

Catch rates of young-of-year smallmouth bass at the West Branch Susquehanna and Susquehanna rivers



Figure 1. PFBC Division of Fisheries Management staff conducting YOY smallmouth bass survey at the Susquehanna River. (Photo - PFBC)

Introduction

Young-of-year (YOY) smallmouth bass have been sampled annually since 1987 by the Division of Fisheries Management in the major rivers and streams of the Commonwealth as a measure of reproductive success. This index is then used to determine size of particular age classes of smallmouth bass and future population trends within a water.

Surveys for YOY smallmouth bass within the Susquehanna River Basin have also been used to track the prevalence of columnaris *Flavobacterium columnare* or other disease affecting YOY smallmouth bass (figure 6) since it first appeared in 2005.

Since 2005, high flow conditions following the spawn (2006 and 2009) and disease incidence (2005, 2007, and 2008) have led to five consecutive year classes with below average reproductive success in the middle and lower Susquehanna River (figures 4 and 5). While the West Branch Susquehanna River and upper Susquehanna River have been affected by the disease condition, the impacts on the overall reproductive success of smallmouth bass have been less severe (figures 2, 3, and 7).

Fluctuations in year class success in natural environments are the norm. Years of strong reproductive success often off set one or a few years with poor reproductive success. A single, strong year class can support a fishery for many years to come. After several consecutive years of poor year classes, from both natural and disease-related mortality, concern is starting to build on the potential for this to have population-level effects.

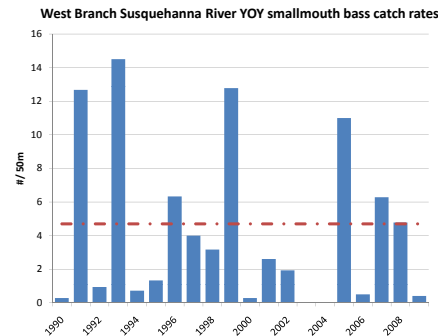


Figure 2. Historic catch rates (#/50 m) of YOY smallmouth bass at the West Branch Susquehanna River. Blank values indicate years in which surveys were not conducted, not zero values. **Note differences of scale between graphics.**

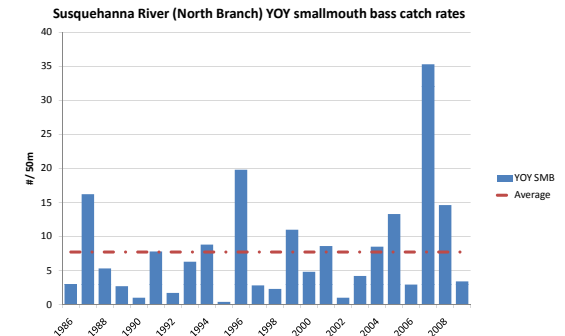


Figure 3. Historic catch rates (#/50 m) of YOY smallmouth bass at the upper Susquehanna River (North Branch). **Note differences of scale between graphics.**

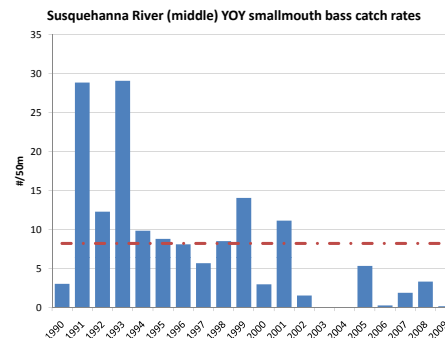


Figure 4. Historic catch rates (#/50 m) of YOY smallmouth bass at the middle Susquehanna River (Sunbury to York Haven Dam). Blank values indicate years in which surveys were not conducted, not zero values. **Note differences of scale between graphics.**

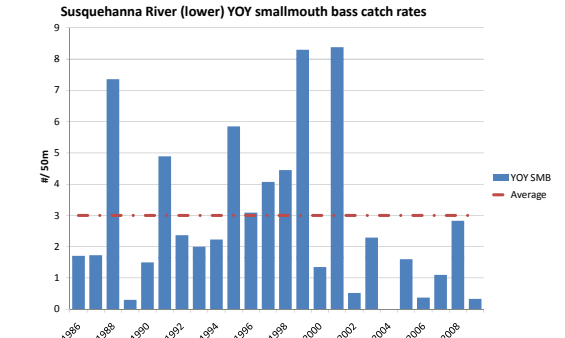


Figure 5. Historic catch rates (#/50 m) of YOY smallmouth bass at the lower Susquehanna River (York Haven Dam to Holtwood Dam). Blank values indicate years in which surveys were not conducted, not zero values. **Note differences of scale between graphics.**



Figure 8. YOY smallmouth bass with lesion (photo: J. Chaplin - USGS)

Prevalence (%) of disease condition within YOY smallmouth bass captured during directed surveys

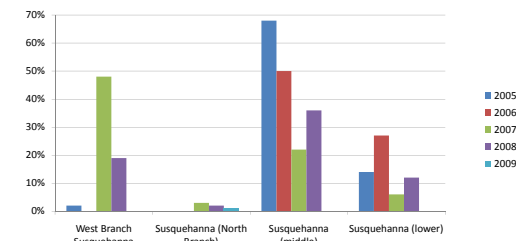


Figure 7. Differences in disease prevalence by year and location.

