



The kitefin shark, *Dalatias licha*: first study and comparative aspects with lantern sharks.

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Bioluminescence has been often seen as a spectacular uncommon event at sea but considering the vastness of the deep sea and the occurrence of luminous organisms in this zone, it is now more and more obvious that producing light at depth must play an important role structuring the biggest ecosystem of our planet.

The Chatham Rise fish survey done in January 2020 by Niwa, gave us the unique opportunity to get access to shark species such as *Dalatias licha*, *Etmopterus lucifer*, and *Etmopterus granulosus*. Although these species are mentioned as bioluminescent it is the first time their luminescence is documented. Results through a diversity of technics [i.e. digital pictures (ventral, lateral, and dorsal views), histological description of light organs (photophore, iris-like structure pharmacological data) and hormonal control of long lasting-glow], highlight the evolutive conservation of the bioluminescence process within Dalatiidae and Etmopteridae. A special emphase is made on *D. licha* luminescence as representative of the largest luminous vertebrate with assumptions on the light emission function. Chatham Rise is a unique place since representatives of the three luminous sharks' families were observed in the same area. This survey revealed a glimpse of the diversity of shark bioluminescence making essential more research to understand the physiology of these unusual deep-sea inhabitants: the glowing sharks.