



Behavioural and Physiological Impacts of Flash Photography on Seahorses

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Abstract: Seahorses are iconic fishes, hugely popular with scuba divers. Digital cameras have made underwater photography an affordable hobby for millions of people. The slow movements of seahorses make them ideal subjects as they do not swim away while taking pictures. However, with millions of divers taking pictures of seahorses, populations could be significantly impacted by this seemingly harmless activity. At present only very limited research exists about the effects of underwater photography on seahorses. With growing number of underwater photographers and declining numbers of seahorses, it is crucial that the potential impacts are investigated. Our study consisted of field and aquarium experiments. In the field study 20 Seahorses (*Hippocampus* spp.) and 14 Ghostpipefish (*Solenostomus* spp.) were manipulated by a diver and exposed to flash photography. Our results show clearly that touching causes increased avoidance behaviour. The impacts of flash photography were difficult to separate from effects caused by diver presence alone. To discern between diver presence and flash effects, a lab experiment with 36 Western Australian seahorses (*Hippocampus subelongatus*) was conducted. Video analyses indicate clear flash avoidance and a 15% decrease in success when striking at prey. At present, we are examining the seahorse retinas for potential physiological damage caused by flashes. This study has important implications for the dive industry and facilitates development of best-practice guidelines when scuba diving with Syngnathids. Our results highlight the potential use of seahorses as a flagship species for correct dive practices.

Keywords: Conservation and Management, Behavioural ecology