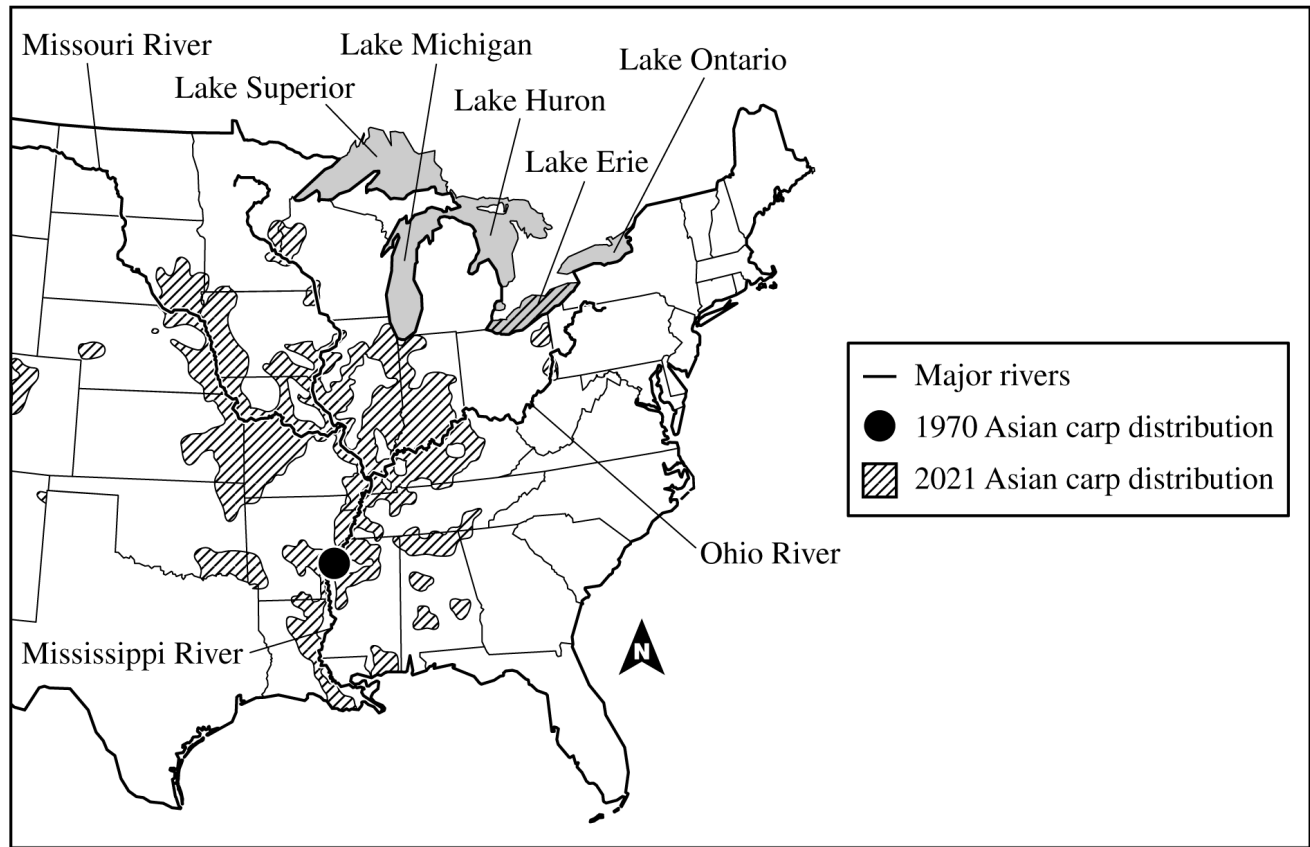


2. Asian carp were first introduced in the southern United States in the 1970s by fish farmers wanting to control algal growth in fish ponds. Asian carp can eat up to 40% of their body weight in algae each day, and a female carp can produce up to 1 million eggs every year.

Distribution of the Asian Carp in the United States



- (a) Based on the information given, **identify** a body of water invaded by Asian carp that is labeled on the map.
- (b) Based on the information shown in the map, **describe** the change in the distribution of Asian carp since their introduction in the 1970s.

The Great Lakes are a group of five major freshwater inland lakes that all share the same watershed.

- (c) **Describe** one impact the introduction of Asian carp could have on the ecosystem services provided by the Great Lakes region.
- (d) **Propose** a realistic solution to help reduce the spread of the Asian carp from their current distribution.
- (e) **Justify** the solution proposed in part (d) by providing an additional advantage.

The following is an example of a simple food chain in the Great Lakes.

Algae → Zooplankton → Macroinvertebrates → Yellow perch → Rainbow trout

- (f) **Identify** the primary consumer in the Great Lakes food chain.
- (g) **Describe** what the arrows in the aquatic food chain represent.
- (h) **Describe** one possible effect of the introduction of the Asian carp on the Great Lakes food chain.

The blue pike, a fish that was endemic to the Great Lakes, was commercially fished from the late 1800s until their population crashed in 1958. In 1970, the species was declared to be extinct.

- (i) **Describe** one way that overfishing of blue pike illustrates the tragedy of the commons.
- (j) One potential solution to reduce overfishing is to use aquaculture. **Describe** one disadvantage of this solution.