ENV Report 22 - *Stranding potential of young fishes* by Adams

ABSTRACT

Early life stages of fish in the Mississippi River system may become stranded during shoreline drawdown, induced by the passage of commercial vessels. We examined the stranding of larval shovelnose sturgeon (*Scaphirhynchus platorynchus*), paddlefish (*Polyodon spathula*), and bigmouth buffalo (*Ictiobus cyprinellus*), and of juvenile blue catfish (*Ictalurus furcatus*), largemouth bass (*Micropterus salmoides*), and bluegill (*Lepomis macrochirus*) in a laboratory flume. Stranding was measured at three vertical drawdown rafts (0.76,0.46, and 0.21 cm/s) and two bank slopes (1:5 and 1:10). Blue catfish, shovelnose sturgeon, and paddlefish were not tested at both bank slopes. Susceptibility to stranding varied among species and was independent of drawdown rate. At a slope of 1:5, shovelnose sturgeon had the highest stranding percentage (66.7 percent), followed by paddlefish (38.0 percent), bluegill (20.0 percent), bigmouth buffalo (2.2 percent), and largemouth bass (0.0 percent). At 1: 10, blue catfish had the highest stranding percentage (26.7 percent), followed by largemouth bass (15.3 percent), bluegill (5.3 percent), and bigmouth buffalo (0.0 percent). The likelihood of stranding was related to the behavioral response of fishes to receding water levels. Species that typically occur in littoral/backwater areas swam with the current or passively drifted, while the young of main channel fishes, such as sturgeon and paddlefish, exhibited positive rheotaxis and were more likely to become stranded.