h for COMU, and 7.5±6.1 h for TBMU). Both species showed similar diel pattern in their diving behavior. The proportion of daytime dives (occurred before sunset and after sunrise) was 62.0±21.5% and 63.5±28.6% for COMU and TBMU, and the proportion of nighttime dives (occurred after sunset and before sunrise) was 38.0±21.5% and 36.5±28.5% for COMU and TBMU, respectively. Dive depth was deeper in the daytime (41.9±15.0 m and 43.2±9.9 m for COMU and TBMU) compared with the nighttime (19.8±6.4 m and 23.7±9.1 m for COMU and TBMU) for both species. Despite the similar diel pattern, diving depth of COMU had two distinct peaks around 20 m and 80 m, while those of TBMU had a peak around 50 m, during daytime. The proportion of 1 year old walleye pollock in the observed prey was higher for COMU (15.0%) compared with TBMU (5.1%), and that of squid was higher for TBMU (30.8%) compared with COMU (5.0%). These results suggest that both species foraged in the similar foraging range in the study period, but used different layers in the water column especially in daytime, reflecting their different prey preference. We further discuss about the inter-specific difference in foraging habitat use, by comparing Sea Surface Temperature (SST), thermocline depth and intensity, temperature at depth (>40m) in the foraging area of both species.