Aerial Feeding by a Black-tailed Gull *Larus crassirostris* on Japanese Halfbeaks *Hyporhamphus sajori* Startled by Car Headlights

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Abstract. At a fishing port in Hokkaido, Japan, a Black-tailed Gull *Larus crassirostris* was observed feeding on startled Japanese halfbeaks *Hyporhamphus sajori* that jumped into the air when the sea surface was illuminated by car headlights. This note documents a unique way in which artificial lights can provide feeding opportunities for seabirds.

Key words: Aerial feeding, Artificial light, Fishing port, *Hyporhamphus sajori*, *Larus crassirostris*, Nocturnal feeding.

As artificial lighting increases with global urbanization, its ecological impact on wildlife is attracting attention (Rich & Longcore 2006). In coastal areas, the impact can be extensive due to coastal development, fishing activities, and the absence of light-blocking structures on the sea (Rodhouse et al. 2001).

Seabirds feed at night around many kinds of light sources (Montevecchi 2006). For example, normally diurnal feeders such as Ring-billed Gulls *Larus delawarensis* and a Thick-billed Murre *Uria lomvia* feed around outdoor lamps (Leck 1971, Hirata & Kurihara 2010), and Audouin’s Gulls *L. audouinii* gather near offshore fishing boats at night to capture small fishes attracted to the boats’ lights (Arcos & Oro 2002). Lamps and fishing boats provide feeding opportunities by attracting prey (Hirata 2011) and by increasing its visibility (Santos et al. 2010). In this note, we show that artificial lights can also startle prey, causing them to jump from the water and be preyed upon.

Unsystematic observations were conducted at Oyasu fishing port (41°44’N, 140°54’E) in Hakodate, Hokkaido, northern Japan, on 15 August 2011 between 21:47 and 22:27. A school of Japanese halfbeaks *Hyporhamphus sajori* covered about 1 ha of the sea surface at the port with a density greater than 5 individuals/m². When the headlights of passing cars shone on the sea surface above the school, the fish jumped into the air (estimated height: approximately 10 cm; estimated hang time: <1 second). An adult Black-tailed Gull *L. crassirostris* that had been resting on the quay was observed to make several feeding attempts.

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Received 2 January 2012.

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and two successful feedings on the jumping fish. At the time, birds at the port included 20 Black-tailed Gulls (15 adults and 5 juveniles), one adult Slaty-backed Gull L. schistisagus, and three Spot-billed Ducks Anas poecilorhyncha, but only the single Black-tailed Gull fed on the jumping fish.

Birds are often observed feeding on jumping prey. They include Red-footed Boobies Sula sula and Brown Boobies S. leucogaster feeding on flying fishes (Exocoetidae) and ommastrephid squids startled by vessels (Weimerskirch et al. 2005, Muramatsu personal communication, Sugita & Ueda personal communication), Royal Terns Sterna maxima feeding on flying fishes startled by diving birds (Wood 2008), and Cattle Egrets Bubulcus ibis feeding on insects disturbed by livestock (Sharah et al. 2008). Belonid fishes, which include Japanese halfbeaks, are known to jump into the air to escape from predators (Davenport 1994), but our observations indicate this jumping behavior can also be induced by artificial lights.

Birds at fishing ports may use this feeding method for three reasons. First, fishing ports are often well lit, which increases the visibility of jumping prey. Second, large schools of fishes can occur in fishing ports (Irie & Nakamura 1985). Third, fishers often frequent fishing port by car at night, so their headlights frequently illuminate the sea surface, and startled fishes jump into the air.

Our limited observations suggest that the feeding efficiency and frequency of this feeding method are low, but more extensive study of this behavior is needed to quantify to what extent artificial lights contribute to nocturnal aerial feeding by seabirds.

Acknowledgements

We thank Dr. John Bower for English revision. We thank Mr. Kouta Muramatsu and Dr. Norimasa Sugita for telling the information about aerial feeding by boobies.

References


自動車のヘッドライトで掟乱されたサヨリ Hyporhamphus sajori の
ウミネコ Larus crassirostris による空中採餌

北海道函館市小安漁港で、ウミネコ Larus crassirostris によるサヨリ Hyporhamphus sajori の夜間採餌を観察した。サヨリは自動車のヘッドライトに照らされた海面から飛び出したところを、ウミネコに空中で捕食されていた。本報告は、人工光が餌生物を掟乱するというユニークな方法で、海鳥に夜間採餌の機会を与えることを示した。

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