

THE ROLE OF MARINE TURTLES IN HUMAN ECOLOGY: RELATIVE MERITS OF FLAGSHIPS AND KEYSTONES

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There is growing interest in the ecological roles of marine turtles. Ongoing studies will provide not only a better understanding of the ecology of marine turtles in particular and marine ecology in general, but also basic information essential for formulating and evaluating more effective conservation objectives and actions. Recent research indicates that these marine reptiles can play critical ecological roles such as critical marine plant grazers and sponge predators, as well as nutrient and energy transporters between different trophic levels, between terrestrial and marine environments, and between different parts of the oceans. Hence, marine turtles may serve as "keystone species," with roles that are decisive to the structure and function of certain ecological networks, or ecosystems. Yet, a clear understanding of the ecological roles of different life stages, populations, and species requires much more detailed study over much longer periods; to deal adequately with the slow maturation, long life spans, and dramatic fluctuations from year to year in both turtle population parameters and their environments, it is essential to conduct long-term studies and monitoring on issues related to ecological roles. Independent of the myriad ways that marine turtles interact with their environments and other species, it is clear that these reptiles play critical roles in diverse relationships with peoples of different societies: they are classical "flagship species." Their flagship role is based on the cultural and social values attributed to the animals by members of the societies with which they interact, and archaeological evidence shows that humans have attributed special importance to marine turtles for millennia. In addition to the great antiquity of human-turtle interactions, there is tremendous diversity, with cultural manifestations occurring around the world in multiple forms. During contemporary times marine turtles have been widely and actively used, either explicitly or implicitly, as icons to promote biological conservation, for numerous programs which show clear indicators of success. On the other hand, marine turtles also serve as flagships for other social initiatives, such as cultural identity and preservation, marketing, and other activities that appear contradictory to the objectives of conservation. It is not uncommon to find different sectors of the same society responding in very different ways to the same marine turtle flagship, and these sorts of confusion and conflict undermine both conservation *and* socio-cultural initiatives. Hence, it is essential to understand the complexities of human ecology when designing and evaluating initiatives that employ marine turtles as flagships. Conservationists must be especially careful of this problem. While the keystone role, or ecological function, of a species is essential for understanding the organism's natural history and relationship with its environment, the flagship role is a much more powerful tool for affecting conservation and understanding how people perceive and interact with the animals. Species with apparently little ecological significance can be of immense importance as flagships, and have been used to successfully promote major conservation initiatives with far-reaching effects. Without understanding the human-turtle relationship, no turtle conservation program can be effective – no matter how much "good science" it relies on.

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