

# **Fish communities of the upper Little Sioux River basin: Current status and historical trends**

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## **Goals and Objectives:**

1. Determine the abundance, species richness, species composition, environmental tolerance and IBI of fish communities in streams of the upper Little Sioux River basin.
  2. Assess relationships of the fish communities with basin and stream channel characteristics.
  3. Assess long-term trends in the fish communities by comparison of our contemporary results with historical records.
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## **Progress:**

During summer 2002 we sampled eleven stations on streams in upper Little Sioux River watershed. in South-west Iowa. The streams ranged from 2nd to 5th order, with drainage areas ranging from 19.3 to 1419 km<sup>2</sup>. Each station was sampled with combination of an electric seine or backpack shocker and bag seine from June 25th to July 15th 2002. We collected and identified a total of 4784 fish from 22 different observed species. Estimated number of species was 26. Total fish density averaged 301.25 fish/100 m and total fish biomass averaged 5.7 Kg/100 m of stream. Most abundant species was creek chub followed by sand shiner. Species with highest rank in biomass were common carp and white sucker. Fish communities were composed largely of species exhibiting at least moderate tolerance. Average IBI score was 38 with range from 28 to 56. We found strong evidence for a negative relationship of IBI score with stream size. During fall 2002 we assessed long-term trends in the fish communities. We analyzed historical records of fish collections from various stations in the upper Little Sioux River basin going back to 1932. Historically, average number of observed species per survey was 22.62 ranging from 10 to 42. Total number of reported species for the Little Sioux River basin was 67.

## **Conclusions and Recommendations:**

We determined the abundance, species richness, species composition, environmental tolerance and IBI of fish communities in streams of the upper Little Sioux River basin and have concluded that biological integrity of examined area can be classified as fair.

We assessed relationships of the fish communities with basin and stream channel characteristics and determined that there is little evidence for relationships except for inverse relationship of IBI and drainage area of examined streams. We assessed long-term trends in the fish communities by comparison of our contemporary results with historical records and found little evidence for existence of such trends.

Overall conclusion of our survey is that current fair condition of biological integrity in the upper Little Sioux River basin has not been significantly changed in past 70 years.