

## Chapter Four

### Habitats

The Bay provides food, water, cover and nesting or nursery areas, collectively known as habitat, to more than 2,700 migratory and resident wildlife species. All plants and animals have specific habitat requirements that must be satisfied in order to live and thrive. Food, temperature, water, salinity, nutrients, substrate, light, oxygen and shelter requirements vary with each species. These physical and chemical variables largely determine which species can be supported by a particular habitat.

As a highly productive estuary, the Chesapeake Bay and its surrounding watershed provide an array of habitats. Habitat types range from hardwood forests of the Appalachian mountains to saltwater marshes in the Bay. These habitats are influenced by climate, soils, water, plant and animal interactions and human activities. Four major habitat areas are critical to the survival of the living resources of the Bay.



#### • Islands and Inlands

Lands that lie near water sources support a multitude of species, from insects, amphibians and reptiles to birds and mammals. Streambanks, flood plains and wetlands form the transition from upland to water. These areas act as buffers by removing sediments, nutrients, organic matter and pollutants from runoff before these substances can enter the water. Forests and forested wetlands are particularly important to waterfowl, other migratory birds and colonial waterbirds.

Forested uplands and wetlands are nesting and resting habitat for neotropical migratory birds. These birds breed in the United States but winter in Central and South America. Some neotropical birds breed in the forests found in the Bay watershed. The Chesapeake Bay lies within the Atlantic Flyway, a major migration route for neotropical migrants and migrating waterfowl, and is a significant resting area for birds.

Surrounded by water and cut off from most large predators, Chesapeake Bay islands are a haven for colonial waterbirds (terns and herons), waterfowl (ducks) and raptors (ospreys and bald eagles). Islands can also protect submerged aquatic vegetation and shallow water areas from erosion and sedimentation. However, islands themselves are eroding at alarming rates, mostly due to sea level rise and the erosive force of wind and waves.

### • Freshwater Tributaries

Within the Chesapeake Bay watershed, five major rivers, the Susquehanna, Potomac, Rappahannock, York and James, provide almost 90 percent of the freshwater to the Bay. These rivers and other smaller rivers, along with the hundreds of smaller creeks and streams that feed them, provide habitat necessary for the production of many fish species. Anadromous fish spend their adult lives in the ocean but must spawn in freshwater. Anadromous fish species in the Chesapeake Bay include striped bass, blueback herring, alewife, American and hickory shad, shortnose sturgeon and Atlantic sturgeon. Semi-anadromomous fish, such as white and yellow perch, inhabit tidal tributaries but also require freshwater to spawn.

While all these species have different habitat requirements, all must have access to freshwater spawning grounds. However, due to dams and other obstacles, many historical spawning grounds are no longer available to fish. The fish not only need access to spawning grounds but require good stream and water quality conditions for the development and survival of eggs and juvenile fish. Nutrients, chemical contaminants, excessive sediment and low dissolved oxygen degrades spawning and nursery habitat.

### • Shallow Water

The shallow water, or littoral zone, provides key habitats for many life stages of invertebrates, fish and waterfowl. Shrimp, killifish and juveniles of larger fish species use submerged aquatic vegetation, tidal marshes and shallow shoreline margins as nursery areas and for refuge. Vulnerable, shedding blue crabs find protection in the SAV beds. Predators, including blue crabs, spot, striped bass, waterfowl, colonial waterbirds and raptors forage for food here. Along shorelines, fallen trees and limbs also give cover to small aquatic animals. Even unvegetated areas, exposed at low tide, are productive feeding areas. Microscopic plants cycle nutrients and are fed upon by crabs and fish.

**• Open Water**

Striped bass, bluefish, weakfish, American shad, blueback herring, alewife, bay anchovy and Atlantic menhaden live in the open, or pelagic, waters of the Chesapeake Bay. Although unseen by the naked eye, microscopic plant and animal life, called plankton, float in the open waters. These tiny organisms form the food base for many other animals. More than 500,000 wintering ducks, particularly sea ducks, like scoters, oldsquaw, and mergansers, depend on open water for the shellfish, invertebrates and fish they eat during the winter months. Open water also supports oysters and other bottom-dwellers. Oysters and other filter feeders help maintain water quality by filtering suspended organic particles out of the water. The oyster reef itself is a solid structure that supports other shellfish, finfish and crabs.

BAY QUOTE: "In sommer no place affordeth more plentie of sturgeon, nor in the winter more abundance of foule..." John Smith, 1607-08