

## Biology and Monitoring of Diamondback Terrapins in the Chesapeake Bay



- **The Challenge:** The Diamondback terrapin is the only obligate brackish water turtle species in North America. Terrapins played an important role in the Chesapeake's cultural, educational, and economic history, and are a cultural icon today. The terrapin's life history depends on many of the Bays ecological resources, the status of terrapins may closely reflect the ecological health of the Bay. Declines in terrapin populations have been reported across much of its range. Causes for these declines are well known: urban development, loss of critical habitat, increase in pollutants, and poor water quality. The challenge is to provide data on terrapin numbers and scientific evaluation of measures that preserve diamondback terrapins.



- **The Science:** Studies of the demographics, size distribution, and population estimates from 3 distinct regions in the Chesapeake have broadened the understanding of the baywide diversity of terrapins genetics, site fidelity, and habitat needs. Shoreline nest distribution data collected on the MD Chesapeake Bay identify areas critical to terrapins and assist land managers making decisions on shoreline development. USGS scientists adapted commercial harvesting techniques to monitor large groups of terrapins in their wintering habitats, and developed a trapping method for studying terrapins living in their habitats previously difficult to access. These tools allow localized and seasonal monitoring of terrapins found near shore, along tidal creeks, and within marsh island guts.



- **The Future:** USGS findings on the impact of commercial harvesting of terrapins were supported decisions to halt terrapin fishery in MD, and elsewhere. The shoreline nesting data mapped into the regional coastal atlas will highlight those areas providing critical resources for terrapins. USGS monitoring methods will help track the impact on terrapins of land and resource management actions. While terrapins are abundant at some sites, and reproduce well, evidence points to populations being far less robust at other locations. Although several risk factors remain important, restoring and preserving nesting habitat (marsh islands and key beach areas) is essential to maintaining healthy terrapin populations in the Chesapeake.