

# THE HOOK BOOK

A GUIDE TO COMMON MARINE  
ORGANISMS OF SANDY HOOK



NEW JERSEY MARINE SCIENCES CONSORTIUM  
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## INTRODUCTION

The sea encompasses more than 70% of the earth. The ancestors of the many millions of inhabitants of lakes and forests emerged from the sea aeons ago. Some adapted to life in the marine environment and stayed within its realm while others sought terrestrial habitats to flourish. The waters and the shore are barriers that are often violently attacked but seldomly bridged. Thus, the ocean and beach zones are one of conflict and an arena for the development of unique lifestyles by species from both the land and the sea.

Exploring the beach brings endless fascination and intrigue. Each breaking wave sweeps away the old beach face and uncovers an array of curiosities. Forces staggering in variety and intensity impact animal life along the beach, yet life clings to the shore and adapts. Crushing waves and the scouring currents they generate, the continuously changing tides, the baking sun, and fluctuations of temperature and salinity all take their toll on coastal organisms. The survivors have evolved with a unique blend of characteristics that make living in such an inhospitable environment possible.

Sandy Hook is a prime example of a barrier beach system and, as such, possesses a geological history which reflects constant changes throughout the centuries. Due to its distinctive formation and development it has been the focal point of many extreme geomorphic changes. For example, Sandy Hook has been an island five times, attached twice to the Highlands of the Navesink, and otherwise attached to Sea Bright, the barrier island to the south.

Sandy Hook's marine vegetation makes up the essential base of the marine food chain. The various species of plankton, algae and seaweed provide food and habitat for species of invertebrates, fish and wildlife. Terrestrial vegetation on Sandy Hook serves to partially stabilize the ever shifting sands of this dynamic barrier spit.

The diversity of invertebrates found at Sandy Hook exhibit some of nature's more exotic lifestyles including species that can jump fifty times their own length, carry many times their own weight, bore into solid rock, change sex at will, change color to suit their background,

lay as many as a half-billion eggs at one time, or regenerate an appendage that has been lost. These unusual abilities are adaptations for life in a constantly fluctuating environment.

The fish of the Sandy Hook area live in a complex environment resulting in a mix of estuarine and oceanic species. The coastal waters around Sandy Hook contain an enormous diversity of fish, each dependent upon lower forms of evolution for survival. Within such estuarine and oceanic environments species diversification has accounted for a continuing evolutionary process.

This guide book has been written to acquaint the reader with common organisms inhabiting Sandy Hook's bay and ocean regions. It also offers a general description of the origin of the Sandy Hook barrier spit complex. It includes points of interest and ways to observe which are intended to make a visit to this and other New Jersey coastal areas an enriching experience.