

Differences in species composition and feeding ecology of catostomid fishes in two distinct segments of the Missouri River, North Dakota, U.S.A.

University of Idaho, Department of Fish and Wildlife Resources, Moscow, ID 83844-1136, U.S.A.
Current address: BIO-WEST, Inc., 1063 W. 1400 N., Logan, UT 84321, U.S.A. (e-mail: twelker@bio-west.com)

Key words: catostomid fishes, feeding ecology, species composition

Synopsis

Two distinct segments of the Missouri River in North Dakota were sampled for catostomid fishes. The upper segment, which is characterized by a high degree of flow variability, contained a higher proportion of *Ictiobus cyprinellus* and *Ictiobus bubalus* than the lower segment, which is characterized by a more stable flow regime. *Carpionotus carpio* was the most common species in both segments, but it was more abundant in the lower segment. The feeding ecology of the catostomid fishes in the two segments was also different. The catostomid fishes in the upper segment were more likely to feed on benthic invertebrates, while the catostomid fishes in the lower segment were more likely to feed on zooplankton.

the study area. The study area is located in the north-eastern part of the country, in the vicinity of the city of ... The study area is characterized by a high degree of ...

Study area

The study area is located in the north-eastern part of the country, in the vicinity of the city of ... The study area is characterized by a high degree of ...

The study area is located in the north-eastern part of the country, in the vicinity of the city of ... The study area is characterized by a high degree of ...

I have been thinking of you a great deal lately, and wondering how you are getting on. I hope you are well and happy. I have been very busy lately, but I will try to write you more often. I have been thinking of you a great deal lately, and wondering how you are getting on. I hope you are well and happy. I have been very busy lately, but I will try to write you more often.

Methods

Sucker data collection

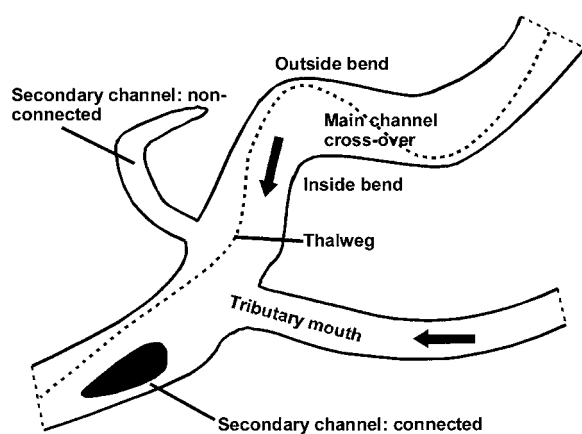
[illegible]

Figure 2- 

[illegible]

Benthic and Pelagic invertebrate data collection

[illegible]

27

1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0) = 1$. The second part of the paper is devoted to the study of the properties of the function $g(x)$ defined by the equation $g(x) = \int_0^x g(t) dt$. It is shown that $g(x)$ is a constant function, and its value is determined by the initial condition $g(0) = 1$. The third part of the paper is devoted to the study of the properties of the function $h(x)$ defined by the equation $h(x) = \int_0^x h(t) dt$. It is shown that $h(x)$ is a constant function, and its value is determined by the initial condition $h(0) = 1$.

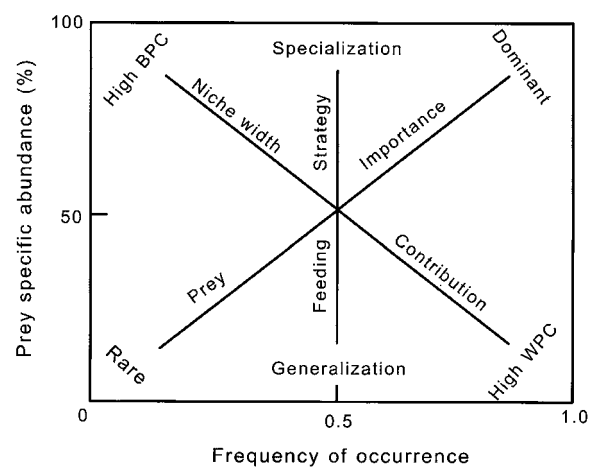


Figure 3-

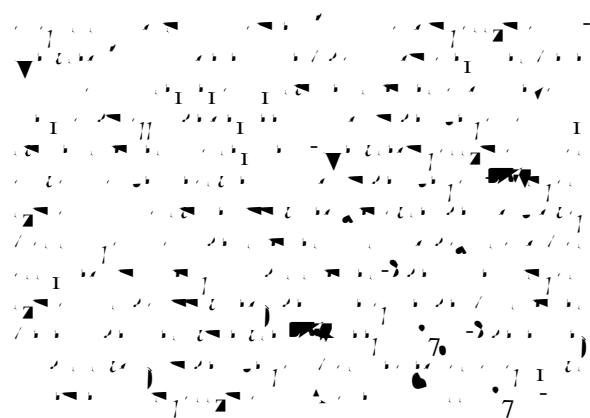


Table 1-

Etheostoma

Etheostoma

In

Ictiobus

Catostomus

commersoni

Etheostoma caeruleum

E. flabellare

Ictiobus bubalus