



Fish Communities at Tallgrass Prairie National Preserve

Importance: Fish indicate stream health

Fish community composition offers a good indication of long-term environmental conditions within a stream. Many native fish populations have decreased in abundance throughout their ranges, largely because of land use changes that contribute to habitat degradation. Tallgrass Prairie National Preserve streams provide habitat for native fishes, including a federally listed endangered species, the Topeka shiner. Abundance and diversity of native species suggest that streams support good biotic integrity and offer high quality fish habitat. Interpretation of data collected through long-term monitoring equips park managers with science-based understanding needed to make informed decisions on aquatic resource management that protects the Topeka shiner and the entire aquatic community.

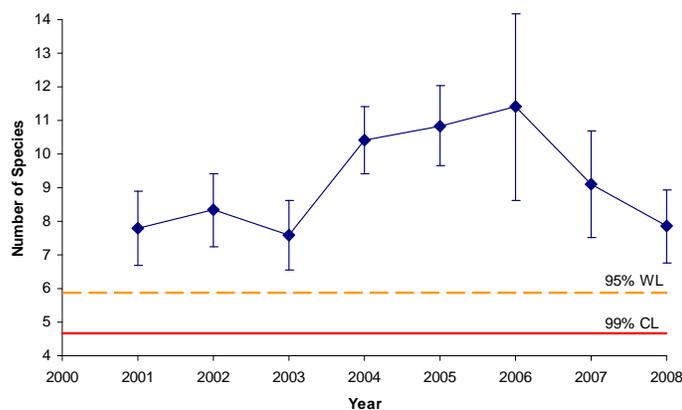


Long-Term Monitoring:¹ Findings inform decision-making

The Heartland Inventory and Monitoring Network sampled fish communities at several reaches located in 12 streams throughout the preserve from 2001 through 2008. The network collected physical habitat and water quality information in conjunction with fish sampling. The network used these data to determine status and long-term trend in fish community composition and to correlate community composition to water quality and habitat conditions.

Status and Trends: Diverse and stable fish communities

Scientists found 37 fish species in samples during the period of 2001-2008. These prairie streams support suitable habitat for a stable native fish community. Species richness and community diversity did not vary greatly over the eight year sampling period with most reaches having moderate to high diversity. Physical aspects of habitat did vary among sampling events, suggesting that fish communities have adapted to surviving in a very dynamic environment. Scientists also found:



1. Topeka shiners occurred in five sample reaches, but scientists collected most specimens from only one sampling reach.
2. Sampling reaches in tributaries that maintained connectivity to a main stem showed greatest species diversity and richness, presumably because fish could move from the mainstem to populate tributaries. Thus, low flow conditions in dry years could potentially reduce species diversity and richness in some tributary reaches at least temporarily until stream flow restores connectivity and immigration.

Average species richness \pm one standard error for reaches sampled from 2001-2008. Yellow dashed line is the 95% warning limit (WL) below which richness has fallen near low levels. Red solid line is the 99% control limit (CL) below which richness has reached poor conditions. Managers use these limits as indicators that they should take management actions to reverse a trend of decline in fish community conditions.

Heartland Inventory and Monitoring Network of the National Park Service. Visit www.nps.gov/im/units/htln/index.htm ... protecting the habitat of our heritage

¹ Dodd, H. R., L. W. Morrison, and D. G. Peitz. 2010. Fish community monitoring at Tallgrass Prairie National Preserve: 2001-2008 trend report. Natural Resource Technical Report NPS/HTLN/NRTR—2010/325. National Park Service, Fort Collins, Colorado.