Historical knowledge of sharks: ancient science, earliest American encounters, and American science, fisheries, and utilization

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Abstract

In western civilization, the knowledge of the elasmobranch or selachian fishes (sharks and rays) begins with Aristotle (384–322 B.C.). Two of his extant works, the “Historia Animalium” and the “Generation of Animals,” both written about 330 B.C., demonstrate knowledge of elasmobranch fishes acquired by observation. Roman writers of works on natural history, such as Aelian and Pliny, who followed Aristotle, were compilers of available information. Their contribution was that they prevented the Greek knowledge from being lost, but they added few original observations. The fall of Rome, around 476 A.D., brought a period of economic regression and political chaos. These in turn brought intellectual thought to a standstill for nearly one thousand years, the period known as the Dark Ages. It would not be until the middle of the sixteenth century, well into the Renaissance, that knowledge of elasmobranchs would advance again. The works of Belon, Salviani, Rondelet, and Steno mark the beginnings of ichthyology, including the study of sharks and rays. The knowledge of sharks and rays increased slowly during and after the Renaissance, and the introduction of the Linnaean System of Nomenclature in 1735 marks the beginning of modern ichthyology. However, the first major work on sharks would not appear until the early nineteenth century. Knowledge acquired about sea animals usually follows their economic importance and exploitation, and this was also true with sharks. The first to learn about sharks in North America were the native fishermen who learned how, when, and where to catch them for food or for their oils. The early naturalists in America studied the land animals and plants; they had little interest in sharks. When faunistic works on fishes started to appear, naturalists just enumerated the species of sharks that they could discern. Throughout the U.S. colonial period, sharks were seldom utilized for food, although their liver oil or skins were often utilized. Throughout the nineteenth century, the Spiny Dogfish, Squalus acanthias, was the only shark species utilized in a large scale on both coasts. It was fished for its liver oil, which was used as a lubricant, and for lighting and tanning, and for its skin which was used as an abrasive. During the early part of the twentieth century, the Ocean Leather Company was started to process sea animals (primarily sharks) into leather, oil, fertilizer, fins, etc. The Ocean Leather Company enjoyed a monopoly on the shark leather industry for several decades. In 1937, the liver of the Soupfin Shark, Galeorhinus galeus, was found to be a rich source of vitamin A, and because the outbreak of World War II in 1938 interrupted the shipping of vitamin A from European sources, an intensive shark fishery soon developed along the U.S. West Coast. By 1939 the American shark leather fishery had transformed into the shark liver oil fishery of the early 1940’s, encompassing both coasts. By the late 1940’s, these fisheries were depleted because of overfishing and fishing in the nursery areas. Synthetic vitamin A appeared on the market in 1950, causing the fishery to be discontinued. During World War II, shark attacks on the survivors of sunken ships and downed aviators engendered the search for a shark repellent. This led to research aimed at understanding shark behavior and the sensory biology of sharks. From the late 1950’s to the 1980’s, funding from the Office of Naval Research was responsible for most of what was learned about the sensory biology of sharks.

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A history of fishery science and management with emphasis on the socioeconomic aspects, in addition to the biological or ecological aspects of the resources. Taken from a lecture given at the Fisheries Centennial Celebration (1985) by William F. Royce. New England/Mid-Atlantic. Introduction. Fisheries are human activities, and before discussing them I should note that I shall use the word "fish" to include all of the living aquatic resource organisms that are harvested by the fisheries. Also, I define fishery science as a public service profession that includes management activities, and not just as the pursuit of scientific knowledge about the fisheries. Historical Knowledge of Sharks: Ancient Science, Earliest American Encounters, and American Science, Fisheries, and Utilization. JOSÉ I. CASTRO. Ancient Science and History. In western civilization, the knowl-edge of the elasmobranch or selachian shes (sharks and rays) begins with Aristotle (384–322 B.C.). Two of his extant works, the “Historia Anima-lium” (Aristotle, 1970) and the “Gen-eration of Animals” (Aristotle, 1979), both written about 330 B.C., dem-onstrate knowledge of elasmobranch. 2 Marine Fisheries Review. Greek knowledge of sharks and other cartilaginous shes was lost until the Renaissance. During the Dark Ages, the available knowledge of animals was contained in works such as the “Physiologus” and the “bestiaries.”