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A Review of Lanternfishes (Families: Myctophidae and Neoscopelidae) and Their Distributions around Taiwan and the Tungsha Islands with Notes on Seventeen New Records

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John Ta-Ming Wang and Che-Tsung Chen (2001) A review of lanternfishes (Families: Myctophidae and Neoscopelidae) and their distributions around Taiwan and the Tungsha Islands with notes on seventeen new records. *Zoological Studies* **40**(2): 103-126. Lanternfishes collected during 9 cruises from 1991 to 1997 were studied. The area sampled lies between 19°N and 25°N and 114°E and 123°E. The specimens collected in this area comprise 40 species belong to 16 genera, among which 17 species are first records. These first record species include *Benthosema fibulatum*, *Bolinichthys supralateralis*, *Electrona risso*, *Hygophum proximum*, *H. reinhardtii*, *Lampadena anomala*, *Lobianchia gemellarii*, *Lampanyctus niger*, *L. turneri*, *L. tenuiformis*, *Myctophum asperum*, *M. aurolaternatum*, *M. nitidulum*, *M. spinosum*, *Notolychnus valdiviae*, *Notoscopelus caudispinosus*, and *N. resplendens*. Among these, six species, *Bolinichthys supralateralis*, *Electrona risso*, *Lampanyctus turneri*, *Lampadena anomala*, *Notolychnus valdiviae*, and *Notoscopelus caudispinosus*, are first records for the South China Sea, and the species, *Lampadena anomala* is a new record for Asian oceans (Table 1). Four species (*Triphoturus microchir*, *Diaphus diadematus*, *D. latus*, and *D. taaningi*) were controversial in previous reports, so they are discussed in this study. Geographic distributions and localities of catches of all lanternfish species are shown on the maps (Figs. 3-8).

Key words: Myctophidae, Neoscopelidae, Fish fauna, Deep-sea fishes.

Lanternfishes (Families: Myctophidae and Neoscopelidae) are ubiquitous and speciose, with approximately 240 species in 30 genera, (Nafpaktitis 1978, Hulley et al. 1995). Up to half of fish larvae collected in the open ocean are myctophid fishes (Moser et al. 1974), and myctophids may have the greatest biomass of any vertebrate family (Ahlstrom et al. 1976). It is well known that myctophids are often one of the major elements in the deep scattering layer (Barham 1966, Pearcy and Mesecar 1971), and also are key members of the oceanic food web. Among the commercially important and protected marine vertebrates known to prey on them are salmon (Shimada 1948, Manzer 1968), tuna (Alverson 1963, Pinkas et al. 1971), rockfish (Pereyra et al. 1969), fur seals (Mead and Taylor 1953), and cetaceans (Fitch and Brownell 1968). Most myctophid fishes exhibit a diel vertical migration between the mesopelagic and epipelagic zones to feed on zooplankton in the upper 200-m depth.

In earlier synopses of the fishes of Taiwan, only 3 myctophid species in 3 genera were recorded (Chen 1969, Shen 1984). One species was added in 1986 (Chen and Yu 1986). The most recent review of lanternfishes from Taiwan lists 2 families, six genera, and 12 species (Shen et al. 1993), so lanternfishes in Taiwan were not divided into 2 families until Shen et al. (1993). Kao and Shao (1996) published 5 new records in the genus *Diaphus*, so the lanternfishes around Taiwan increased to a total of 17 species in 6 genera.

There is no doubt that body photophore patterns on myctophids and neoscopelids are of taxonomic importance, so most researchers often classify them according to their body photophore patterns. But not all body photophores, such as the AO photophores,

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