



Fish Communities at Homestead National Monument of America

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. Homestead National Monument of America may offer good stream habitat for native fishes. Information on abundance and diversity of native species can indicate a stream's health. Interpretation of data collected through long-term monitoring equips park managers with science-based understanding needed to make informed decisions on resource management that protects the entire aquatic community.



Cub Creek, Homestead National Monument of America, Nebraska

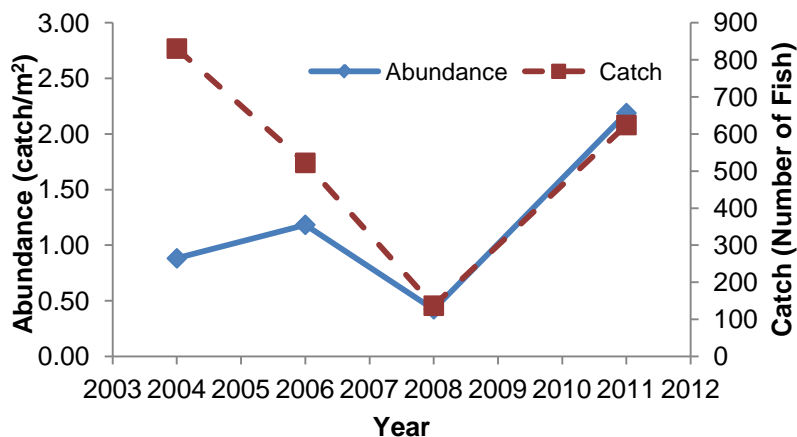
Long-Term Monitoring:¹ Looking at biological and physical parameters

The Heartland Inventory and Monitoring Network first sampled fish communities in Cub Creek within the park in 2004 and repeated the sampling in 2006, 2008 and 2011. These samples allowed scientists to calculate the Index of Biotic Integrity (IBI), an index of quality of life in the stream. The network collected physical habitat and water quality information also. Comparing the IBI and physical conditions through the years contributes to determining the current status and trends in the general health of Cub Creek.

Status and Trends: Diverse and stable fish communities

Scientists found that fish communities are moderately diverse and rated the stream health as “fair”, based on fish community composition and IBI scores. Generally, the fish species present are tolerant of poor stream conditions. This suggests that while the stream is rated “fair”, it is somewhat impaired due to practices outside the park within the watershed. Scientists also found:

1. Only one disturbance-intolerant species, the Stonecat (*Noturus flavus*), was collected in 2004 and 2006. This species survives in pristine and stable stream conditions.
2. Continued agricultural land use and industrial discharges in the watershed result in point-source and non-point-source pollution, an issue for water quality and biological health of Cub Creek. Maintaining integrity of the riparian corridor in the park will help mediate human disturbances that originate upstream of the park boundary.



Both actual number of fish caught and number of fish caught per area sampled provide a highly variable image of species abundance changes over time. This is in large part an artifact of sampling area and volume that can change in small streams from year to year. Using consistent site lengths in the future will clarify changes in abundance and catch.

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. and J. T. Cribbs. 2012. Fish community monitoring at Homestead National Monument of America: 2004-2011 status report. Natural Resource Data Series NPS/HTLN/NRDS—2012/276. National Park Service, Fort Collins, Colorado.