

## What is a food web?

A food pyramid is a very simple way of looking at a bigger picture called a food web. A food web is made up of all the different plants and animals that have an effect on one another by their feeding habits. A group of food pyramids meshed together make a food web.

### OBJECTIVES

After completing this activity you will be able to:

- Describe how organisms are related to each other in a food web.
- Give examples of how factors that impact one part of a food web can also affect other parts of the environment.

### PROCEDURE

1. Figure 1 is a model of a food web that you might find in the Great Lakes. On it, draw arrows from the organisms that are being eaten to the ones that are eating. Remember that organisms on higher levels eat those on the lower levels. For instance, herons eat lake trout and sculpin, so you would draw arrows from the lake trout and the sculpin pointing to the heron. Since lake trout eat diving beetles, you would draw an arrow from the diving beetles to the lake trout. You may use your own judgment about who eats what. Sizes of the organisms and their positions in the food chain should provide clues. The food chain position given for each carnivore is the most common one for that organism. It doesn't mean that the animal can only eat organisms immediately below it. Some animals that are scavengers can eat organisms from all levels of the chain.

There are many correct answers to this activity.

2. The Pete Seeger song entitled "The People Are Scratching" deals with the problem of removing organisms from the food web. Words and music are reprinted here. The song is on an album called *God Bless the Grass* (Columbia #CL 2432).

Play or sing the song and answer the questions to reinforce the importance of each link in a food chain.

### Source

OEAGLS EP-11, *To Harvest a Walleye*, Activity C, by Susan Leach, Gabriele Reil and Rosanne W. Fortner.

### Earth Systems Understandings

The food web activity addresses ESU 1, artistic expression, and 4, the natural processes that make Earth unique.

### Materials

- Figure 1.
- Song lyrics or taped song.

### Teacher's Notes

Since most animals eat more than one thing, a network of lines like a spider's web will result. Since there are several species of most of the organisms shown, many different webs are possible.

Emphasize to the students that such a web is like a complex food pyramid. If one part is removed, the whole system will be out of balance.

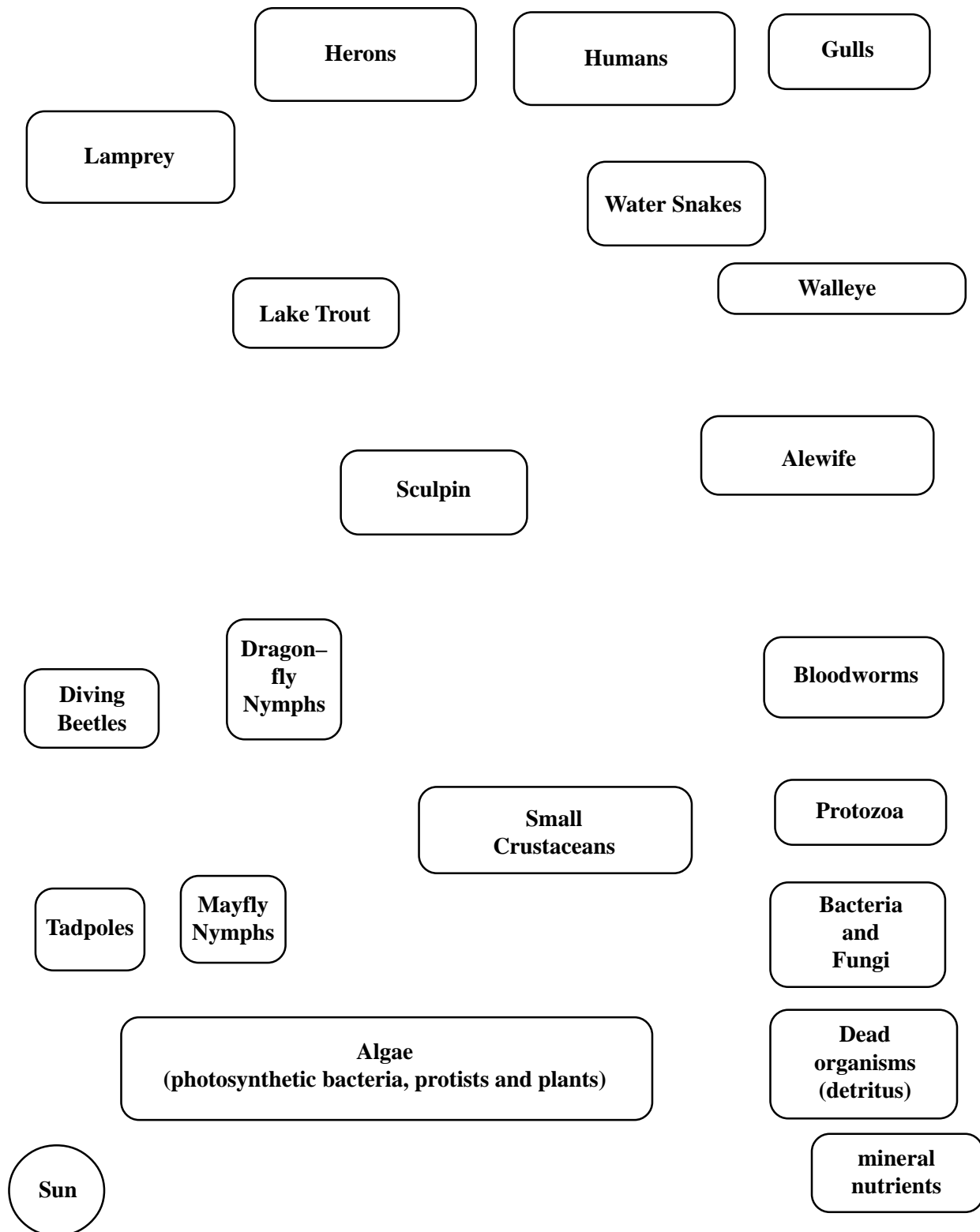


Figure 1. Organisms in a Great Lakes Food Web.  
 Source: Modified from NSTA Great Lakes JASON Curriculum

”The People are Scratching”

by Ernie Marris, Harold Martin, and Pete Seeger

Come fill up your glasses, set yourself down  
I'll tell you a story of somebody's town  
It isn't too near and it's not far away,  
It's not a place where I'd want to stay.

The people are scratching all over the street  
Because the rabbits had nothing to eat.

The winter came in with a cold icy blast  
It killed off the flowers and killed off the grass.  
The rabbits were starving because of the freeze;  
They started eating all the bark on the trees.

(Chorus)

The farmers said, "This sorta thing won't do;  
Our trees will be dead when the rabbits get through.  
We'll have to poison the rabbits it's clear  
Or we'll have no crops to harvest next year.

(Chorus)

So they bought the poison and spread it around  
And soon dead rabbits began to be found.  
The dogs ate the rabbits and the farmers just said  
"We'll poison those rabbits 'til the last dog is dead."

(Chorus)

Now up in the sky there were meat-eating fowl,  
The dead rabbits poisoned the hawks and the owls.  
Thousands of field mice the hawks used to chase  
Started multiplying all over the place.

(Chorus)

The fields and meadows were barren and brown;  
The mice got hungry and moved into town.  
The city folks took the farmer's advice,  
And all of them started to poison the mice.

(Chorus)

There were dead mice in all the apartments and flats.  
The cats ate the mice and the mice killed the cats.  
The smell was awful and I'm glad to say  
I wasn't the man hired to haul 'em away.

(Chorus)

Well, all through the country and all through the town,  
There wasn't a dog or a cat to be found.  
The fleas asked each other, "Now where can we stay?"  
They've been on the people from then till this day.

(Chorus)

So all you small creatures that live in this land  
Stay clear of the man with the poisonous hand.  
A few bales of hay might keep you alive;  
But he'll pay more to kill ya than to let you survive.

(Chorus)

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The musical notation is in 4/4 time and consists of three staves. The first staff contains four measures with chords Am, Dm, E7, and Am. The second staff contains four measures with chords C, G7, C, and Am. The third staff contains four measures with chords Am7, Dm, E7, and Am. The melody is written in a single line on a treble clef staff.

3. Interpret the song by discussing these questions with your class.
  - a. What is making the people scratch?
  - b. What natural factor was responsible for starting all the problems described in this song?
  - c. Diagram the food web that the song describes.

On your diagram, put an X on the names of animals that the people poisoned on purpose.

Circle all the other animals that died from eating the X animals.

- d. What is meant by the last line of the song?

### REVIEW QUESTION

If the herbivores were taken out of a food web by a disaster, what would happen to the producers? the carnivores?

### EXTENSIONS

- If people harvested all the carnivores in a food chain, what would happen? Is it a good idea to harvest all the carnivores?
- If a new organism came into the environment and held the same position in the food web as a native organism, consider all the possibilities of what might happen. Are all non-native species "bad" for the food web? Read about the impact of introduced plants and animals in your state's Sea Grant newsletter.