

IOWA'S WATER

Ambient Monitoring Program

Common Iowa Fish

What's in your stream?

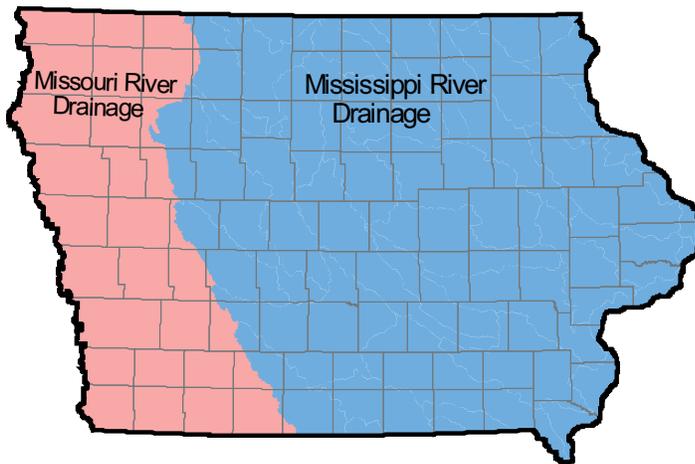


Figure 1. Map of the Missouri and Mississippi River drainage basins in Iowa.

Most Iowans have never had the opportunity to discover all of the fish species living in the warm water streams and rivers on their properties or near their homes. This fact sheet will give Iowans the chance to determine the common fish species generally found in interior streams and rivers located near them and highlight the differences in types of fish species found in Iowa's two major river drainage basins. For the last 13 years, Iowa Department of Natural Resources Watershed Monitoring and Assessment Section (IDNR-WMAS), in partnership with the University of Iowa Hygienic Laboratory's Limnology

Section, has sampled streams and rivers across Iowa to determine the kinds of fish that live in them and then used the data to evaluate the health of those systems. Three general types of streams were sampled: high quality, least-impacted reference sites; sites adversely affected by all types of pollution or habitat modifications; and randomly selected sites across the state. Other agencies, departments, and academic institutions have collected data as well, but for this fact sheet, the data were limited to data collected by IDNR-WMAS for its Stream Biological Assessment Project.

To offset some of the natural characteristics of Iowa's streams that affect the composition of fish communities, the fish and stream data were divided into six categories. First, the state was broken into its two major drainage basins, the Mississippi and Missouri River drainages (Figure 1). Second, the streams from each major drainage basin were broken into small, medium, and large streams based on the watershed drainage area at that sampling site. The arbitrary size classes were chosen in an attempt to keep the sample populations from the streams fairly equal. The physical characteristics of the stream size classes including stream width, mean thalweg (deepest spot along stream) depth, and mean transect depth are provided in Table 1 to help you determine your stream's size class.

Table 1. Stream characteristics of the small, medium, and large stream classes.

Stream size class by major drainage basin (number of samples)	Drainage Area (mi ²) Median (Interquartile Range [IR])	Mean Stream Width (ft) Median (IR)	Mean Thalweg Depth (ft) Median (IR)	Mean Transect Depth (ft) Median (IR)
MO small (19)	16 (4.1-24)	11.6 (5.8-16.8)	0.9 (0.6-1.1)	0.6 (0.3-0.7)
MO medium (48)	60 (45.5-77.0)	19.7 (16.9-26.5)	1.2 (1.0-1.6)	0.7 (0.6-0.9)
MO large (45)	200 (144.0-330.0)	49.6 (30.8-66.5)	1.2 (1.5-2.1)	0.8 (0.6-1.2)
MS small (133)	14.5 (8.1-24.0)	17.0 (11.3-23.9)	1.1 (0.8-1.5)	0.7 (0.5-1.0)
MS medium (151)	52.0 (39.0-74.0)	29.2 (22.4-35.9)	1.4 (1.0-1.8)	0.8 (0.6-1.1)
MS large (112)	221.5 (148.5-320)	49.7 (36.6-67.2)	1.7 (1.3-2.1)	0.9 (0.7-1.2)

Interquartile range is the difference between the 25th and 75th percentiles.

Table 2. Percent occurrence in all samples of the nine common Iowa fish species.

Fish species	% species occurrence in all samples
Creek Chub	86
Bigmouth Shiner	77
Sand Shiner	76
Green Sunfish	74
White Sucker	72
Johnny Darter	69
Central Stoneroller	64
Common Shiner	58
Fathead Minnow	55

MO = Missouri River Drainage

MS = Mississippi River Drainage

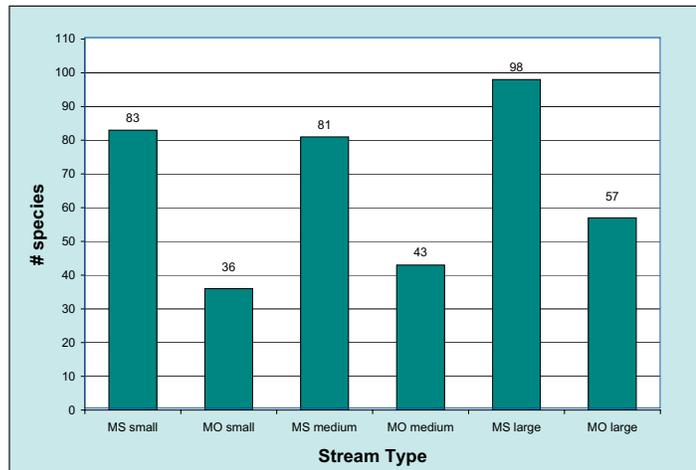


Figure 2. Total number of different species collected during the Stream Biological Assessment Project, 1994-2006.

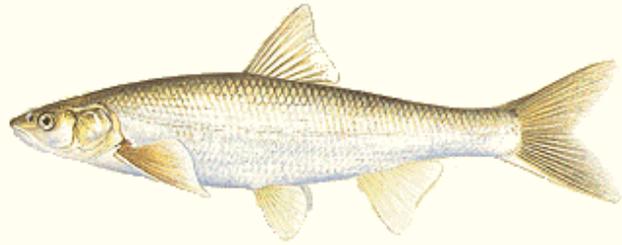
A total of 508 habitat samples were used to determine the stream classes and 702 fish samples were used to evaluate percent fish species occurrence. The fish species data presented in this fact sheet are based solely on their presence (percent occurrence) in the samples. Whether a sample contained one or 100 of that species, it was counted as present. A total of 111 distinct fish species were collected across the state from 1994-2006 during the Stream Biological Assessment Project. As Figure 2 shows, the occurrence of these fish species varies greatly across the state and by stream size. All fish species not occurring in more than 25% of the samples from a stream size class were kept off the final list and will not appear in the "determine your fish community" exercise located at the end of this fact sheet.

Missouri River drainage streams contain only about half the fish species (43-58%) of their Mississippi River drainage counterparts. This difference in numbers of fish species reflects the greater number of fish species native to the Mississippi River drainage compared to the Missouri River drainage. Also, there is a general increase in fish species diversity from the drier western regions of North America to

the more water-rich middle and eastern portions of the continent. Iowa is a transition point between the species-poor western prairie streams and the deciduous forest species-rich streams in the eastern United States. In addition, as stream size increases, the number of fish species found in those streams generally increases as well (Figure 2). Two Iowa fish species that reflect the differences in the two major drainage basins can be found in the sidebar to the right.

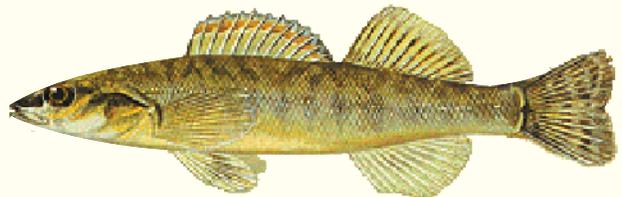
If you could sample the stream close to where you live, what would you find? First, there are nine fish species that are common throughout Iowa (Figure 3). Not all of these species will be found at every site but based on our sampling, these nine species have been found in 55-86% of all samples (Table 2). Next, you need to determine in which major river basin your stream is found (Figure 1) and what size your stream would be considered (Table 1). After you have determined your major drainage basin and stream size, add the nine common Iowa fish species to the additional fish species found in your stream size box. The final fish list could give you a good idea of what you might find in the stream near you. The final list of fish species (common Iowa + your stream class species) will not include rare or non-widely distributed species or species such as trout that occur in cold, spring-fed streams. It is important to remember that your local stream may contain fewer or more species based on local habitat and water quality conditions that affect fish species distribution. However, should your local stream contain significantly fewer species than what this exercise shows, there could be something impacting the stream and it might be a good candidate for follow-up sampling.

Missouri River Drainage Species Spotlight



Flathead Chub (*Platygobio gracilis*). In Iowa, the flathead chub is only found in streams of the Missouri River drainage system (sample occurrence 17%) primarily located south of Interstate 80. The flathead chub is light brown on top shading to silver on the sides and belly. It has a chisel-like head and large sickle-shaped pectoral fins. This fish species eats aquatic insects and young fish, and the adults reach a length of about 10 inches.

Mississippi River Drainage Species Spotlight



Slenderhead Darter (*Percina phoxocephala*). While several darter species inhabit both major drainages, the slenderhead darter is only found in the larger streams of the Mississippi drainage system (sample occurrence 15%). The body color is sand to yellowish-brown and there is a distinct orange band across the dorsal fin. This darter has small dark spots on each side of its lateral line, has a very slender head, and adults reach 3-4 inches in length. The slenderhead darter feeds on aquatic insects such as midges, mayflies, and caddisflies.

For more information on fish distribution and a more advanced model to determine what fish historically lived and/or presently live in the streams near you, visit the IRIS/Aquatic Gap website: <http://maps.gis.iastate.edu/iris/data/aquaticgap.jsp>

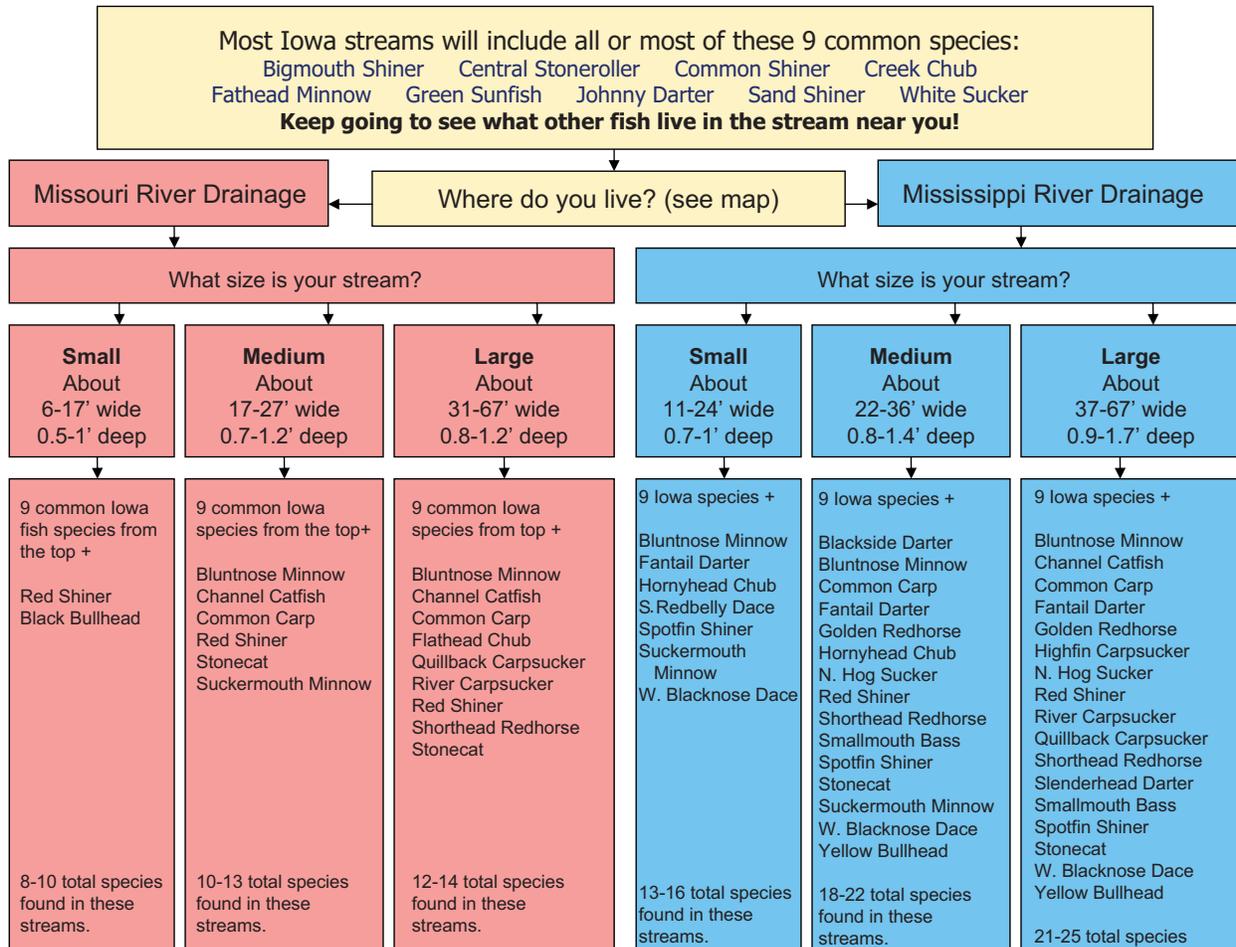


Figure 3. Flow chart to determine the fish species living in a stream near you using major drainage basin and stream size class.

Acknowledgements

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Iowa Watershed Monitoring and Assessment Program Web Site – wqm.igsb.uiowa.edu



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