

## Master's Thesis

Titel: Regulation of whale shark tourism: A data driven

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### Abstract

The whale shark was first described scientifically in 1828 by Andrew Smith. But even though it is the world's largest fish (Rowat & Brooks, 2012, p. 1019; Bradshaw, et al., 2008, p. 1895) there had been only 320 credible reports of whale shark sightings until 1985 (Stevens, 2007, p. 4). However, since then "a huge increase in recreational diving and boating activity around the world" (Stevens, 2007, p. 5) has led to the discovery of several whale shark aggregation sites with a reliably predictable abundance of whale sharks. At most of these sites, whale shark tourism has become a popular and economically important activity.

The non-consumptive use of the whale shark has fostered the conservation of the species and its habitat on a local scale e.g. the declaration of marine protected area to protect important foraging grounds of the whaleshark. But the intrusion of humans into the habitat of the whale shark can also have adverse effects, especially if the whale shark aggregation represents a common pool resource. Since the knowledge of the ecology and biology of whale sharks is still very incomplete, it is also unclear how tourism affects whale sharks and which factors have a major influence on the extent of the negative impacts.

This knowledge gap is also one of the biggest obstacles to the effective regulation of whale shark tourism, which is reflected in the inconsistent regulations and standards at the different whale shark tourism destinations. In this thesis, a data-driven approach to the regulation of whale shark tourism is presented using the example of the whale shark tourism in the South Ari Marine Protected Area (SAMPA) in the Maldives. 964 whale shark encounters are evaluated and four random forest models are developed to identify the most important factors influencing the positive course of a whale shark encounter. Based on the results of the models and successful aspects of regulations from other whale shark destinations a regulation proposal for the whale shark tourism in the SAMPA is developed.