



SPECIES OF CONCERN ALERT

Speckled (also Spotted) Seatrout (*Cynoscion nebulosus*) Cold Stun Stress and Mortality

Speckled seatrout (*Cynoscion nebulosus*, also called spotted seatrout) is a recreationally and commercially important estuarine finfish (Figure 1), commonly found along the coasts of the Gulf up Mexico and the southeast Atlantic including the Chesapeake Bay region (Figure 2). Throughout most of their range, speckled seatrout are considered a resident species while within their more northern range (including the Chesapeake Bay region) they are ordinarily considered migratory and leave for warmer, southern waters in the winter. However, during milder winters, speckled seatrout will remain within bay waters. On occasion, speckled seatrout populations are impacted by winter mass mortality events driven by drastic drops in water temperature over a sustained period. Under more normal winter conditions, speckled seatrout readily move to the more temperature-stable deeper channels and offshore waters and return to the shallows when conditions are more favorable.

Conditions resulting in cold stun stress and mortality include a rapid drop in air temperature, sometimes preceded by snowfall and cold-water runoff which exacerbates rapid water cooling, followed by an extended period of cold air and water temperatures. While exact response temperatures can vary, cold stun stress identified by loss of equilibrium (resulting in fish turning belly-up) occurs around 39-41° F (3.9-5.0° C) with severe mortality occurring around 36° F (2.2° C). Notable and recent cold stun events have occurred in SC (2011), NC (2010, 2011, 2014, 2015), VA (2014) and MD (2014). Water temperature time series for Gloucester Point, VA capturing the VA 2014 event is presented in Figure 3.

While large-scale cold-stun events can be devastating to local populations, recovery may be aided by immediate fishery management actions including emergency season closures, reduced catch quotas and voluntary catch and release recreational fishing practices. These actions which result in the protection of the remaining spawning stock, have been used successfully by fish and game and marine resource management agencies to reduce the time required for population recovery. The linked [pilot cold-stun alert system](#) is designed to support fishery management decision-making within the lower York River system. Future efforts will include greater resolution with the York River system and neighboring National Estuarine Research Reserves in MD, NC and SC.

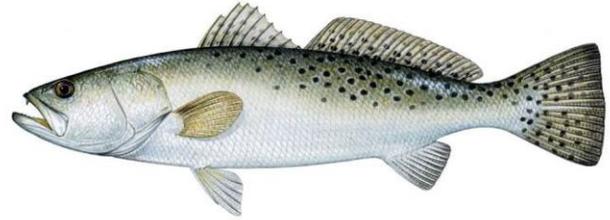


Figure 1. Image of speckled seatrout (*Cynoscion nebulosus*).



Figure 2. Species range with geographic range of recent cold-stun reportings.

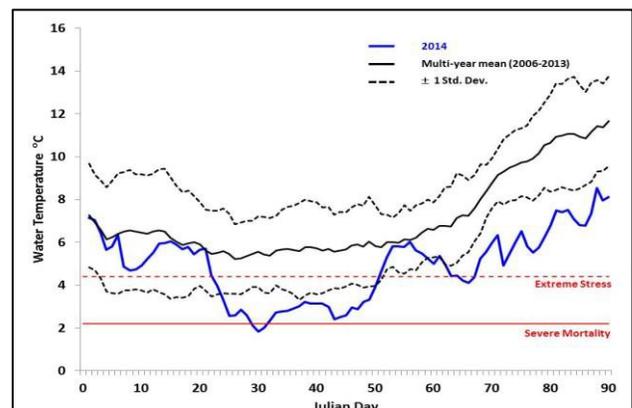


Figure 3. Daily water temperature variation between 1/1/14 - 3/31/14 at Gloucester Point, VA. Instantaneous measured low temperature was 1.2 °C. Data provided by Chesapeake Bay NERR in Virginia.