

B O L G E R B O G F I S H

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Bolger Bog Fish

The survey which we did was of the fish in Bolger Bog. A bog is generally the end stage in the evolution of a lake. The conditions ~~around~~^{around} the lake are such that they encourage the colonization of Sphagnum moss. This moss grows over the surface of the water creating a mat. Eventually peat accumulates on the outer portions of the lake and plants such as leatherleaf and labrador tea take over. Beyond these plants tamarac and other conifers grow. Eventually the lake may fill in totally; not in this case though. There was some open water at Bolger. It had a pH of 5.4 and the deepest part of the bog lake was 4 meters. The thermocline was found around 1.5m and the coldest water found was at 6°C. Also found in the water were chironomids, rotifers and Dinobryon. The fish were all caught in minnow traps placed at the edge of the bog mat.

The following data was collected:

Chrosomus eos (Northern Red-Bellied Dace)

<u>3 year-olds</u>	<u>4 year-olds</u>	<u>5 year-olds</u>
Length: 49mm Weight: 1.2 g k= 1.0	Length: 53mm Weight: 1.4g k= .94	Length: 67mm Weight: 2.6g k= 0.7
Length: 48mm Weight: 1.1g k= .99	Length: 53mm Weight: 2.2g k= 1.5	Length: 64mm Weight: 2.2g k=0.92
Length: 49mm Weight: 1.2g k= 1.02	Length: 62mm Weight: 2.1g k= 0.88	
	Length: 50mm Weight: 1.3g k= 1.04	
	Length: 57mm Weight: 1.9g k= 1.02	

Chrosomus eos cont'd.

Food: algae, diatoms, zooplankton, and insects

Predators: Kingfishers and Mergansers + fish.

Habitat: bogs, ponds, and creeks

Most of the fish which we caught were in the 4 year-old age category. No fish were younger than 3 years-old and none were older than five. We could find no information on condition factors of this type of dace.

Umbra limi (Mud Minnow)2 year-olds

Length: 56mm
Weight: 2.0g
k= 1.13

3 year-olds

Length: 76mm
Weight: 4.5g
k= 1.02

4 year-olds

Length: 80mm
Weight: 4.7g
k= 0.92

Length: 78mm
Weight: 1.03g
k= 1.02

Length: 100mm
Weight: 8.8g
k= 0.88

Food: insect larvae and adults, molluscs and amphipods

Predators: Grass Pickeral, Northern Pike, Sunfish and Catfish

Habitat: Heavily vegetated ponds, bogs, pools of small creeks; it travels in muck and its swim bladder has a respiratory capability

The Umbra limi which we caught were between the ages of 2 and 4 years-old.

Again we could find nothing about the condition factors of mud minnows of the area. These were the largest fish caught in the traps.

Eucalia inconstans (Sticklebacks)

Lengths: 47mm 49mm 50mm 56mm 60mm

Weights: 1.0g 1.0g 0.9g 1.6g 1.8g

k factor 0.96 0.85 0.72 0.91 0.83

Food: aquatic insects, ctustaceans, algae, eggs and larvae of fish

Predators: Brook Trout, Northern Pike, Small-Mouth Bass, Kingfishers, Herons, Mergansers and incidental predation by other fish

Habitat: Densely vegetated water, clear and cold water and also common in bogs

We could find no data pertaining to the condition factors of these fish, nor could we find any data on how lengths related to age of the fish. We only found some information saying the the maximum size for Sticklebacks is 87mm. One source did state that this fish had many parasites and upon a gut analysis I did find some kind of intestinal parasite in the fish; I also found one caddis fly larva.

Pimephales notatus (blunt-nose minnows)

Food: bottom feeders, detritus and Chironomidae larvae

Predators: rock bass and sunfish

Habitat: sand and gravel bottoms of lakes and streams, shallows of clear lakes and ponds.

In order to identify these fish it was necessary to dissect them and we only found two of these types of minnows. Both of them were dissected, therefore we were not able to get lengths or weights of these fish. Again we could find no data on condition factors or relating length to age. It appears that this type of data is mostly collected for larger fish. (*game fish*).

All the fish which were found were either primary or secondary consumers in the lake food web. Primary consumers are those fish which feed directly on plants (primary producers) and secondary consumers are those fish which feed on primary consumers. In this case the fish usually fed on aquatic insects and larvae, though Eucalia inconstans does eat the eggs and larvae of other fish. These bog fish were all preyed on by either larger fish or birds. According to Dr. Greene there are some large Shiners and Suckers in Bolger Bog, so they are probably at the top of the food web feeding on these smaller fish. - *not suckers.*

Most of these fish preferred living in heavily vegetated areas, therefore a bog was an ideal place for them. The only exception of this were the Pimphales notatus which according to most of the literature were common in clear streams and other places which are not densely vegetated. These fish

were probably not living in an ideal habitat, therefore one would not expect them to be numerous. Many bogs do not contain fish larger than the ones which we found. In such a case these fish would be at the top of the bog lake food web. In Bolger Bog some larger fish were present indicating that the conditions in Bolger are not as severe as in other bogs. Bogs do contain many insects and various types of plankton. Those fish which ~~can~~ vary their diet and eat either insects or phytoplankton probably do the best in a bog. In our case only Chrosomus eos ate algae and diatoms, these were also the most plentiful fish found in the minnow traps. When conditions in a bog are bad for the survival of insects and plankton, the fish which we found would not do well either. In conclusion the fish found in Bolger are important in bog lake life and make up one step of the food web. The degree to which they are present in various bogs changes as the conditions of the bogs become more severe (more acidic, less oxygen), but if conditions are not too bad they are ideal inhabitants of this type of water.