

Etiologic Studies of Skin Disease in Wild Bottlenose Dolphins (*Tursiops truncatus*) and their Relevance to Human Health

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Skin disease in free-ranging bottlenose dolphins is geographically widespread and highly prevalent in many populations near coastal areas. Reports of skin disease in wild bottlenose dolphins have been documented from waters surrounding South America, portions of Europe and the United Kingdom, New Zealand, and U.S. coastal waters, with evidence of skin disease affecting over 50% of the individuals in several of these populations. Underlying causes of skin disease vary and while some disease, such as poxvirus, is usually transient and non-life threatening, other infectious cutaneous disease such as erysipelas may be severely debilitating and/or fatal. The implication of the observed disease for overall ecosystem health and/or human health depends on the etiology and potential pathogen involved.

Skin diseases in free-ranging dolphins have been studied using a variety of research methods including photographic identification (photo-id) surveys, capture-release health assessment projects, and stranding investigations. In many cases, however, the etiology of lesions cannot be determined, thereby impeding estimates of disease occurrence and endemicity, as well as predictions of disease effects on population dynamics. The objective of this study is to utilize histological, microbiological, and genetic analyses of skin lesions occurring on stranded bottlenose dolphin carcasses to assist in the determination of lesion etiology for free-ranging animals. Members of the Southeast U.S. Marine Mammal Stranding Network have been asked to photo-document and biopsy lesions from any dead bottlenose dolphin with evidence of skin disease. To date, we have received 32 stranding samples, representing eleven etiologies, some of which are zoonotic or similar to pathogens that cause disease in humans. Obtaining a better understanding of the various etiologies underlying skin disease in bottlenose dolphins provides a means for improving our estimates of disease prevalence among wild populations, as well as an opportunity to enhance the surveillance of marine pathogens that are potentially harmful to humans.

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