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5. Harmful algal blooms, such as *Microcystis sp,* are predominantly caused by what non-point source pollutant?
   A) Nitrogen and phosphorus
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6. Which happens when the temperature of a stream increases?
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7. High levels of nitrogen or ammonia in a stream will elevate which of the following?
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8. The hydrologic cycle is described in the paragraph below. Complete the statements (write the appropriate term in the blank spaces).

   The hydrologic cycle begins with the _____ of water from the surface of the ocean. As moist air is lifted, it cools and water vapor in a process called _____ to form clouds. Moisture is transported around the globe until it returns to the grounds surface as _____.

9. The base of an aquatic energy pyramid is made up of:
   A. Insects and vertebrates
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10. The presence of which of the following contaminants would be the strongest reason for judging municipal sewage sludge unfit for use as fertilizer?
    A. Human feces
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    C. Phosphates
    D. Nitrates
    E. Heavy metals

11. Increased levels of nitrates and carbon dioxide in streams will affect which two chemical parameters used to determine water quality?
    A. dissolved oxygen and pH
    B. temperature and salinity
    C. turbidity and dissolved oxygen
    D. pH and phosphates

Mayflies

Mayflies belong to a group of insects known as Ephemeroptera, which means "shortlived wings." They have been given this name because the adult, the only stage that has wings, lives for only a few days.

The aquatic juvenile form of most mayfly species lives for several years under rocks in streams that have high levels of dissolved oxygen. The juveniles feed on microscopic photosynthetic organisms. Juveniles supply food for trout and other stream fish.

Millions of adult mayflies emerge from stream water in early summer. The adults have wings for flight, but lack functional mouth parts. Their energy supply comes from food stored in their bodies. Birds and bats eat adult mayflies. Adult mayflies mate, lay eggs, and die within a few days.

12. Identify the nutritional role of the juveniles in a stream food chain.

    _____

13. A student was asked to construct a food chain based on the information given in the passage. The student's answer is shown below.

    microscopic plants → mayfly eggs ← bats

    State *one* of the errors the student made when constructing this food chain.

14. What type of bonding between water molecules allows water striders to "walk" on the surface of water? _____

Answer # 15 using the food web below and your knowledge of biology.

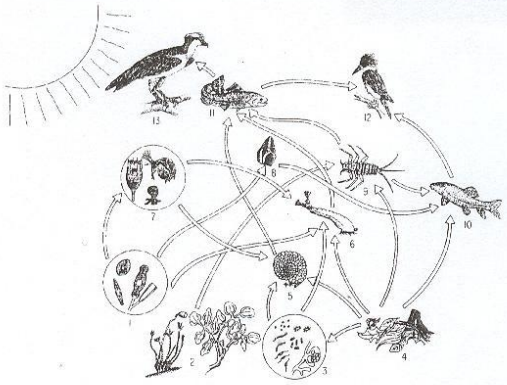

FIGURE 2–5: Stream food web. (1) diatoms; (2) fountain moss (left), watercress; (3) bacteria and fungi; (4) leaves, sticks, other organic remains (detritus); (5) snail case caddisfly larva; (6) black fly larva; (7) zooplankton; (8) snail; (9) mayfly nymph; (10) common sucker; (11) trout; (12) kingfisher; (13) osprey.

15. A farmer illegally sprayed a banned pesticide around his pond to eliminate weeds. Explain why the osprey (#13) has a higher amount of pesticide in its system than the mayfly (#9).

Identification Questions

01. The animal illustrated by the picture is an example of _____.
A. stonefly
B. riffle beetle
C. water penny
D. scud

02. The animal in the drawing below is an air breathing macroinvertebrate.
A. scud
B. riffle beetle
C. water scorpion
D. predacious diving beetle

03. The aquatic organism in the picture is considered an invasive animal species.
A. mosquito
B. tubifex
C. spiny water flea
D. water mite

04. The animal shown in this picture is commonly known as a _____.
A. dobsonfly
B. riffle beetle
C. stonefly
D. caddisfly

05. The organism pictured is found in bodies of water over the state of New York. It is the aquatic larvae of the _____.
A. dobsonfly
B. damselfly
C. mayfly
D. crane fly

06. The Order Hirudinea contains this aquatic organism. It is considered to be parasitic and is commonly known as a/an _____.
A. flatworm
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07. The structure indicated by the arrow is used for _____.
A. catching and crushing food
B. digging burrows
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08. The organism in the picture is an example of an adult _____.
A. caddisfly
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09. The organism in the drawing is an example of a ___.
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C. water boatman
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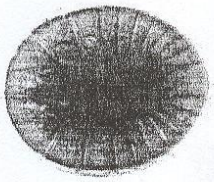
1.



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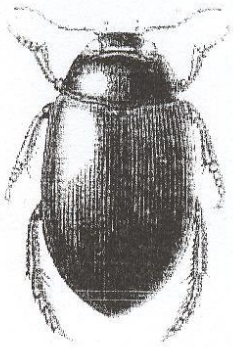

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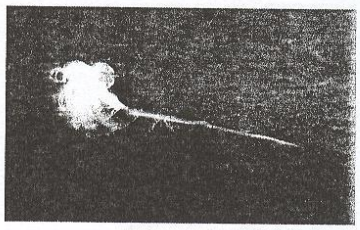

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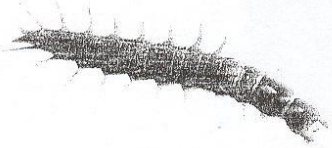

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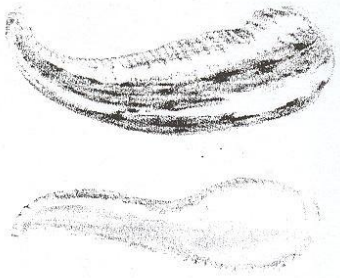

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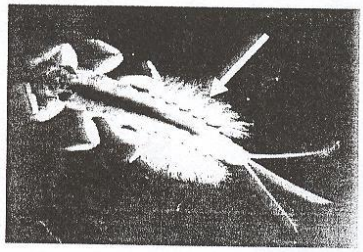

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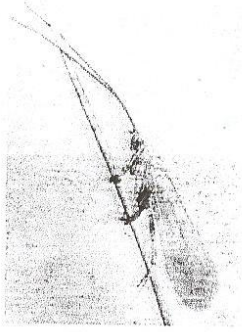

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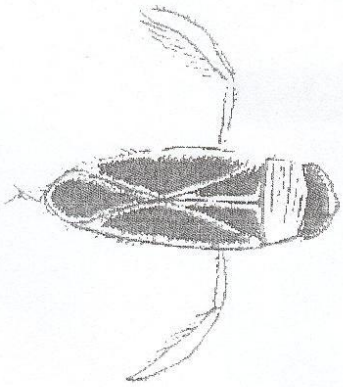

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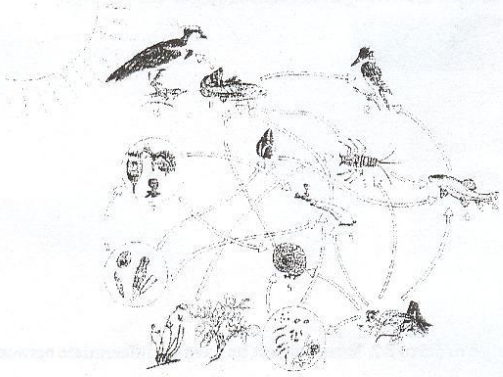

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Biological magnification; or as you move through the food chain, the concentration of toxins increases. The osprey eats more organisms and is at a higher level than the mayfly.

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