

Figure 1.—The River Raisin watershed in southeastern Michigan showing major tributaries and towns.

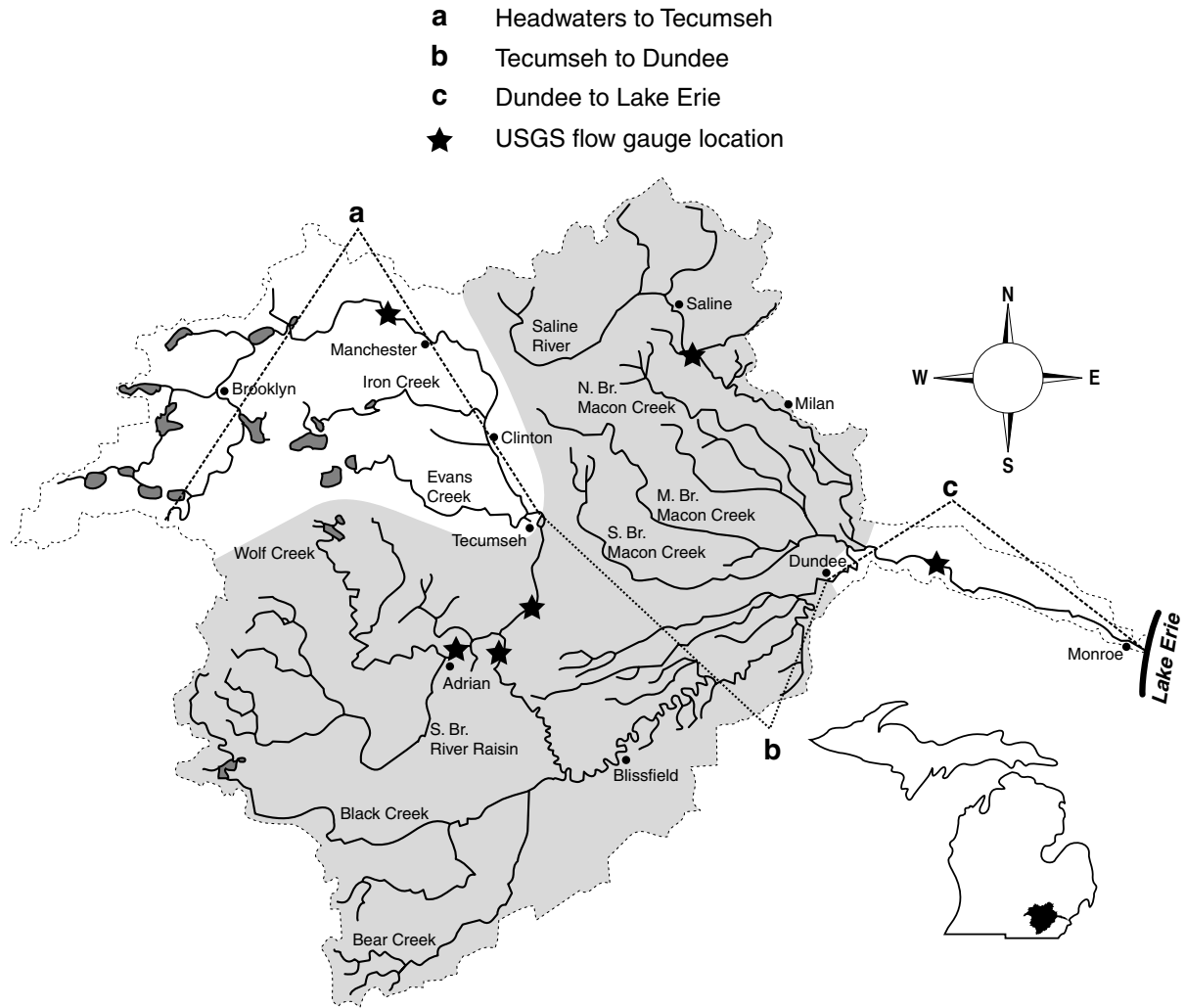


Figure 2.—Location of United States Geological Survey flow gauge stations and mainstem river segments in River Raisin watershed.

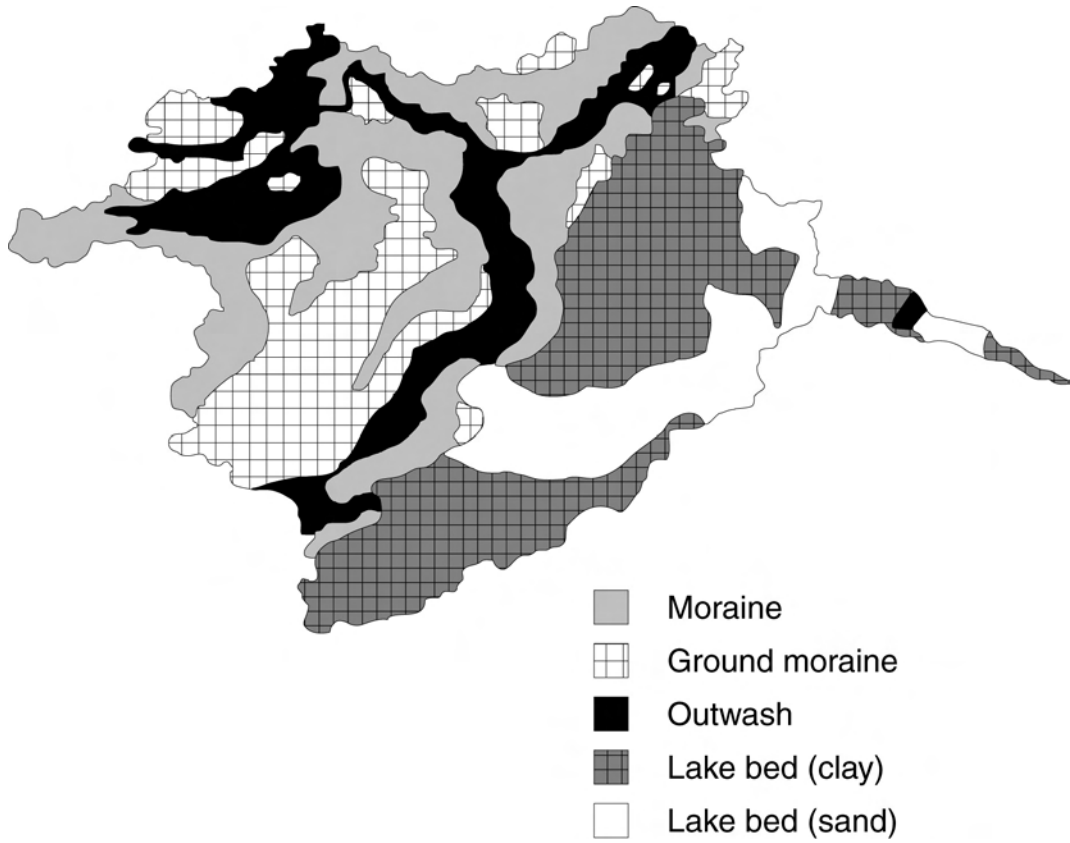


Figure 3.—Surficial geology map of the River Raisin watershed. Data from: Roth 1994.

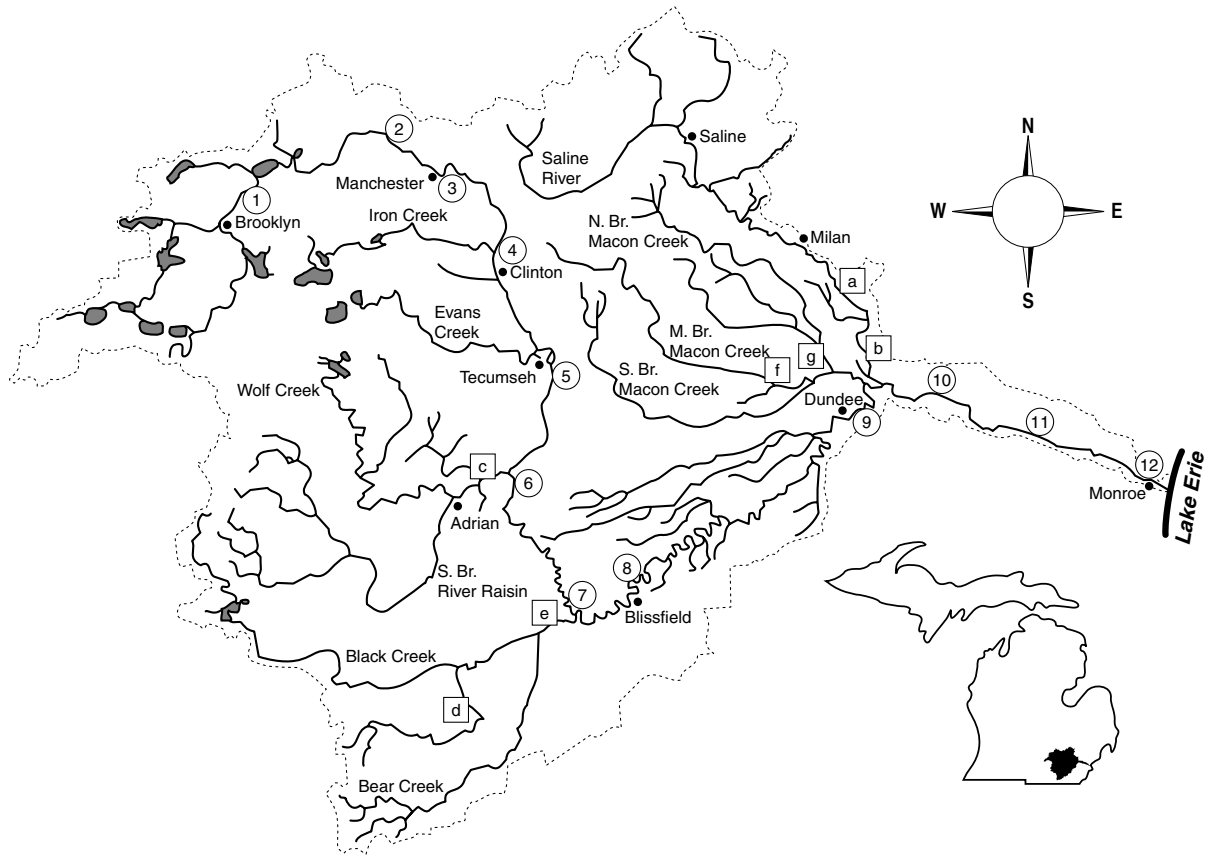


Figure 4.–ERDAS database locations for sites in the River Raisin watershed (See Tables 2, 3, and 4). Data from: P. Seelbach, Michigan Department of Natural Resources, Fisheries Division, personal communication. Circles indicate mainstem sites and squares indicate tributary sites.

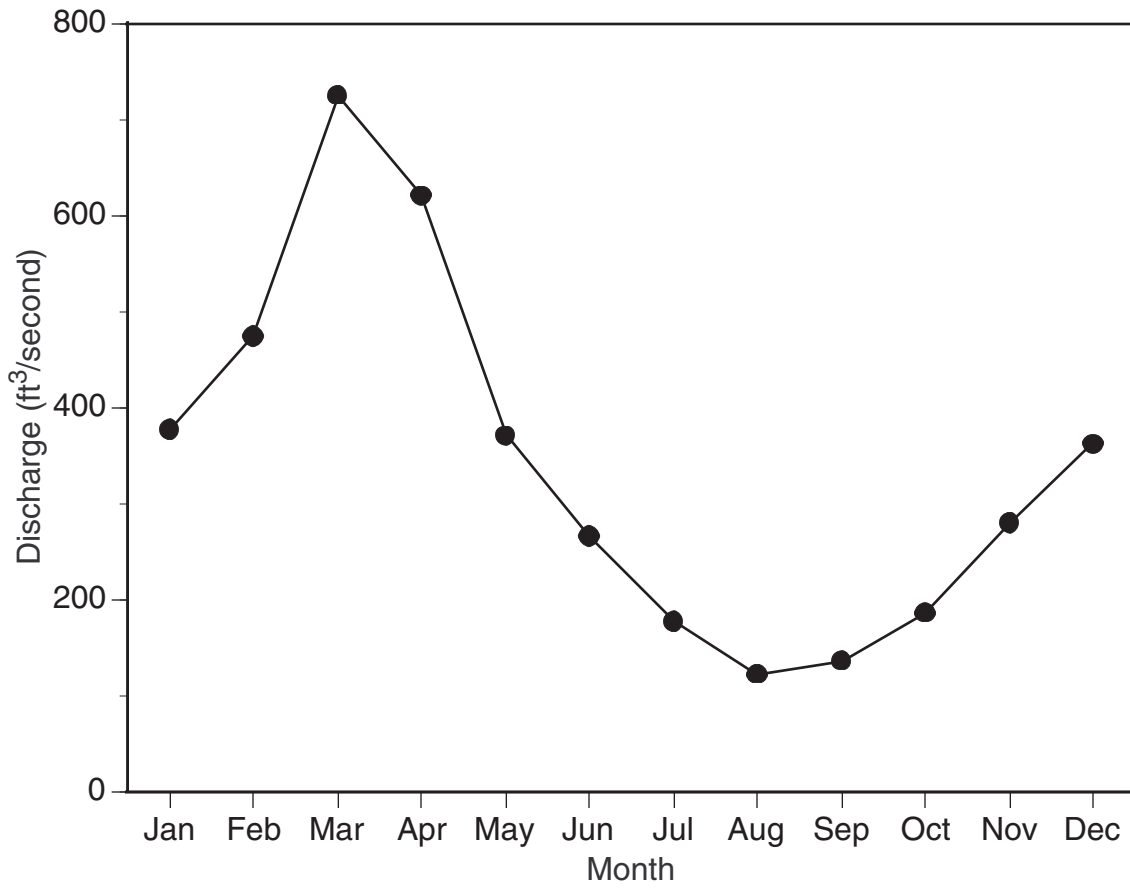


Figure 5.—Mean monthly discharge (cfs) for River Raisin mainstem east of Adrian for the period of record 1954-94. Data from: United States Geological Survey gauge records.

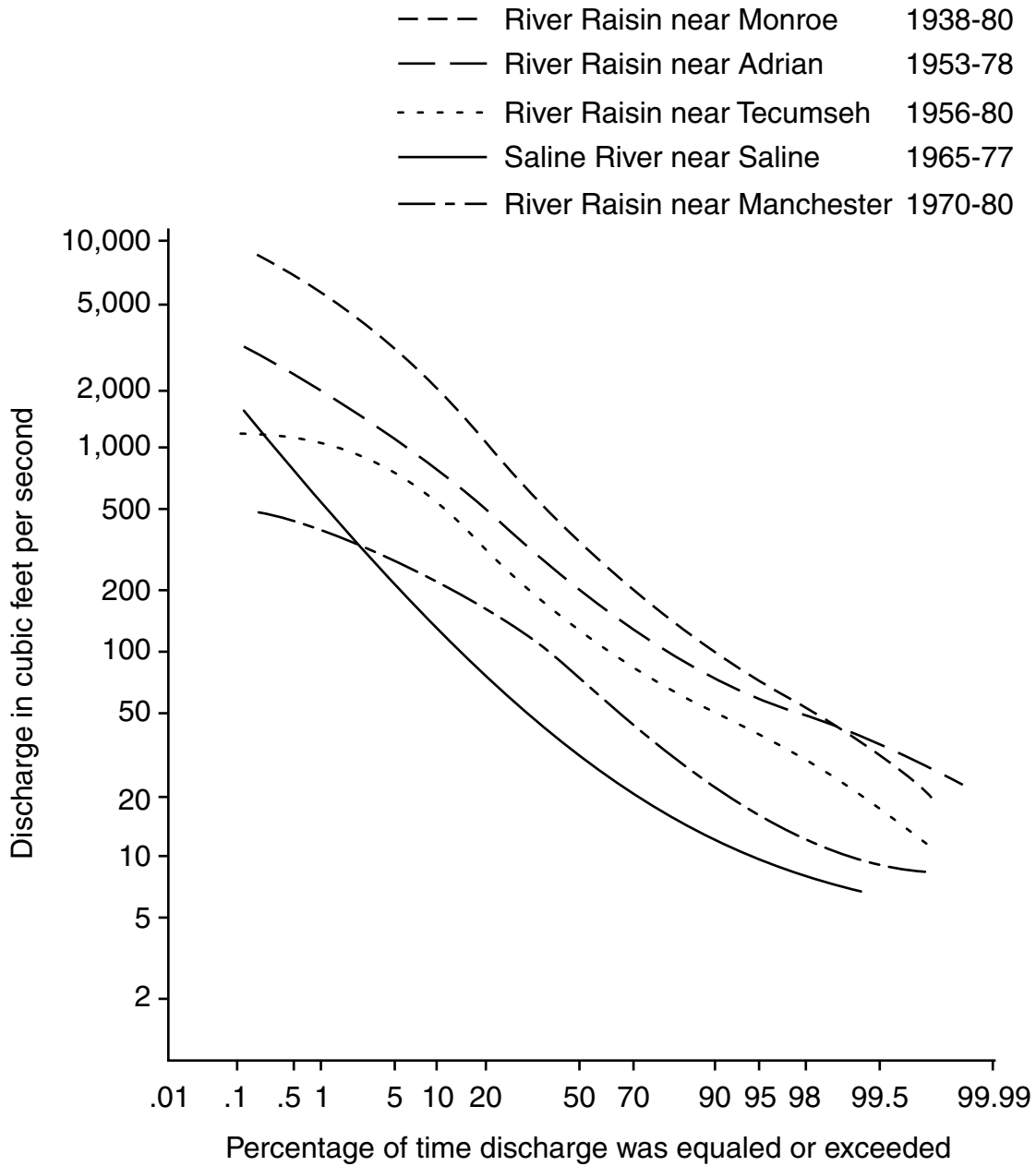


Figure 6.—Flow duration curves for United States Geological Survey gauging stations on River Raisin mainstem and Saline River. See Figure 4 for precise gauge locations. Data from: Fulcher et al. 1986.

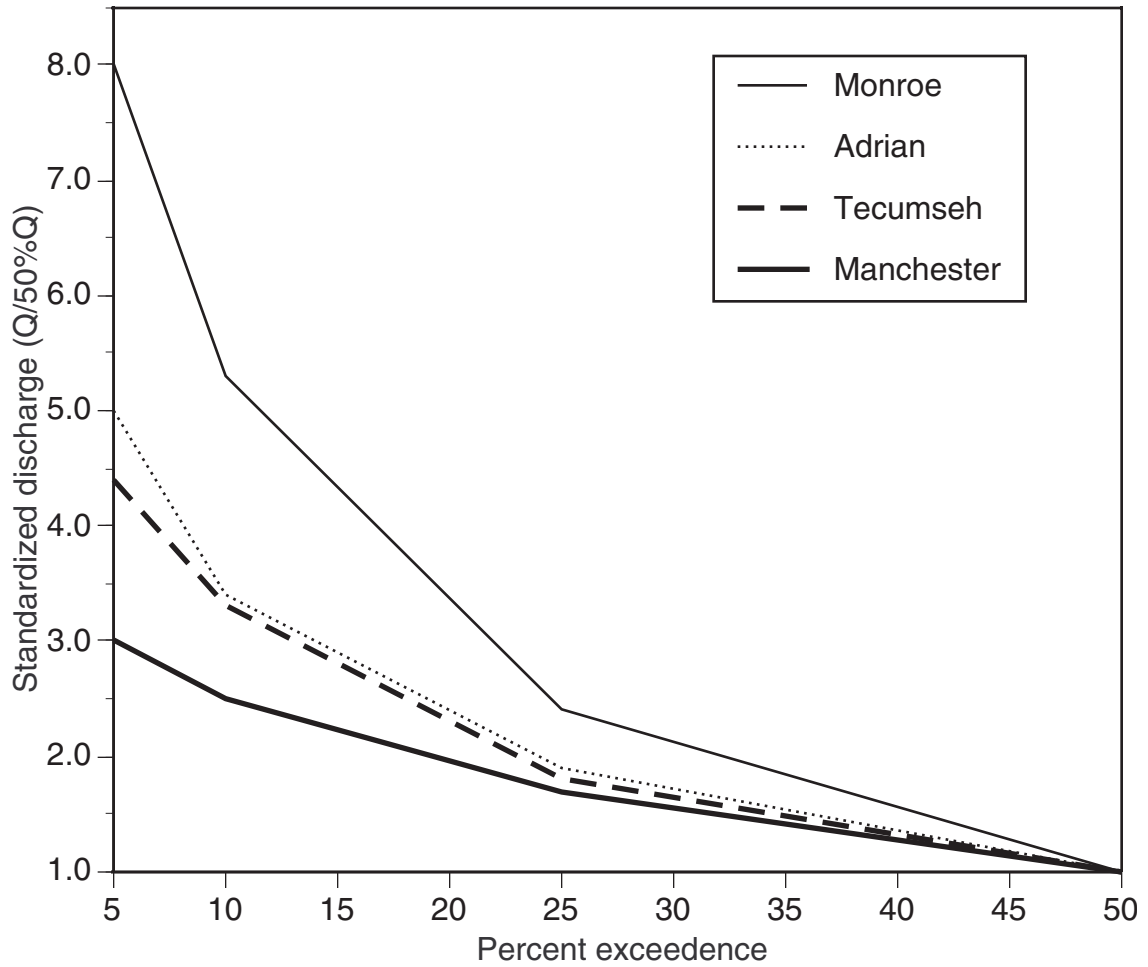


Figure 7.—Standardized high flow exceedence curves for four United States Geological Survey gauge stations on the River Raisin. Data from: United States Geological Survey gauge data for period of record. Standardized discharge is the discharge(Q)/median(50%Q) discharge.

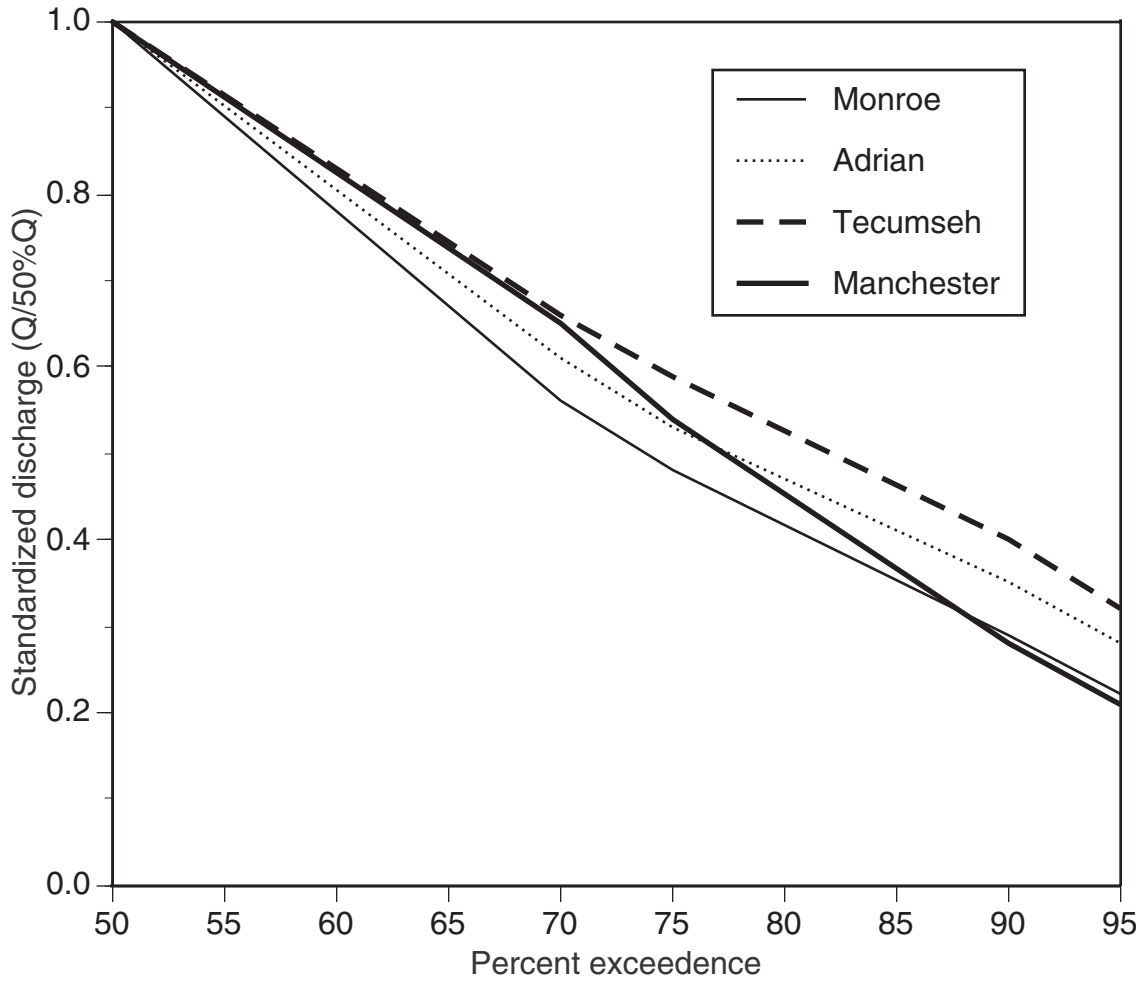


Figure 8.—Standardized low flow exceedence curves for four United States Geological Survey gauge stations on the River Raisin. Data from: United States Geological Survey gauge data for period of record. Standardized discharge is the discharge(Q)/median(50%Q) discharge.

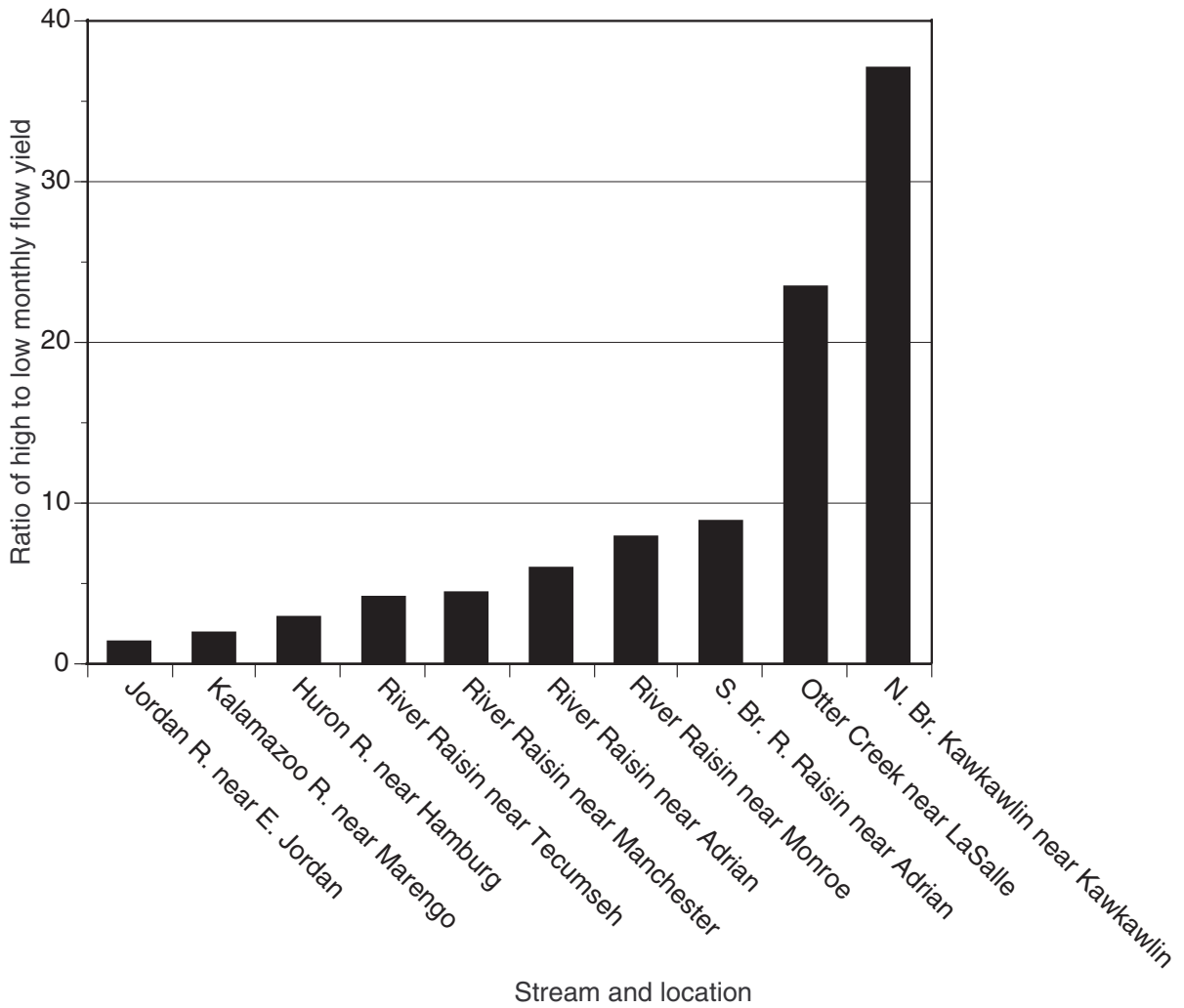


Figure 9.—Ratio of high to low monthly flow yields for sites on selected Michigan streams. Data from: United States Geological Survey gauge records.

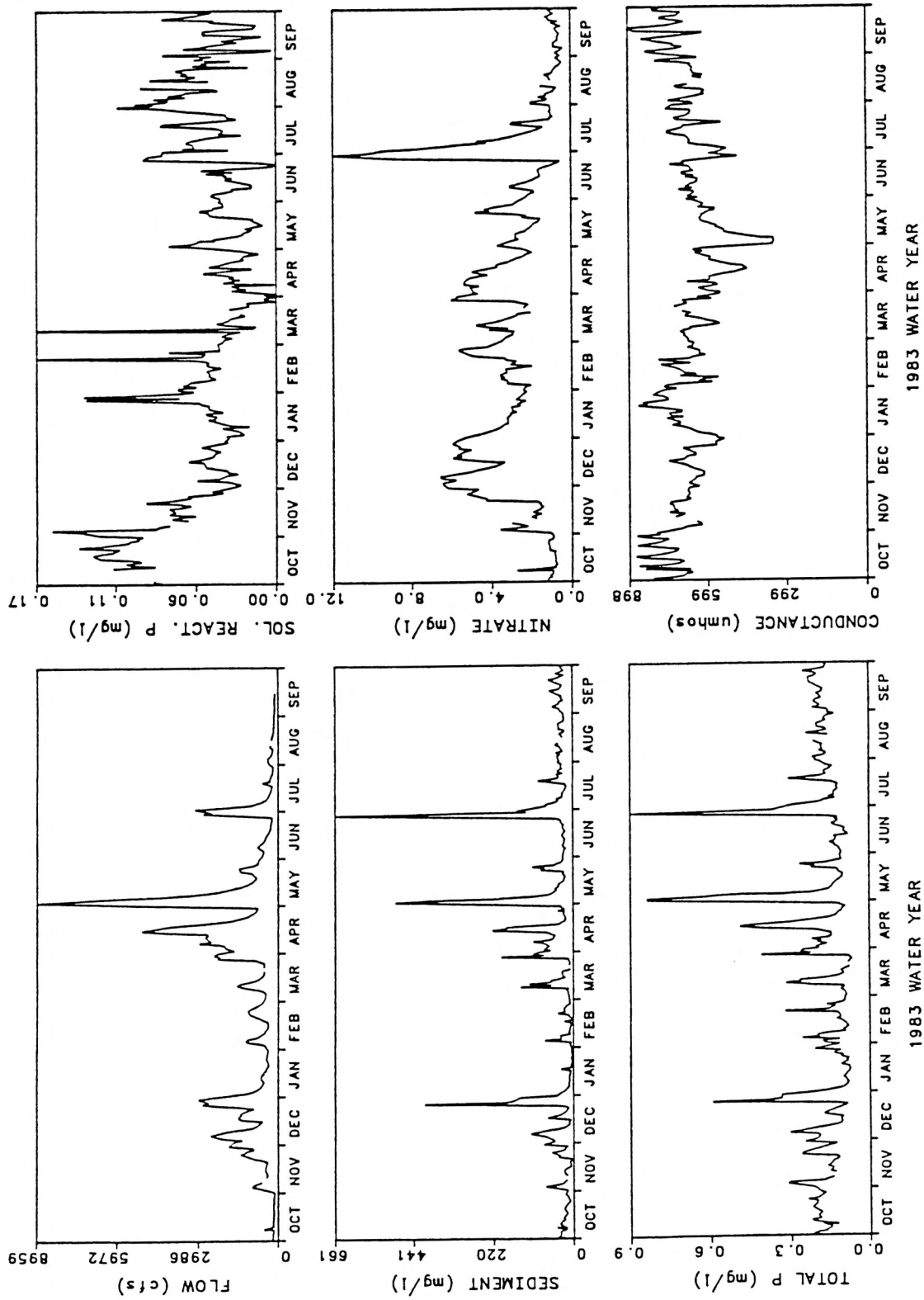


Figure 10.--Annual hydrograph, sedigraph, and nutrient chemograph for the River Raisin at Ida-Maybee Road. Data from: Baker 1988.

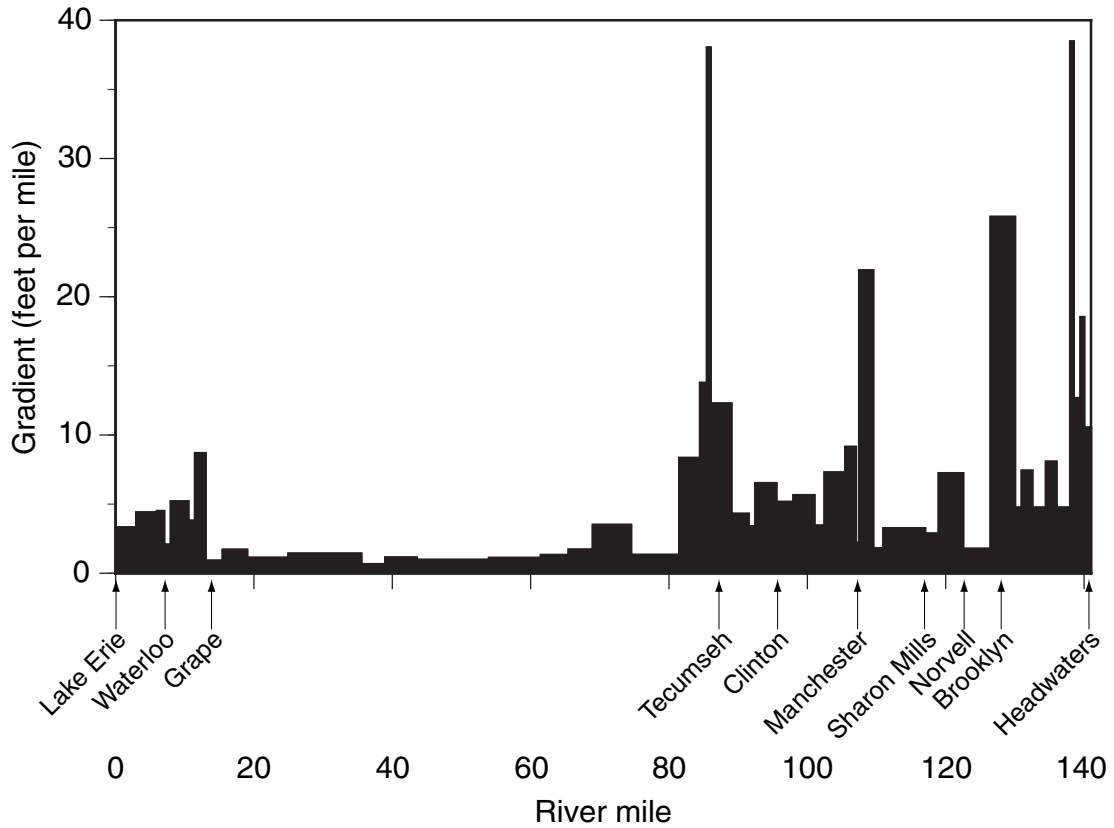


Figure 11a.—Gradient (elevation change in feet per mile) of the mainstem River Raisin from the mouth at Lake Erie to the headwaters. Data from: P. Seelbach and G. Whelan, Michigan Department of Natural Resources, Fisheries Division, personal communication.

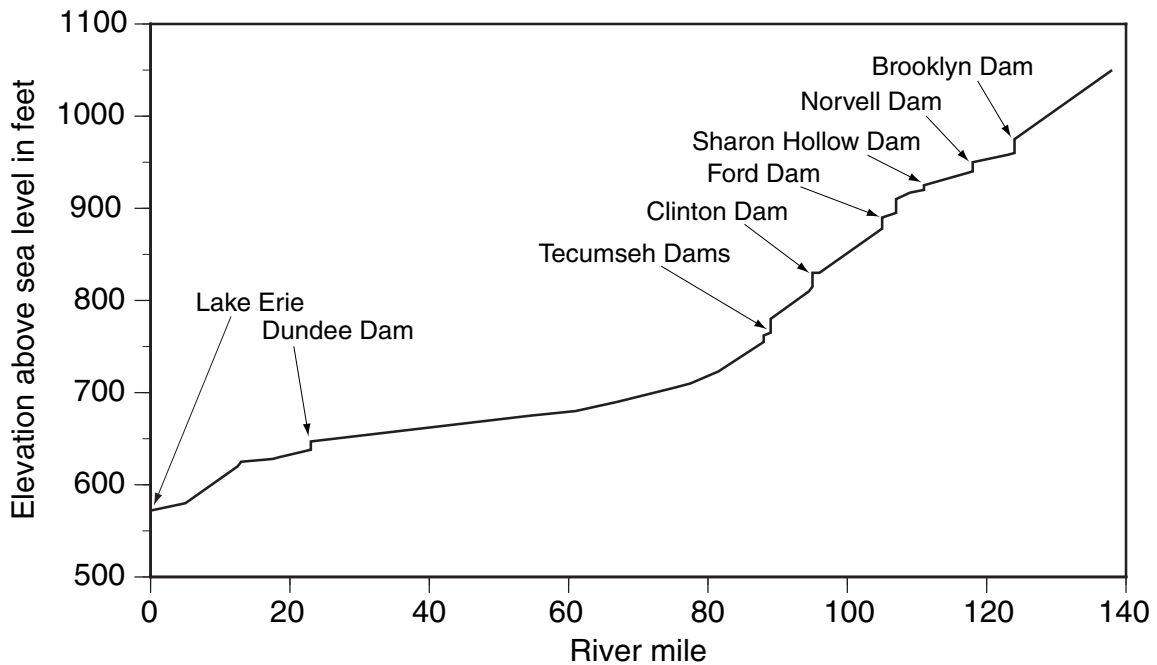


Figure 11b.—Elevation changes by river mile from the mouth to the headwaters of the River Raisin mainstem. Selected major dam locations are noted. Data from: Knutilla and Allen 1975.

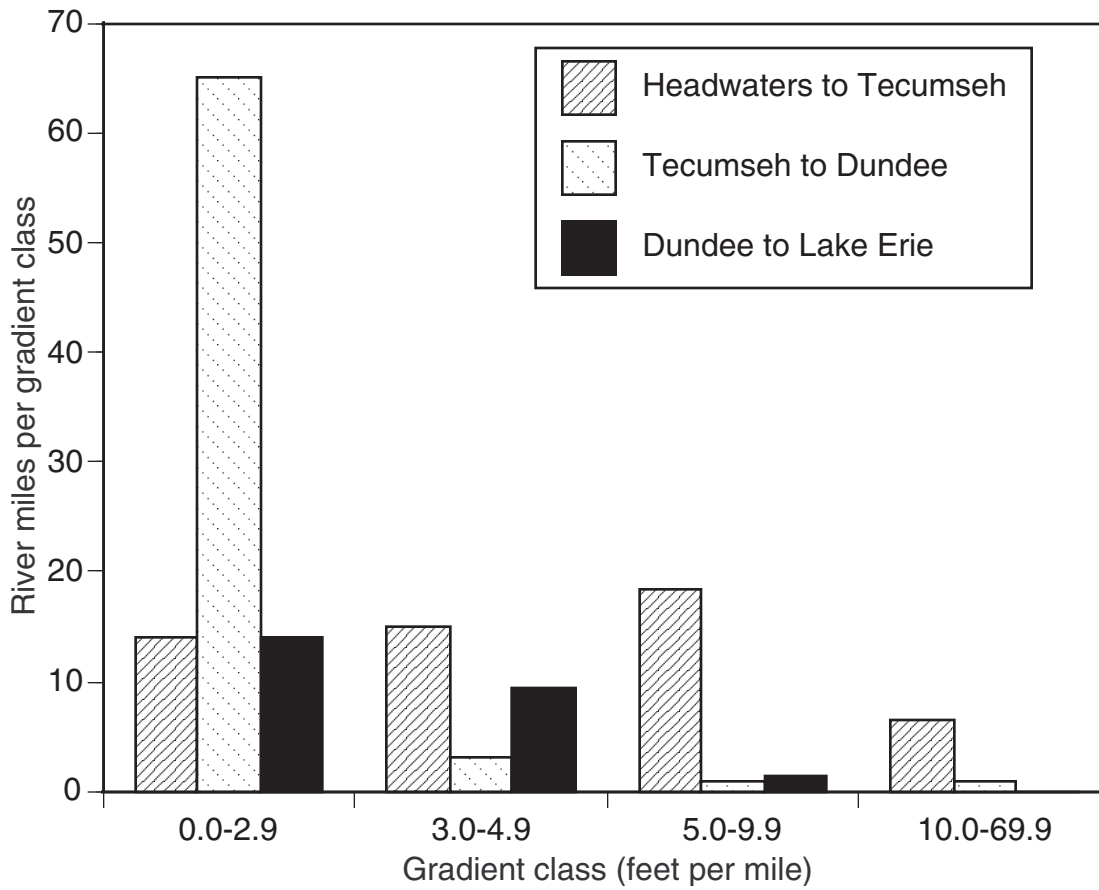


Figure 12.—Gradient classes and length of river in each for three sections of the River Raisin mainstem. Data from: P. Seelbach and G. Whelan, Michigan Department of Natural Resources, Fisheries Division, personal communication.

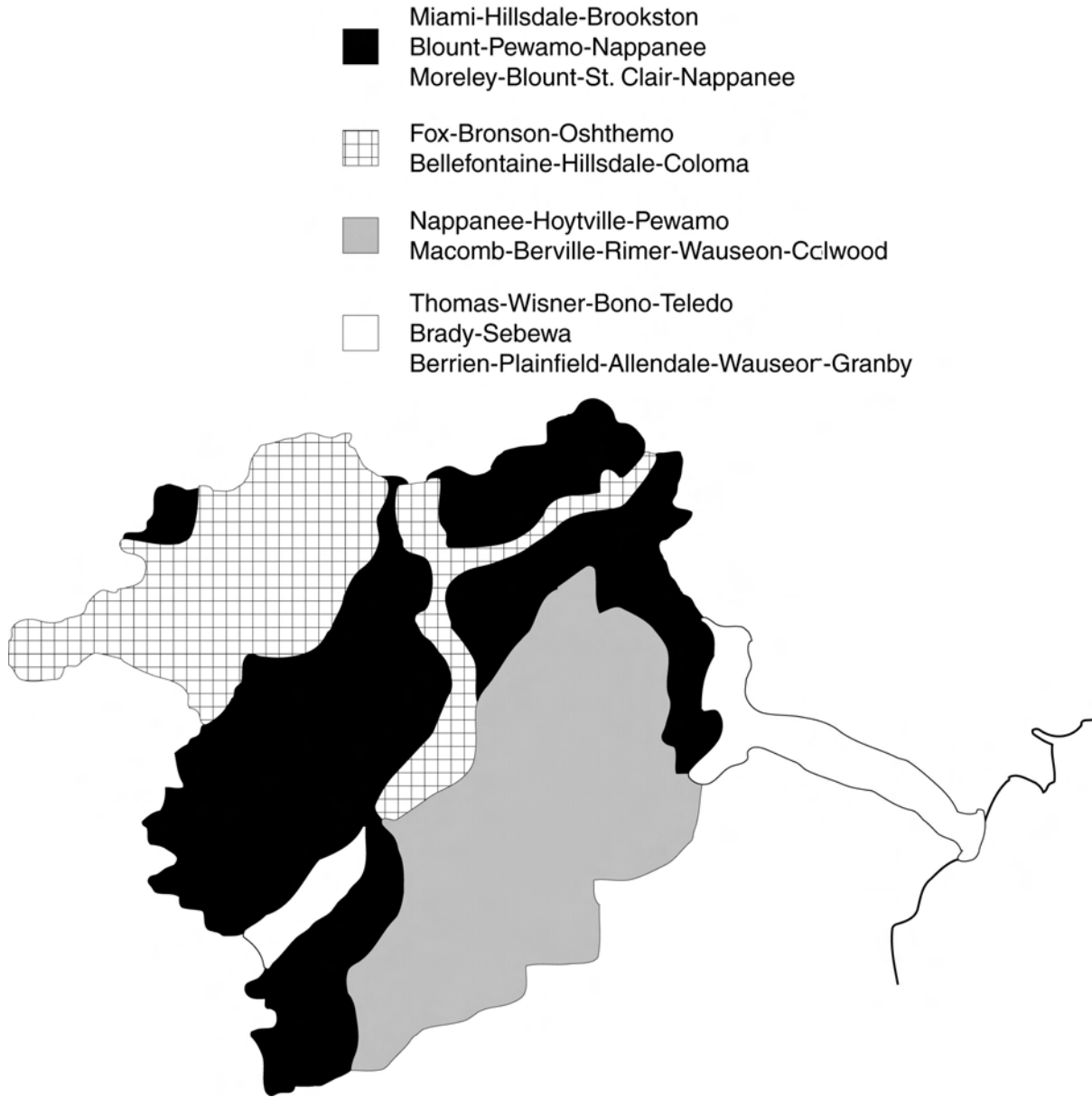


Figure 13.–Soil associations in the River Raisin watershed. Data from: Michigan Water Resources Commission 1965.

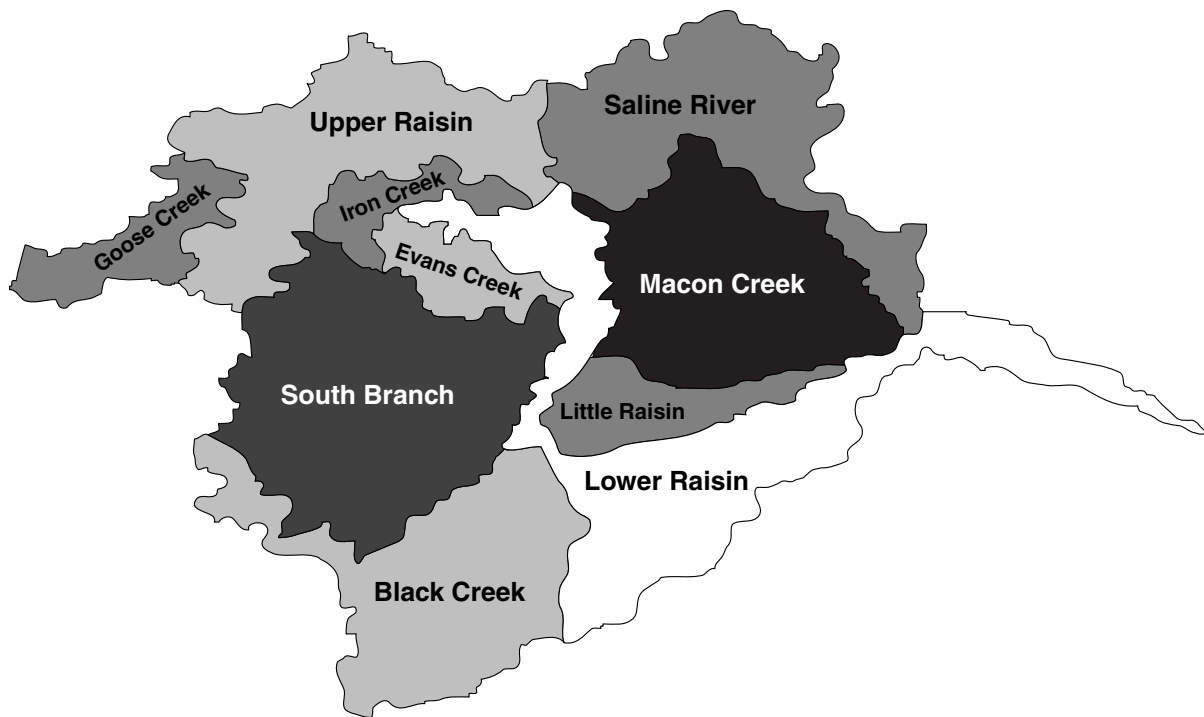


Figure 14.—Major sub-basins of the River Raisin watershed. Data from: Roth 1994.

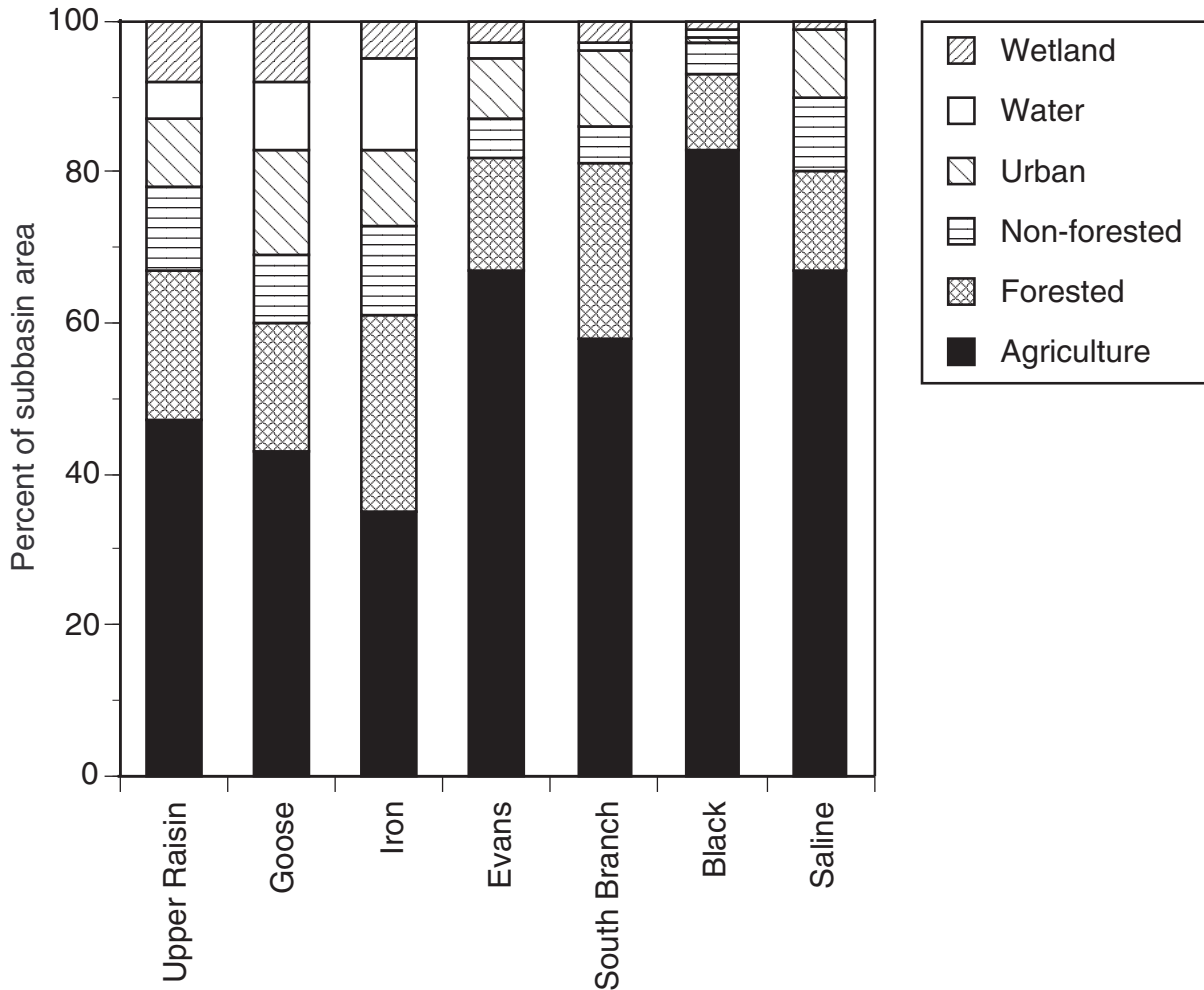


Figure 15.—Land uses in seven major sub-basins of the River Raisin watershed. Land uses are given as the percentage of land area. Data from: Roth 1994.

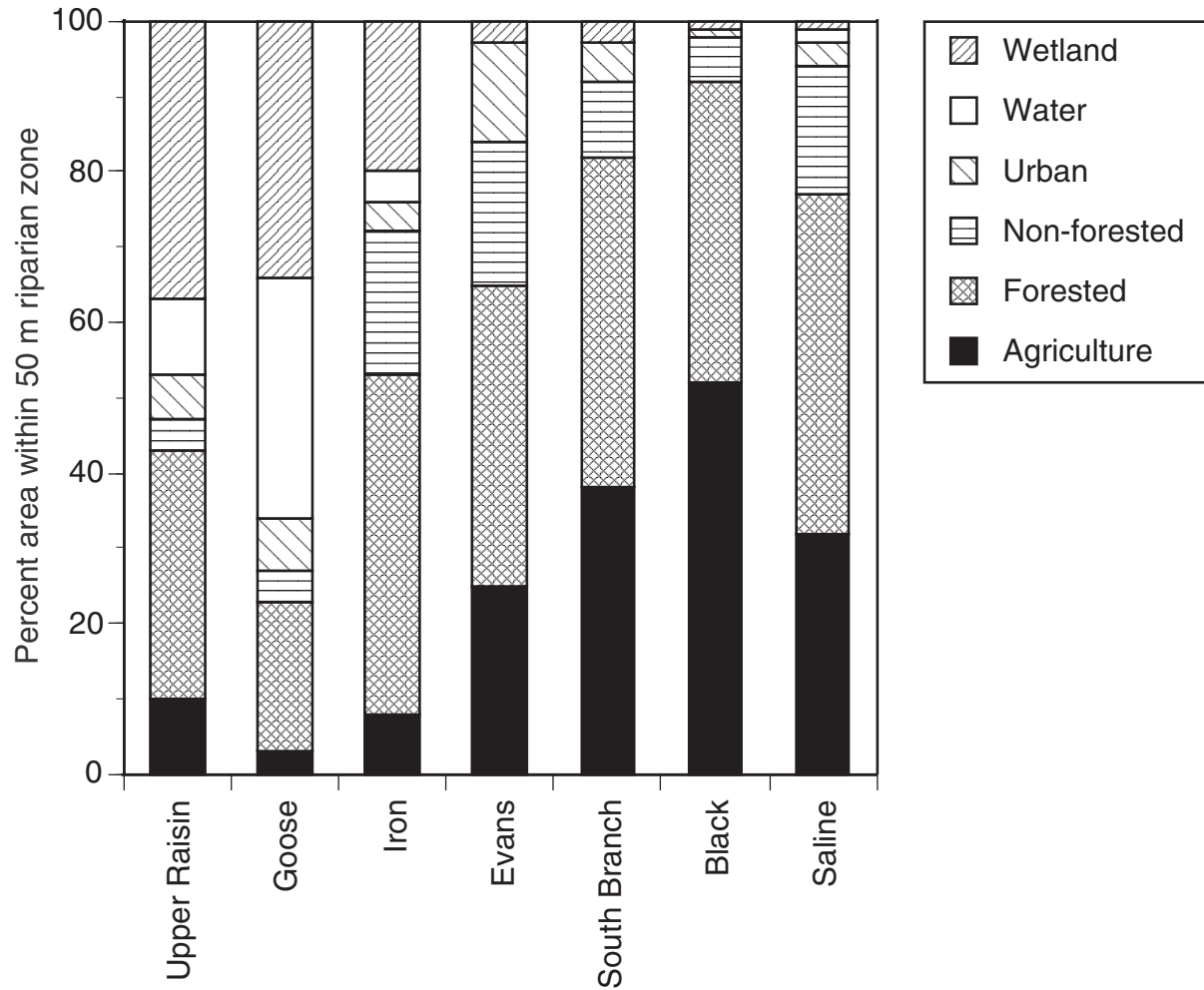


Figure 16.—Land uses in a 50 meter riparian zone (50 m each bank, 100 m total width) for seven major sub-basins of the River Raisin watershed. Land uses are given as the percentage of land area in 50 m of the stream, for the entire stream length. Data from: Roth 1994.

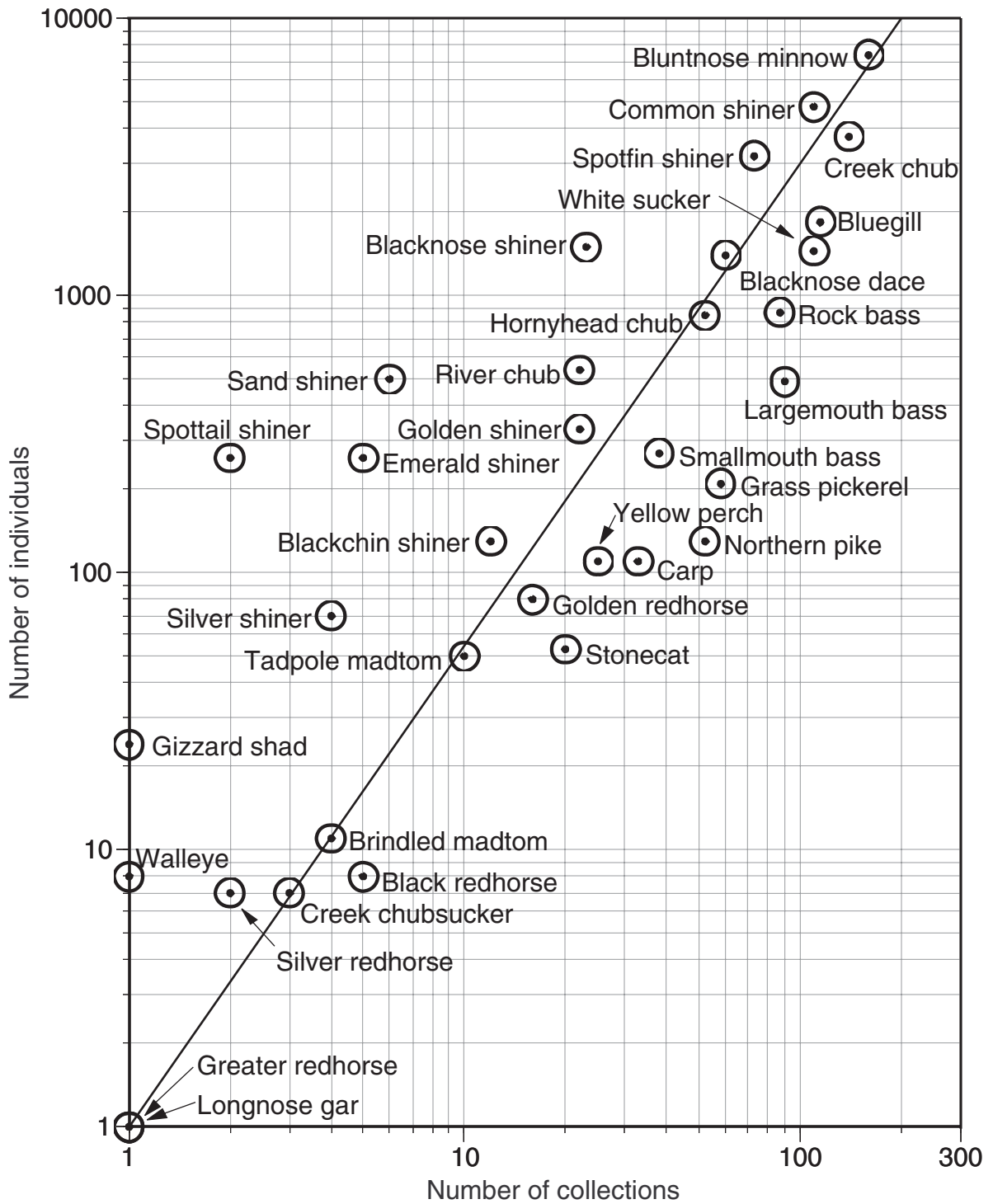


Figure 17.—Numerical abundance (vertical axis) and breadth of representation in ecological samples (horizontal axis) of River Raisin fishes. Data from: Smith et al. 1981.

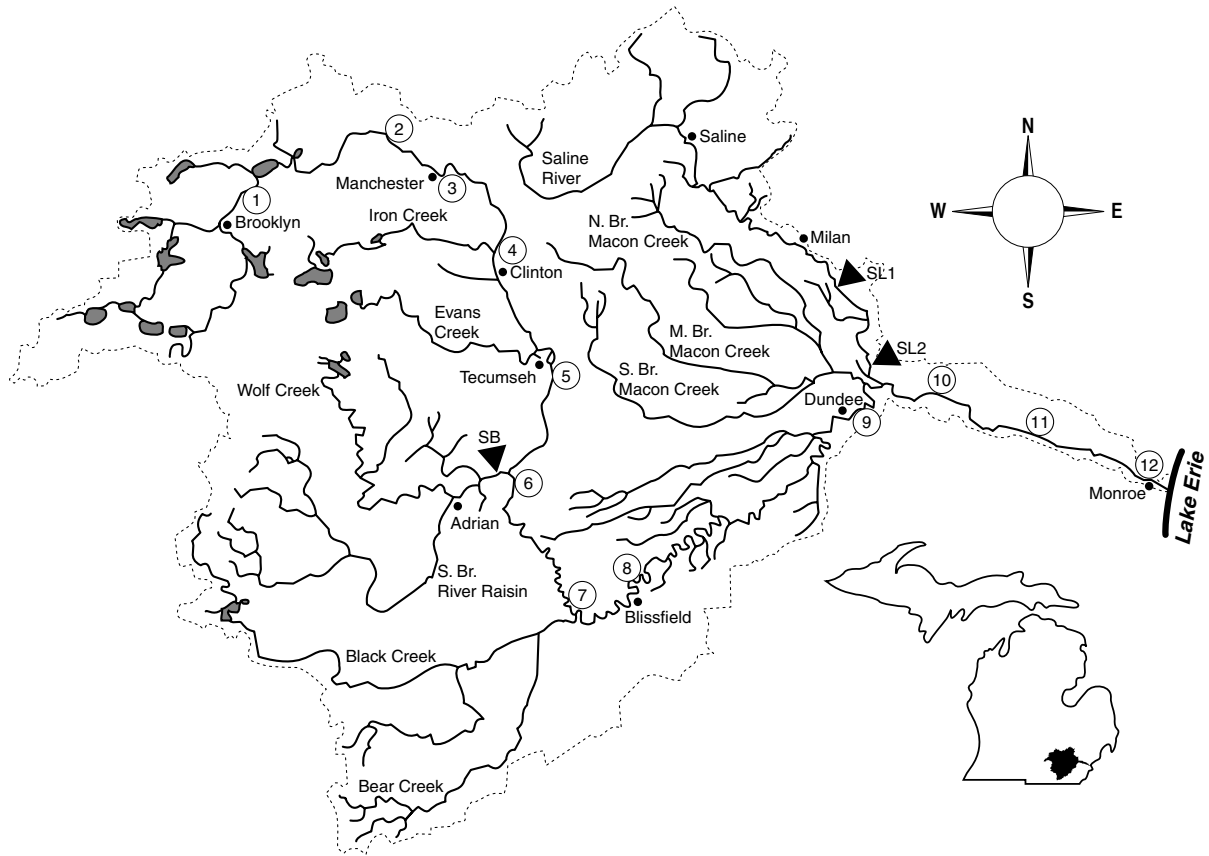


Figure 18.—Location of sampling stations during 1984 Michigan Department of Natural Resources, Fisheries Division River Raisin rotenone survey. Circles indicate mainstem sites and triangles indicate tributary sites. Data from: Towns 1985.

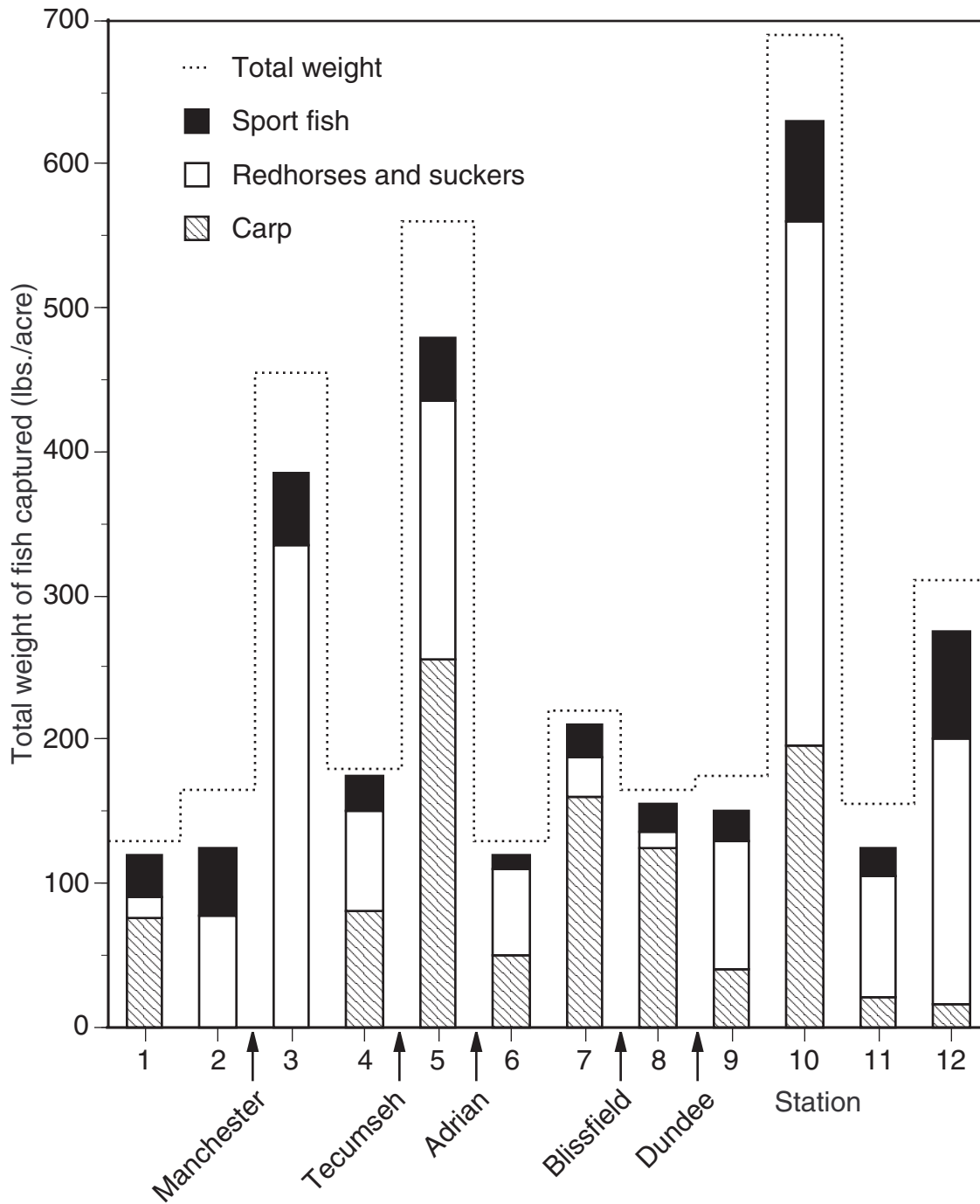


Figure 19.—The weight of sport fish (includes smallmouth bass, largemouth bass, rock bass, bluegill, northern pike, bullhead spp., channel catfish, and walleye), redhorses and suckers (includes northern hog sucker, white sucker, and all redhorse spp.), and carp captured at each mainstem station during the 1984 Michigan Department of Natural Resources, Fisheries Division River Raisin rotenone survey. The dotted line represents the weight of all fish captured. Data from: Towns 1985.

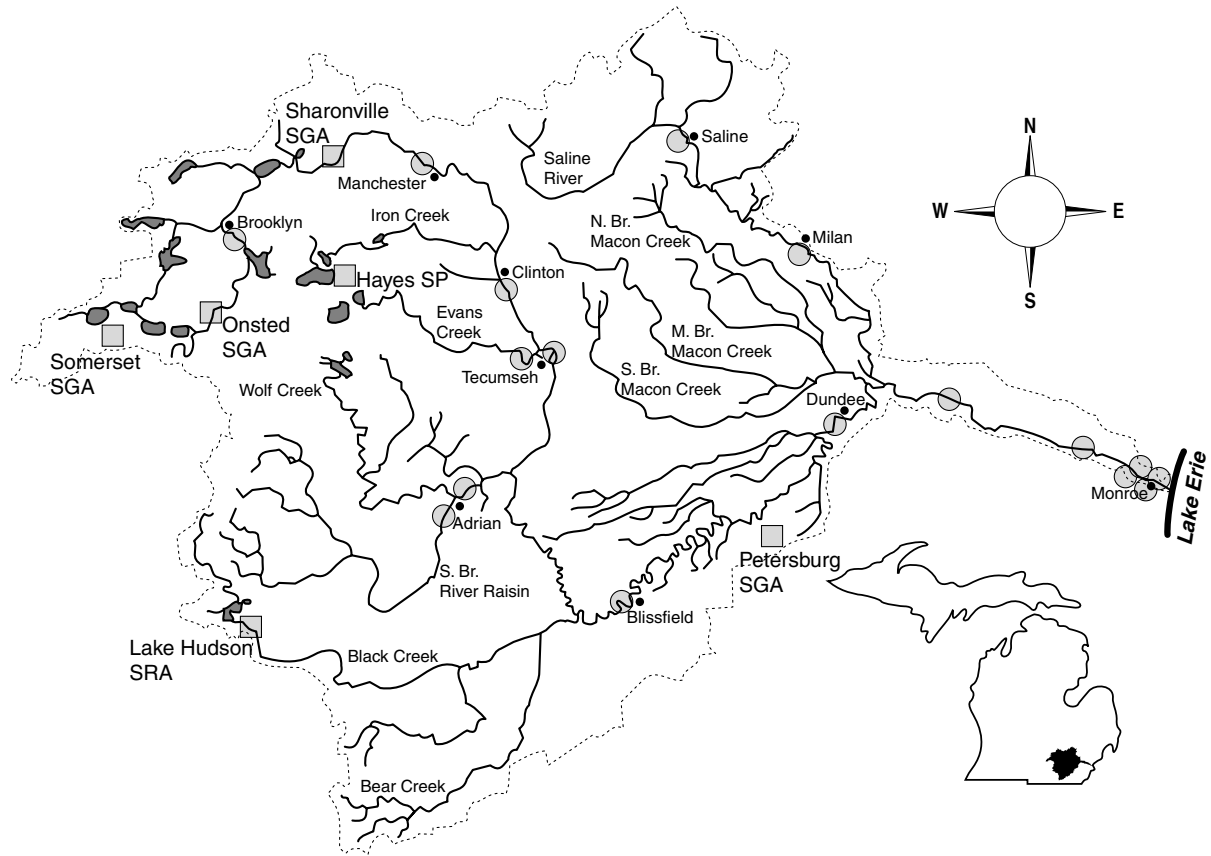


Figure 20.—State game areas, State recreational areas, State parks, and municipal parks in the River Raisin watershed. Open square = State facility and open circle = city, village or township facility.

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|--------------------------------|---------------------------------|
| 1. Lake Somerset (Goose Creek) | 12. Blissfield |
| 2. Lake Columbia (Goose Creek) | 13. Deerfield |
| 3. Brooklyn | 14. Dundee |
| 4. Norvell Lake | 15. Murciak (Grape) |
| 5. Sharon Hollow | 16. Waterloo |
| 6. Manchester Mill | 17. Lake Loch Erin (Wolf Creek) |
| 7. Ford Manchester | 18. Lake Adrian (Wolf Creek) |
| 8. Altas Mill (Clinton) | 19. Lake Hudson (Bear Creek) |
| 9. Red Mill (Tecumseh) | 20. Saline (Saline River) |
| 10. Standish Mill (Tecumseh) | 21. Milan (Saline River) |
| 11. Globe Mill (Tecumseh) | |

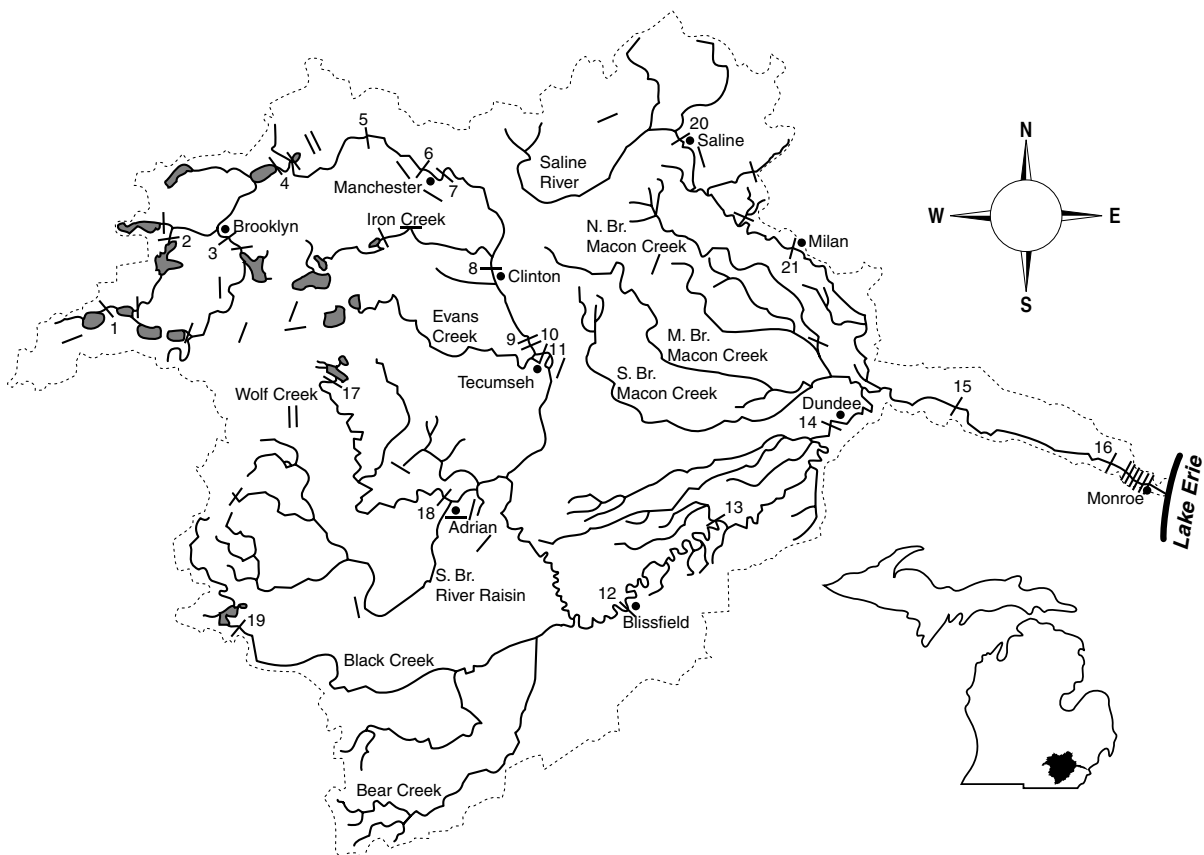


Figure 21.—Approximate location of dams in the River Raisin watershed. Major dams are numbered. Data from: Michigan Department of Environmental Quality, Land and Water Management Division, Dam Safety Section.

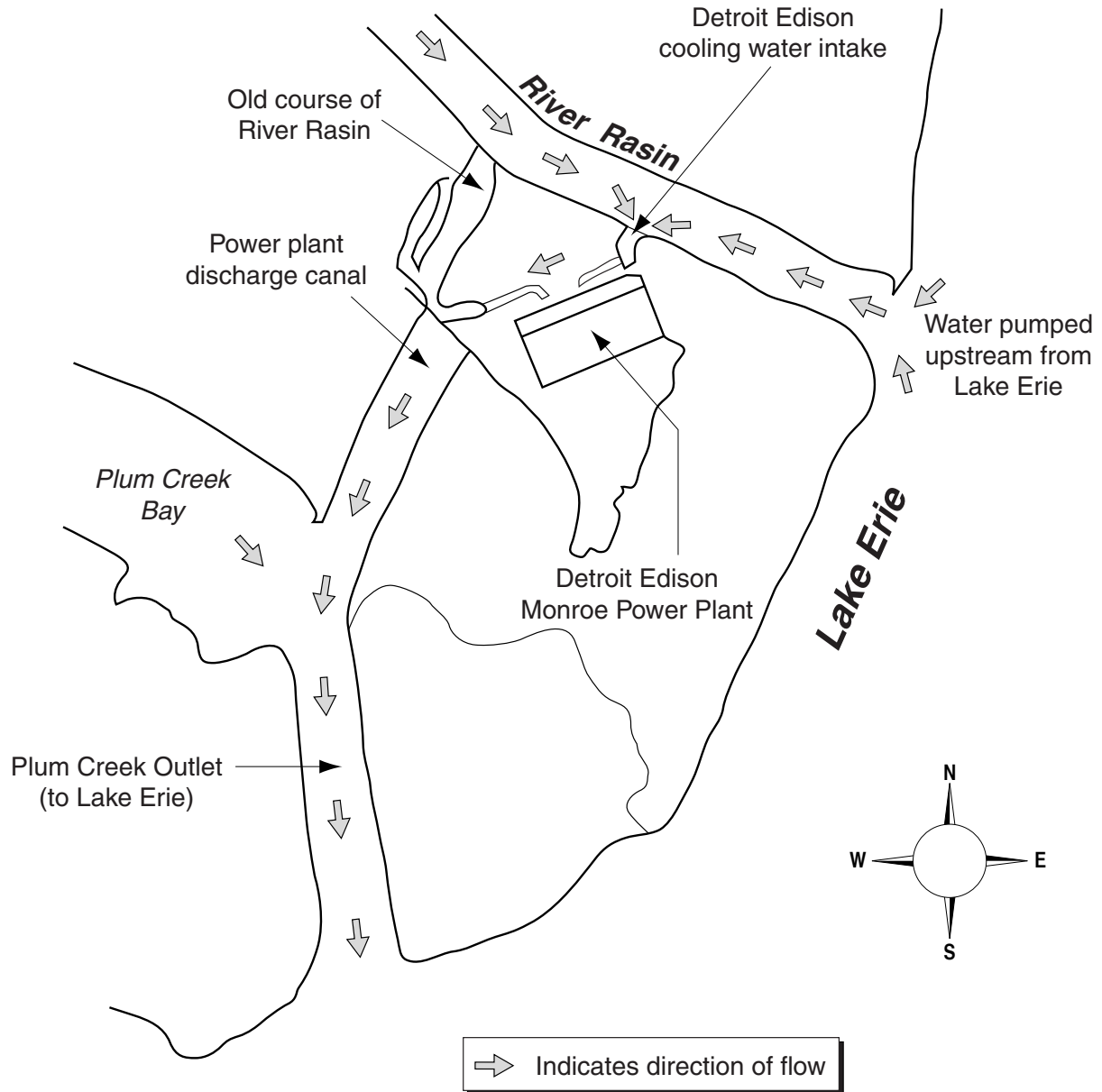


Figure 22.—Detroit Edison Monroe Power Plant cooling water flow configuration. Data from: aerial photograph, Engineering Department, City of Monroe.

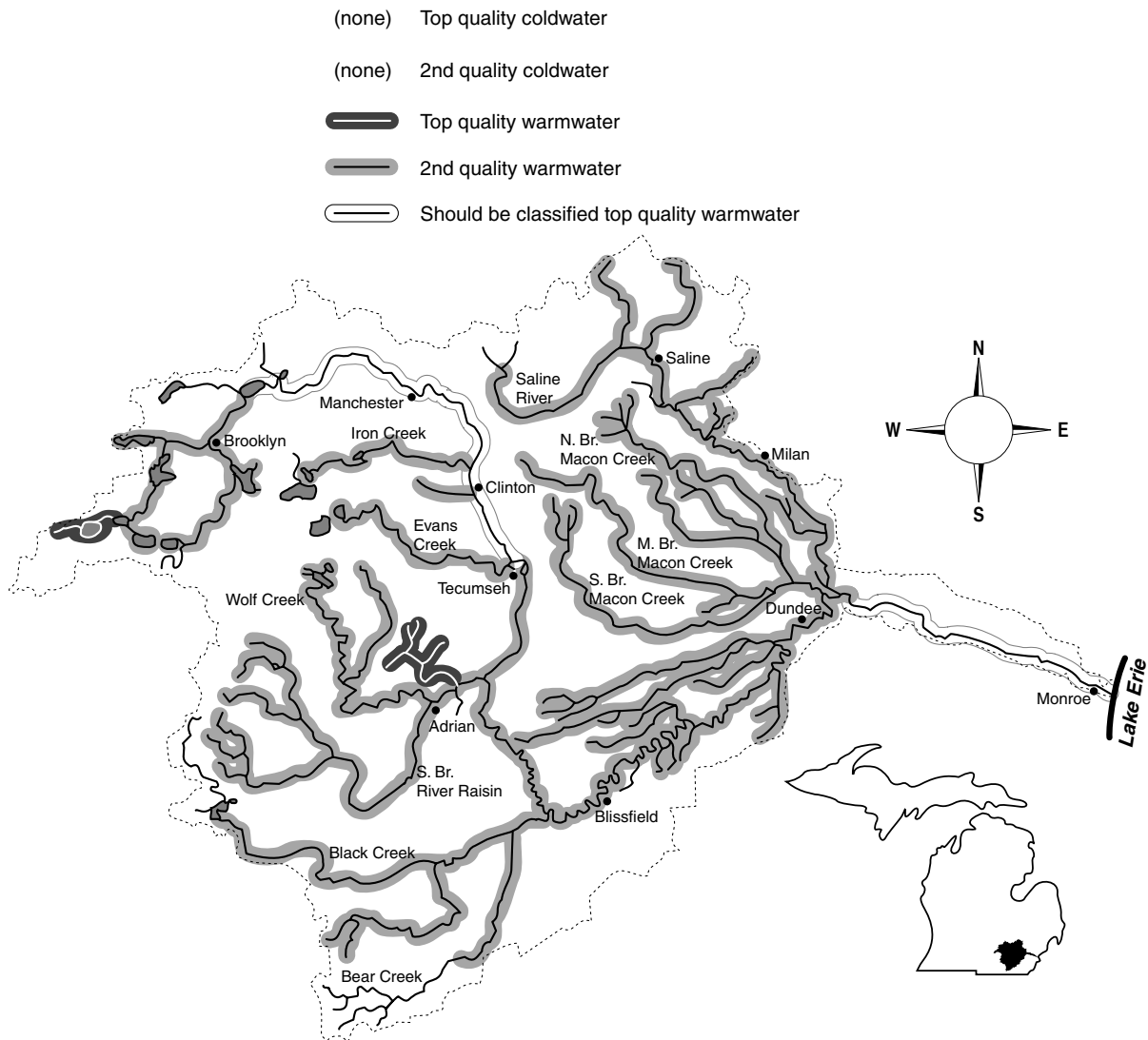


Figure 23.—Michigan Department of Natural Resources, Fisheries Division stream classification map, 1964. The mainstem from Norvell Dam to Tecumseh and from the confluence with the Saline River to Lake Erie should be classified top quality warmwater.